Chapter 5

Policy Recommendations and Next Steps

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CHAPTER 5
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Policy Recommendations

This study aims to improve energy efficiency in the transport sector, which has been analyzed primarily in terms of improving the automobile traffic situation. In this analysis, we examine existing initiatives and policies developed in countries across the world, and have selected Jakarta of Indonesia as a model city for its case study to undertake a quantitative analysis of the transport situation in the city using a simulation model.
Based on the results of the above analysis, we would like to set out the three following statements as policy recommendations of the study:

1) the need for urban transport to be part of energy policy,
2) the need for comprehensive measures, and
3) the importance of long-term planning.

The need for urban transport to be part of energy policy

Traditionally, discussion on energy saving in the transport sector has centered on increasing the efficiency of mobility itself. This has meant, for example, discussions on increasing the use of automobiles with improved fuel efficiency, such as hybrid and electric vehicles. Yet whilst improved fuel efficiency in automobiles does indeed contribute towards improved energy efficiency in the transport sector, given the enormous stocks of existing vehicles, the effects of such changes are likely to take longer. Moreover, trends in the technological development carried out by automakers or the taste and purchasing power of consumers will affect, and sometimes even limit, its effect.

Meanwhile, the chronic traffic congestion which has become a salient issue in large Asian cities has become another factor pushing up the oil consumption by automobiles. No matter how efficient the automobiles, the actual level of fuel efficiency plummets when drivers are unable to drive at a speed any faster than walking pace.

This means that improving the efficiency of vehicles themselves is not sufficient for improving energy efficiency overall; creating a city where there is no significant traffic congestion enables cities to minimize energy consumption in urban transport.

In addition, the use of the MRT is a crucial element for improving overall energy efficiency in the transport sector. Shifting transportation demand away from private cars and towards the MRT can cut energy consumption, particularly in the central areas of large cities where the demand for transport is high. This reduction comes not only from the fact that the energy consumption per unit of person and per kilometer is lower for the MRT than for automobiles, but also from the fact that the reduction in the number of automobiles on the roads allows the remaining automobile traffic to move more smoothly.

As set out above, improving the urban traffic situation is essential for improving the energy efficiency of the transport sector. In other words, this means widening and extending roads to meet transportation demand, improving those transportation intersections which appear to be causing congestion, and developing MRT infrastructure such as subway systems.

One area that needs to be discussed is the question of whether the energy efficiency policies that have been developed up to now in the region have been properly connected with urban traffic issues. In most countries, the ministries for energy and for transport are separate; in many cases, insufficient countermeasures have been developed for the crossover area of these two ministries. What is more, although the domain of urban planning also impacts energy demand in the transport sector (through, for example, policies for locating residential areas close to the places where people work to minimize the demand for transportation itself), it seems that urban planning

and transport policy have not been connected sufficiently. Awareness of how important it is to resolve urban traffic issues also appears to have been lacking across Asian cities, despite the fact that solving this issue is key for putting energy-saving measures into practice.

As the results of this study show, raising the energy efficiency of the transport sector is closely bound with improving the urban traffic situation, and neither of the two can be considered in isolation from the other. It is important to think of urban traffic issues as an essential component of energy issues, and to set out appropriate policies for dealing with them.

The need for comprehensive measures

Developing a 'comprehensive policy package' is essential if cities are to improve energy efficiency in the transport sector. The key phrase, ASIF or Avoid–Shift–Improve–Finance, can be used to break down such multilayered policy measures.

'Avoid' refers to measures which are developed from the urban planning stage for minimizing transport demand itself. 'Shift' describes measures which functions to shift traffic from automobiles towards the MRT such as rail and bus. 'Improve' refers to measures that improve the fuel efficiency of automobiles themselves. 'Finance' describes measures which aim to provide the funding necessary for making all of the above measures a practical reality.

Improving the accessibility of public transport is crucial for achieving the 'Shift' policies which are the subject of the analysis carried out this year. In concrete terms, it is easier for people to use public transport if they are able to reach a railway station or bus stop in 10–15 minutes on foot or by bicycle. To make this a reality, it is essential to develop/extend a dense network of public transportation and create an environment that allows people to walk to the relevant facilities in comfort.

At the same time, it is also important to make public transportation more attractive as a means of transit. One point that became clear from this case

study was that the length of travel time exerts considerable impact on consumers' choice of the mode of transport. In addition, since economic feasibility is obviously also an important factor, making public transport more attractive in terms of cost compared to using automobiles will also be effective in boosting use, provided that prices are set at a level ensuring that the system can still be run sustainably.

