Chapter 5

Major Findings and Policy Recommendations

This chapter should be cited as
Kutani, T., Y. Sudo and Y. Li (2015), 'Major Findings and Policy Recommendations', in *Energy Efficiency Improvement in the Transport Sector through Transport Improvement and Smart Community*. ERIA Research Project Report 2014-31, Jakarta: ERIA, pp.83-90. Available at: http://www.eria.org/RPR_FY2014_No.31_Chapter_5.pdf

CHAPTER 5

MAJOR FINDINGS AND POLICY RECOMMENDATIONS

1. Policy Recommendations

As part of the study on energy-use efficiency in the transport sector, the analysis here has looked at how shifts in modes of transport can improve the urban transport system. The review of past research done on various cities indicated that the failure of policies to address urban transport issues can bring about economic loss as well as allow traffic problems to persist.

This study extolls the ability of pre-emptive measures, when chosen well, to prevent the deterioration of the traffic system. However, as there is no precedent literature, this study has anticipated that some cities may have difficulty in formulating proactive countermeasures. Thus, its policy recommendations pertain to these four steps on how to formulate effective preventive measures:

- Identifying future traffic problems and making the issues transparent to the public
- Setting of countermeasures for the transport sector as part of urban planning
- Securing financial resources and formulating sustainable policy mix
- Sharing of values and collaborating with citizens and companies.

1.1. Identifying and Sharing of Data

As described in Chapter 3, countermeasures for traffic problems tend to fail due to the traffic congestion trap. Such failure may be because (1) there is no potent incentive to solve traffic congestion until it becomes serious; (2) while the main causes of traffic problems are population and economic growth, traffic congestion involves various factors, and discovering the direct causes is no simple task when indirect factors also come into play; and (3) new countermeasures often cause conflict or friction with the existing systems and in many cases are ill-received by the people, resulting in failure to obtain such citizens' consensus.

History proves that implementing countermeasures only after the traffic congestion has emerged poses major difficulties. However, it does not mean that proactive measures are easier to implement than reactive means. When traffic congestion brings mental stress to commuters, this in itself is incentive enough for policymakers to come up with reactive measures. Meanwhile, proactive measures are generally implemented even in the absence of some exigent incentive, and therefore require stronger political will to put forth. When there is no obvious/immediate incentive or where no problem is sensed, it is difficult to make the public understand the rationale behind proactive measures against traffic congestion. Add to that, most policies incur huge costs, making it more difficult to get the public's consensus.

What is required therefore as a first step is to clarify the probability of traffic congestion—and its concomitant inconveniences—occurring in the future. Since data clearly show the link between per-capita GDP and vehicle ownership ratio, it is possible to predict the future vehicle ownership ratio by applying the population forecast. Combining this with other data such as road capacity can indicate the 'time' and 'scale' of traffic problems that may occur.

This study urges the formulation of preventive measures to proactively avoid problems. The irony here, though, is that this is like fighting with an invisible opponent and that the anticipated problem may not surface if things go well. Sceptics can even claim there was no problem from the beginning. Since one is not dealing with a problem that needs immediate resolution, how to discern potential and relevant problems way in advance is crucial. When problem identification is unclear, the possibility of countermeasures becoming irrelevant to the actual problem may be high. To maintain the consistency and appropriateness of countermeasures, it is also necessary to clarify with and state the problem clearly to relevant stakeholders (including the public), and to maintain this communication link with them until the end of a project.

Proposed countermeasures against traffic problems also benefit from quantitative analyses. For instance, in Chapter 4, quantitative values illustrate the effect of feeder networks on the modal shift in the transport sector and the limitations in the effect. In reinforcing the rationale behind any concept, numbers can effectively tell a story. It is thus possible to come up with robust countermeasures when numbers support the concept and, conversely, when concepts validate the accuracy of the calculations. In formulating

preventive measures, the quantitative approach makes it possible to discover bottlenecks and avoid excessive investment.

1.2. Setting Countermeasures as Part of Urban Planning

Once future problems are identified and shared, it then becomes necessary to formulate countermeasures. While numerous measures against traffic congestion are highly flexible, it can be said that there are two measures that belong to opposing ends of the spectrum. One axis is the automobile society type, which aims to decentralise cities to avoid traffic congestions while pushing for the use of cars as well as pursuing improvement in road conditions in terms of capacity and speed. The other axis is the high-density compact city, which prompts modal shifts in transport by controlling the use of cars.

