

CHAPTER 11

CONCLUSION

NEW PERSPECTIVE AND POLICY RECOMMENDATIONS

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11.1 WHY NEW PERSPECTIVE?

As highlighted in the preceding chapters, there is a good stock of theoretical and empirical knowledge, which has been generated over time to address various urban transport problems. Important policy insights have been drawn out of this knowledge base, which are further translated into a wide range of practical policy measures. Despite the fact that most of these policy measures were first worked out to respond to the urban transport problems in developed cities, they are equally useful and potentially effective to address the transport problems in Asian megacities. Many developing Asian megacities have made concerted efforts to address emerging urban transport problems. However, urban transport condition in these megacities is continuously degrading. Now the question is where does the problem lie?

There could be a long list of legitimate reasons on why policy process in developing Asian megacities is not as effective as we wish. In the preceding chapters, we attempted to answer this question first by examining the special characteristics of Asian megacities and their possible implications for urban transport policies. Next, we explored some theoretical and practical concepts in urban transport along with empirical evidences from selected cases of Asian megacities. The insights generated from the discussion in the preceding chapters show a great degree of convergence and, collectively, may constitute a “new perspective”. Indeed, the new perspective was generated when the policy implications of the special characteristics of Asian megacities were examined through the lenses of urban transport dynamics.

Also inferred from preceding chapters is that the special context of Asian megacities are creating unique set of challenges and opportunities for transport policy makers. The challenge here is how to customize policy measures from the existing knowledge base to better suit contexts of Asian megacities. We argue that by filtering the existing knowledge

and practical experiences through this new perspective, we can identify effective strategies and package of policy measures for developing megacities in Asia.

11.2 ELEMENTS OF NEW PERSPECTIVE

As discussed above, the new strategic perspective is less about discovering new kind of policy measures; rather, it is more about defining strategic approaches to apply to already known measures to better match the situation of urban transport in Asian megacities. What follows are the key elements of new strategic perspective for Asian megacities.

11.2.1 Framing urban transport problems appropriately

Urban transport problems involve multiple dimensions in terms of their causes and effects, and hence demand a wide-ranging approach to capture the complete picture of the problems, and possible solutions. What is important is to identify the core dimension of the problem, which may offer most effective policy leverage. However, there is a tendency of looking at the transport problems of Asian megacities through the lenses of developed western cities because of their long and proven experience in addressing such problems. Such tendency may produce distorted picture of actual problems, and greatly undermine the effectiveness of policy efforts as the situation is akin to seeking right answers to the wrong questions. What follows are some major areas which should be carefully assessed in order to frame the problem appropriately.

(1) Redefining the agenda of sustainable transport

The definition or goal of sustainable transport is equally valid for developing Asia. It is an important concept to change the mind set of decision-makers, but the mind set should be changed to right direction. In developing Asia, there seems to be some inconsistency while setting policy agenda to operationalize the concept of sustainable transport. The sustainable urban transport is mostly discussed with a narrow scope mainly focusing on transport emissions—which is an important issue but not the whole issue when we consider the case of Asian megacities.

Even though local and global environmental concerns are important for Asian megacities as well, the transport policy strategies should not be driven by environmental imperative alone. Unlike in developed cities, potential strategies promoting synergy exists between transport and environmental objectives in developing cities such as transit oriented development contributes to both transport efficiency and emission reduction. Priority should be first placed to reap such synergy which can be achieved by focusing on transport efficiency. When such scopes of synergy are exhausted, transport objective may conflict with

environmental objective and a judicious tradeoff may be in call. That is, at the early stage, environmental improvement should be achieved through transport efficiencies, which include not only operational efficiency but also structural efficiency. On the other hand, environmentally motivated policies, such as emission reduction policies, are quite legitimate but it should not be meant to drive overall transport policy. One example of such confusion is about more optimistic scenario of clean fuel and clean car technology and promoting these with public subsidies. It may appear to solve some emission problems in the short run, but it may create more difficult situation of “clean congestion” in the long run. The point here is that the environmental agenda in the urban transport sector should primarily be addressed through core transport agenda when there is scope for co-benefits. Such a shift in focus and emphasis is particularly important from strategic viewpoint as well. In the current international debate on burden sharing for reducing greenhouse gases, there is a great deal of skepticism over the perceived unfair burden on the developing world. This calls for more strategic approach to advance environment-friendly transport projects. For example, an urban rail project can contribute to both environment and transport objectives. As politicians value transport objective more than environment objective, projects promoted for transport objective can receive more political support.