Finally, the role played by finance cannot be ignored. Although as a general rule the funds required for transport projects are procured exclusively from individual countries or companies, in some cases it can be difficult to procure all the necessary funds from such sources due to insufficient credit capacity relative to the level of investment required. In such cases, involving an international financial institution which seeks to realize national and regional development as its objective can provide considerable momentum to the project. The involvement of an international financial institution not only provides a source of funding but also increases the credibility of the project itself.

In general, operation of public transport systems should be self-sustainable with their own fare revenues. However, if there is a need to keep finances from deteriorating in the initial period following the start of operations, or if it is recognized that lowering fares could be effective in terms of encouraging a shift towards the MRT, the temporary injection of public funds is also one possible option.

Although these measures can function as standalone policies, combining several policies together can make them function better. For example, it is possible to mandate the use of parking lots and raise usage charges as policies for minimizing automobile traffic; however, unless such measures are accompanied by the provision of public transport which can be used instead of automobiles, the volume of automobile traffic is unlikely to decrease. By contrast, providing relatively inexpensive public transport (subways, buses, etc.) as a substitute for automobile travel at the same time as introducing parking regulations for automobiles can greatly encourage a reduction in the use of automobiles and a shift towards public transportation.

This should make it readily evident that it is vital to introduce a number of policies at the same time to increase the effects that each policy aims at. The challenge here is the issue of organisation. Entities responsible for energy policy and entities responsible for transportation/urban planning both need to work together in formulating and executing ASIF policies. Central and regional governments also need to work together on these issues. Given the considerable length of such partnerships and the difficulty in coordinating them, such projects need to be driven forward under robust leadership, inclining towards the top–down style.

Table 5-1: Policy Options under the ASIF Approach

Avoid	To reduce travel demand by integrating land use planning and transport planning to create city clusters that require less mobility and reduce transportation demand.	・vehicle registration fees/tax ・license plate fees ・mandatory vehicle insurance ・road pricing ・parking fees
Shift	To utilize alternative modes of transport, such as MRT systems, rather than passenger vehicles. Mass transit systems include buses, rails, and subways, where energy use/CO_2 emissions per passenger/kilometre are theoretically lower than those of passenger vehicles.	・MRT systems ・BRT systems ・improving feeder bus services ・improving multi-modal transfer through comprehensive tariff structures
Improve	To upgrade the overall efficiency of urban transport through vehicle efficiency based on technological innovations, policy measures to manage road traffic, and the use of information technology.	・Fuel economy improvement ・Alternative vehicles (electric, compressed natural gas [CNG], and fuel cell vehicles) ・intelligent transport systems ・incentives or regulations
Finance	To offer a monetary base for developing and improving transport-related systems. Various taxes are available as possible	・fuel tax ・congestion pricing

	options, and the revenues can be allocated to road improvement or upgrading public transport.	・environmental tax ・vehicle registration taxes ・license plate bidding ・parking fees

c. The importance of long-term planning

Looking at case studies from Asia's major cities, it appears that the demand for transportation grows rapidly once cities are at the certain stage of economic growth and urban development. Transportation demand is increasing at a rate that is outstripping the formulation of policies and development of infrastructure, resulting in considerable traffic congestion in cities, energy wastage, and even economic losses.

It is reasonable to suggest that one factor behind this is that cities have been overly optimistic in projecting future developments in their traffic situation, and have lagged behind in terms of policy formulation and planning. For example, given how long it takes to build large-scale roads and develop subway systems, it is obviously not good enough for cities to wait until the situation has become critical and then try to deal with the problems through stopgap measures. Rather, cities need to look ahead to the kind of changes that are likely to take place in the future, and put preventive measures in place to ensure that the situation does not become intolerable. As preventive measures, such policies bring few immediate benefits and may face considerable opposition at the time when they are decided. Nevertheless, as transportation/urban planning are intimately bound with energy consumption, it is absolutely vital that they are approached from this kind of long-term perspective. Needless to say, the formulation and execution of long-term plans are also elements which are impossible to bring about without strong leadership.

More precisely, cities need to draft step-by-step plans and measures, and set out timelines for putting these into action. For example, rails and subways have the advantages of high transportation capacity and high speed; these also

require considerable initial investment and carry major risks if the projected numbers of passengers are miscalculated. Given this, the BRT, which uses existing road infrastructure and which can be introduced relatively quickly and at relatively low cost, can be an attractive mode of public transport infrastructure for the short to medium term. For this reason, one suggestion is to introduce the BRT initially as a stopgap measure for the short to medium term, and then bring in rail transit later on as the number of passengers increases. However, in large cities such as Jakarta whose entire metropolitan area houses a population of around 10 million people, it makes more sense to move forward with developing rail transit at an early stage, since it is self-evident that the BRT alone will not be able to cover passenger demand in a city of this size.