The automobile society type offers the possibility of avoiding traffic congestion; but addressing the traffic needs of private cars only is disadvantageous in terms of energy efficiency as well as cost incurred in infrastructure development. This method is theoretically applicable to medium-scale cities.

The high-density compact city type offers an infinite number of policy combinations; yet since it is based on the premise of modal shift, it requires government's determination to replace the use of private cars with other modes of transport. Whereas the development of public transport system is a common method to resolve the issue, planners can formulate policies centring on bicycles and walking, too. In reality, it is impossible for all traffic demands to be addressed by one mode only; modal shifts occur by resorting to multiple modes. In any case, modal shifts can happen only if alternative modes are already in place before the plan is implemented. Otherwise, residents will have no choice but to ride their cars even if various policies discourage car use.

In reality, the solution to traffic problems is highly unlikely to be so extreme such that no cars will be allowed to ply the streets; measures from both axes may be used in combination. However, these policy types have many conflicting areas, and attention needs to be paid to the fact that it is not easy to use them simultaneously. Effective development of policies may require some contrivances, such as addressing the matter by sectioning the area.

Detailed planning of the public transport system means figuring out the best routes

and networks, taking into consideration the future traffic scenario. A city prior to the introduction of a new public transport system has its unique structure and, early on, would not have foreseen nor anticipated the emergence of such a transport system. Its structural inter-era disparity may lead to incompatibility between the city plan and the planned transport system. This incompatibility has a physical aspect and an economic aspect, and cannot be resolved without changing the structure of the city. There is no need to plan a new replacement transport method to match the current pre-modern structure of the city; it is more sensible to reform the city so that it can accommodate the new/replacement transport system instead.

Whereas a compact city is extremely effective in reducing the traffic demands and promoting the efficient use of public transport, creating one essentially requires urban planning. Likewise, addressing traffic problems requires urban planning. Some of the future traffic problems may be avoided through urban planning and social change such as the modification of lifestyle, in addition to placing homes and workplaces close to each other and suppressing urban sprawl.

In general, large cities have a major commercial district at their centres, and areas with relatively high population density are automatically developed around it. Except for some US-type cities with excessively advanced urban sprawl, the central area often becomes a highly dense location with a large absolute population. Such areas are prone to severe traffic congestion, and are therefore good candidates to transition to a modal shift type society. On the other hand, medium and small cities have a lower population, tend to use land sparsely, and possibly fall into a situation where there is no central area if they have no clear development plan. Medium cities with no strong core may be required to deliberately carry out highly dense compact city-type urban planning.

Addressing traffic problems directly translates into urban reform. Only when the city has a clear vision can the design and strategic development of the public transport system be part of its function. Since post-incident, remedial measures against traffic congestion often do not have the luxury of time to be implemented along with urban reforms, this is where preventive measures for the transport sector have an advantage.

Traffic management should be connected with urban planning. The proper functioning of a new transport system requires a ‘new city style’, which refers not only to the townscape and sectioning but to the mentality and lifestyle of the residents as well. As

mentioned above, proactive measures for traffic issues are different from post-incident, remedial measures for traffic congestion. In practice, planning of proactive measures is urban reform itself as well as the process of creating a new city instead of coming up with mere solutions for problems.

1.3. Securing Financing and Formulation a Sustainable Policy Mix

When urban planning and planning for the replacement transport system have been completed, the next step is to formulate policies that support the plans. It must be noted that urban planning and construction/maintenance of public transport system all involve costs. Regulatory policies incur massive costs in operations and, in some cases, can affect the economy's optimal efficiency; there should be extra attention therefore when implementing policies.

Traffic policies can be divided roughly into two viewpoints. One viewpoint is that traffic congestion can be controlled by manipulating traffic demand. Such can be effected by eliminating, reducing, replacing, or shifting demand. Modal shifts mainly work for demand replacement although, in reality, it may be more appropriate to describe it as a combination of demand replacement and demand reduction. *Demand reduction* mainly asks for ideas outside of traffic policies (e.g. placing homes and workplaces close to each other through urban planning and promotion of SOHO). *Demand replacement* hopes to alleviate congestion by improving traffic mobility. For instance, building of multi-level crossings, road width expansion, and regulations on on-street parking are policies formulated from this viewpoint.