(2) *Seeking balance between supply and demand sides*

In western cities, most of the transport problems and its associated environmental and social impacts are partly caused by excessive travel demand, and strategies for travel demand management feature prominently in their transport policies. In developing Asian megacities, the total volume of travel demand is increasing very rapidly but it is not due to excessive travel by individuals (in terms of number of trips or length). Rather, the principal driving factor for this increase is population growth (increase in size of cities) and economic growth (increase in prosperity), both of which are legitimate and desirable trends. Indeed, the rapidly increasing travel demand in Asian megacities generates many problems, but the root cause is the lack of infrastructure and services. Hence, focus should be more on supply side, such as provision of infrastructure and services. What is important, however, is to ensure right kinds infrastructure and services. Diverse and large scale travel demand in Asian megacities requires multimodal transport system, which offers opportunities to better address environmental and social objectives. On the other hand, there is no doubt on the importance of some kind of demand management measures even for developing megacities, in particular, strategies to minimize travel needs by promoting evolution of appropriate urban form (such as mixed use, compact, transit oriented etc).

(3) *Moving beyond what is feasible to achieve what is desirable*

One of the policy dilemma Asian megacities are facing is choosing between what is feasible and what is desirable. The practical imperative always requires choosing the feasible option while visionary approach demands choosing the desirable option. This dilemma is mainly because of practical constraint in capacity—be it institutional or funding. That is, under the existing capacity constraint, the desirable option is not feasible. Usually, a set of feasible options is generated for a given capacity constraint, which lead to a situation of choosing the best among the sub-optimal options. This is very much true in case of urban transport infrastructure in developing megacities which require a large upfront capital investment far beyond the existing capacity. As a result, developing megacities opt for low-cost and inferior solutions instead of desirable solutions. However, the question is that the apparent low-cost solutions in the short-run may impose higher costs to the urban economy in the long-run. What is therefore necessary is to explore alternatives to relax the capacity constraint if there is gap between feasible and desirable options.

11.2.2 Learning from the mistakes of developed countries

In the domain of transport policy, developed countries had to face many surprises, most of which were unfortunately unpleasant. As discussed in Chapter 4, urban transport system constitutes a complex dynamic system, which always involves risk of obtaining adverse results counter-intuitively from well-intentioned policy measures. In addition, developed countries in the past had to adopt a newly emerging technology or mode without knowing its full range of effects over the long run. The case of shifting policy perceptions on the use of private automobiles in the western cities is a case in point. At the first stage, spread of automobiles was supported by deliberate policies while at the later stage, automobile use had to be restrained with another round of policies. In the intervening period, the urban and transport structure, however, took much different shape than what policy makers now prefer particularly to support sustainable transport agenda. In western developed cities, the sustainable transport agenda therefore call for dealing with the negative consequences of past policy mistakes.

Fortunately, developing cities are now at much better position to avail whole range of policy options with adequate information. Accumulation of theoretical knowledge and practical experience allows them to evaluate the long-run impact of all policy options. As their urban systems are yet to be stabilized and there is a good scope for intervention at the structural level (such as integrated system of transport infrastructure), they are in a better

place to substitute the usual “reactive approach”—a compulsion in developed cities—with a “proactive Asian approach”.

11.2.3 Adopting dynamic framework with system approach for strategic insights

In order to identify effective policy measures, it is important to understand the evolutionary process of urban transport system. System approach helps to frame urban transport dynamics in a conceptually consistent and practically relevant manner. Most importantly, system oriented dynamic framework help in resolving several false dichotomies, such as short-run versus long-run, hardware versus software, public versus private, rail versus road and so forth which have, in one or other way, plagued the policy process in developing megacities. As discussed in the preceding chapters key implications include,

(1) *Balancing shorter-term and long- term objectives*

The static framework does not allow to fully examine the underlying interactions among different system components, which leads to framing policies for immediate relief without sustained impacts in the long run. This often implies that there is unavoidable trade-off between short-term and long-term objectives, which is erroneous. Dynamic framework makes it possible to understand the underlying system structure and interactions, which allows to identify more appropriate policy levers that can meet both short-term and long-term objectives.

(2) *Balancing hardware and software components*

Physical structure (transport infrastructure and other built facilities) plays a vital role in guiding the evolutionary process of urban transport system and, thereby, shapes urban form. Appropriate physical structure is also a prerequisite to maximize the effectiveness of software-oriented policies (such as institution and regulations). Many problems in the urban transport system have roots from inefficient physical structure. Since the spatial structure of developing Asian megacities is not yet stabilized, there is good opportunity to achieve an efficient physical structure. This would require revisiting the prevailing notion of downplaying infrastructure investment and placing over-emphasis on so called software approach. What is instead necessary is to place balanced emphasis on both hardware and software component of the urban transport system.

(3) *Identifying appropriate timing of policy measures*

The key word to characterize a dynamic system is changes over time or evolutionary

process. This means the same policy measure applied at different time stages faces different system structures and produce different results. As discussed earlier, there could be various underlying dynamics responsible for time sensitiveness for different policy measures. Appropriate timing of a particular policy measure should be judged by carefully examining how the measure interacts to the underlying dynamics.

(4) *Sequencing and packaging policy measure*

When the effect of policy measures transmits through feedback structure of urban transport system, it may generate many unintended positive or negative effects. Also there is always a possibility that the underlying goals of policy makers are resisted and overwhelmed by the implicit system goals. Possible anomalies because of such dynamics can be overcome by appropriately sequencing and packaging policy measures. As most policy instruments are intended to change the vicious cycles into virtuous cycles, or change the goal of goal-seeking system, the feedback diagram may provide useful framework to assess the effects of each policy measures, and then package them to produce optimum results.

11.2.4 Adopting a broader framework of integrated transport

Developed countries have a long tradition of debating the concept of integrated urban transport as a possible effective policy framework to achieve optimal urban transport system. However, as the physical structure of transport network and urban form had already taken a relatively stable shape, the concept of integration could not be operationalized with a broader scope and is mostly limited to operational level or the level of institutional reform only. Most importantly, in developed countries, the concept of integrated transport is discussed with a static perspective in the sense of integrating different components of existing transport system mainly through institutional and operational measures.

In contrast to the case in industrialized cities, the situation in developing Asian megacities offers good opportunities for operationalizing the concept completely. In particular, the evolving urban form and transport network are still at the early phase and there is good scope for achieving integration at the infrastructure level at an early stage to achieve an optimal structure. The relevance of the concept is therefore more important in developing Asian megacities. In fact, system-based dynamic approach allows functioning of the concept of integrated transport to its full potential.

11.3 POLICY RECOMMENDATIONS

Various strategic policy options and specific measures, which are considered appropriate for Asian megacities, have been discussed in their respective sections in the preceding chapters. Based on these discussions, a list of major policy recommendation has been drawn here to serve as a key message to policy makers. A note of clarification, however, is in order here. The list of strategies and policy measures is not intended to be an exhaustive one; neither the items are meant to be “fit-for-all-size”. Throughout the discussions in the book, the focus is on some underlying common threads that are the defining features of Asian megacities and the policy recommendations are intended to address broader policy issues, which are common in Asian megacities.