There are three points to note on the operation of traffic policies. The first point is to pay attention to the side effects of traffic policies. This includes economic loss caused by reduced transport mode options arising from taxation and regulations. The second point is to consider policies as a package and not as stand-alone policies. An individual policy is powerless or unreasonable by itself and worthless. The third point is to secure political flexibility. Solutions to traffic problems should not have rigorous goals such as the complete elimination of automobiles. Policies shall always include a system that allows some adjustments to given situations. Additionally, because of the nature of automobiles as an asset, policymakers should be aware of a possible time lag that may occur before the

outcome of policies is felt.

Table 5.1: Countermeasures for Traffic Congestion

	Traffic demand		Traffic mobility
Rid	Work at home Phone conference	**Road capacity**	Road width expansion Lane addition
Reduce	Placement of homes and workplaces in close proximity Gasoline tax	**Road structure**	Multi-level crossing Road linearisation
Replace	Public transport system Development of sidewalks	**Other**	Drainage measure / Electronic Toll Collection Illegal parking regulations Advanced technical requirements for driver's licences Driving manner activities
Shift	Flexitime Dispersion of days off		

Thus, when developing a tax system and other systems for policies related to countermeasures for transportation, it is important to establish first a legal and sustainable fund collection system from automobile users. It is required to obtain a clear view of the transport structure and create contrasts in the operation of regulatory measures, while ensuring to limit the application of regulations to areas with serious traffic congestion or external diseconomy, for instance.

1.4 Sharing Values and Collaborating with Citizens and Companies

The end goal of traffic policies is not formulation but effective implementation. Therefore, sharing values with citizens and local companies that accept the policies becomes important. This involves enhancing citizens' understanding of the urban planning and traffic policies. Getting these stakeholders' engagement and cooperation makes it easier to be of the same mindset and minimises resistance.

The directions for the city, the future development plans, and the vision are examples of values that shall be shared with citizens. All must understand that traffic congestion, although undesirable, occurs as population grows and income levels increase. Herein lies the connection between urban planning of growing cities and traffic policies. When implementing preventive traffic policies from this perspective, it is important to allow a paradigm shift on how to look at problems, changing one's view of solutions from 'proactive measures or reactive measures for traffic problems', to one that involves a more positive, creative perspective (e.g. 'create an ideal city of the future'). Also, in urban planning, each policy may sound staid and lack the persuasiveness needed if the framework of the problem remains at the level of traffic measures.

Solving traffic problems generally pertains to alleviating diseconomy and dissatisfaction—i.e. where a certain negative situation is the reference point in principle. Traffic congestion as a side effect of social development is nothing but a waste of the society, and people do not get easily motivated to clean their waste, albeit necessary to do so. Therefore, by taking advantage of the above-mentioned paradigm shift, one can regard mere waste cleaning as a project to enhance the added values. For example, public transport itself is a value. More comfortable and faster travel is another value.

2. Future Issues

Thus, the above discussion can be summarised as: First, predict the 'scale' and 'time' of the problem and clarify the problem before implementing proactive measures. Next, acknowledge that urban planning forms the basis for the continuous development of the city and formulate a public transport plan with the help of quantitative analysis. Then, secure financial resources and build a system that will sustainably implement the traffic

policies. Lastly, rebuild the policy framework from one that merely aims to prevent traffic problems into one that aspires to realise the long-term direction and goal of the city, and execute the policies by promoting shared values with citizens and local companies.

As indicated in Chapter 3, to proactively avoid traffic problems that are 'structurally automatic' in a sense, it is important to always refer to the mid- to long-term development goal for the city and bank on these three points: ability to anticipate and identify problems, persuasive goal setting, and execution capability.

Future studies on this subject may focus on the actual implementation of traffic policies rather than discuss the traffic issues at the conceptual level only. Examples of these studies are:

- Study on individual policies – Tax system, licensing system, automobile regulations, urban planning
- Management of the public transport system – Public–private relationship, management strategy, financial strategy, investment strategy
- Operation of the public transport system – Fare setting, headways, public relations strategy, services
- Study on road traffic – Road structure, traffic light functions, sidewalks, drainage, smart functions

Since traffic issues are addressed by a combination of policies, one ineffective policy does not automatically mean the entire exercise is a waste. A detailed look at each policy may identify better combinations and improve the latter's effectiveness. Conversely, future studies may also analyse how packages of traffic policies have been implemented by extracting the common and persistent issues and analysing the methods used to deal with bottlenecks.