(1) *Urban roads and motorization*

- Urban road network should be expanded and improved but focus should be more on basic access with efficient hierarchical network than on high-speed infrastructure. However, given the existing low road space ratio and scarcity of urban land due to high population density, it may not be feasible and even desirable to provide adequate roads to accommodate the rising demand from rapid pace of motorization. Some degree of congestion in the streets of Asian megacities will be unavoidable, and therefore should be acceptable. The best strategy in this context should be to delink motorization from economic growth.
- With regards to the timing and sequence for different elements of road network development, first stage is for reserving and acquiring the right-of-way for major routes, second stage is for construction of basic elements of general road networks (radial and ring roads, secondary roads, and missing links), and final stage is for speeding up of the network (grade separation of intersections and expressway construction).
- Both regulatory instruments and market-based instruments should be utilized to restrain ownership and use of cars and motorcycles. Tax related control measures such as fuel tax should be implemented as early as possible (primarily due to possible resistance by stakeholder at the later stage).
- Motorcycle’s role in Asian megacities should be recognized and managed including parking management. Full control on motorcycle use may be politically difficult. However, shifting of motorcycle’s role from use in longer trips to shorter trips,

particularly as a feeder mode for mass transit may be possible and desirable.

- Parking regulation should be shifted from minimum parking to maximum parking criteria in order to remove possible distortion in terms of placing cost burden to other than car users.
- Because of limited road infrastructure and increasing trend of motorization, solutions for improving road traffic condition need to be sought outside of road sector as well mainly through the improvement in public transport, which can take pressure from off road system. That is about adopting the approach of integrated transport, which may need, among others, sharing of revenue from road related taxes by other modes as well.

(2) ***Public Transport***

- Both capacity and quality of public transport system should be significantly improved to make the system competitive and attractive to choice riders. The key strategy should be to change the image of public transport from “poor people’s mode” to an efficient, comfortable and reliable mode. For this, emphasis should be place on developing high quality public transport modes namely urban railways.
- Public transport network should be planned as a principal mode to serve the impending large-scale demand in Asian megacities. For this it is necessary to build a hierarchical network of urban railway, the major elements of which include express commuter lines, circular line connecting terminal stations of commuter lines, subways in the downtown, local service along commuter lines, light rails and mono-rails. Bus Rapid Transit can be added to the hierarchy to serve medium capacity corridor as a low-cost alternative.
- Timing of railway investment should be appropriately decided. Early investment may not be financially feasible while too late investment may face unfavorable land-use and thereby low ridership. A timing index computed for most Asian megacities suggests that it is already late to make subway investments.
- Urban railway should be operated under commercial principle as the demand density in Asian megacities would allow the system to operate profitably (with possibility of recovering part of capital investment). Since the size of megacities would provide market for multiple railway corridors, there is good scope of market

competition by horizontal division (different operators by lines) as is the case of private railways in Tokyo.

- Efforts should be made for innovative bus reform as buses play an important role as trunk service or feeder to railways. However, the long-term dynamics of urban transport market should be considered while adopting institutions for bus system. If market risks are taken by the public sector, the declining demand for bus service and increasing cost structure over time may significantly increase the burden of public subsidy in future. To the extent possible, private sector should be relied on for bus service.
- Bus Rapid Transit (BRT) system should be adopted giving due consideration to availability of road lanes, possible impacts on other road traffic, and, most importantly, capacity to serve the future demand.
- Para-transit's role should be recognized and the service should be made fully formal bringing them under regulatory regime.
- Fare should be harmonized among different public transport modes in order to ensure level playing field. However, flexibility should be allowed for differentiated fare for service level (by same or different modes) so that market could better respond to emerging demand. This also helps to ensure affordable fare for low-income users.
- Value capture scheme should be adopted in transit projects where possible. It is important not only to generate funding sources, but also to achieve coordination between railway development and land-use through market process.

(3) *Transport and spatial development*

- The over concentration of population in megacities along with widening regional disparity in developing Asia shows that the policies to promote regional balance may indeed be favorable to megacities as it can significantly ease the overwhelming demand pressure due to high primacy. Both transport and non-transport policy options should be opted for the purpose.
- The decentralization of population from metropolitan core to suburban areas should be organized along the pattern of decentralized concentration producing multiple

centers in the suburban areas instead of low-density sprawl. Transit oriented development could be most effective approach to achieve this.

- As the metropolitan core of Asian megacities covers quite an extensive area (around 600 square kilometers), the structure of mono-centric core should be changed into policy-centric core. Urban rail development along with other land-use policy can contribute toward achieving such structure.
- Given the relatively weak land use regulation in developing megacities, the process of spatial evolution should be shaped by railway development, which can instill a sense of stability in the system and encourage forward looking actors to invest in compact urban form along the railway corridors.

(4) *Mitigating transport emission*

- Both regulatory and market-based instruments should be utilized incessantly to reduce the transport emission.
- In developing megacities, it is important not only to adopt stringent emission standards but also enforce and monitor the actual performance.
- Unlike local emissions, greenhouse gas reduction requires more fundamental solution (since it relates with energy consumption). Fortunately, the context of developing megacities offers many opportunities to address this problem at deeper level of structure with potentially win-win results for both transport efficiency and greenhouse gas reduction. Emission reduction initiatives should also include such synergistic policies, such as transit oriented development.

(5) *Integrated transport system*

- Asian megacities have to develop multimodal system to serve diverse and large-scale travel demand. Each mode should be utilized for its competitive market niche to function as a part of a fully integrated multimodal transport system.
- All policy strategies and measures should be carefully examined for their possible impact or contribution to development of integrated transport system. For developing megacities, it is most important to develop infrastructure of different modes keeping overall system integration. This should also guide the timing and sequence of different infrastructure investment.

- The road and railway infrastructure investment should be properly sequenced to produce desirable effects through possible modal competition. In fact, investments for both roads and railway should be made simultaneously but emphasis should be different at different stages. As general public roads provide most essential basic access (including right of way for other infrastructure), this should receive priority over the urban rail development in the early stage. However, just before the motorization gain momentum, emphasis should be shifted to railway development. Expressways should be built only after completing major railway routes in order to tilt the balance for more desirable urban form.
- In terms of the travel costs to be faced by the users, balance should be achieved between public and private modes. Private mode with negative externalities should be subject to taxation while public modes with positive externalities may qualify for public subsidy, which should be for capital investment rather than for operation.
- Integration agenda should also be emphasized to develop hierarchical network of public transport system. While deciding on the choice of different modes to serve at the particular level of hierarchy, system capacity should be the primary factor since capacity constraint is likely to be a critical issue in future. In this context, policy makers in Asian megacities should carefully assess the mass transit options particularly in the context of ongoing debate of MRT versus BRT. BRT options should be considered as a low-cost and medium capacity transit mode to complement urban rail system rather than as a substitute for high capacity heavy rail.
- Operation of different public transport modes should be integrated at route planning, scheduling and fare setting and collection in order to provide seamless service to the users.

(6) *Institutions and funding*

- Some form of organizational set up covering functional metropolitan area is necessary to coordinate planning, development and operation of urban transport system.
- For specific institutional setup for projects or service operation, to the extent possible, a market-oriented approach with provision for strategic planning intervention (by public authority) should be preferred in order to utilize the strength

and creativity of private sector. The large size of the transport market in Asian megacities allows for more competitive environment for service operation, which should be fully utilized.

- Regarding funding and financing, there should be clear understanding among policy makers on the distinction between funding and financing. Financing instruments are just for leveraging future stream of revenue for upfront investment, which needs to be paid back, while funding (such as user's fee, tax etc) is the something that takes ultimate burden of costs. In developing megacities, what is most critical is to secure adequate funding before exploring financing (such as private equity or borrowings). Otherwise, the funding burden will ultimately falls on government tax revenue (by virtue of government guarantee for pay back loans).
- Range of potential funding sources that are appropriate for urban transport investment have not yet been fully utilized in Asian developing countries, which includes earmarked fuel and vehicle taxes, property taxes, other special taxes, and value capture. In case of earmarking, the fund should not be exclusive only for road expenses, but should be allocated to other modes as well, such as public transport and non-motorized modes.