LOGISTICS AND INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) POLICIES IN THE ASIA-PACIFIC REGION*

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1. Introduction

This paper assesses the impacts of various organizational structures on transport planning and ICT policy development. A discussion of the transport policies in Asia-Pacific countries; the organizational structures established to manage these policies; and the relevant policy instruments applied to achieve these policies is used to make comparisons and draw conclusions concerning transport policy development.

The level of involvement towards transport planning and ICT policy development is a consequence of each country's organizational structures and existing institutional arrangements. Once transport policies are put in place, countries can develop proper policy instruments to accomplish their respective government mandates.

2. Change in the Concept of Logistics

A new concept called *social logistics*[1)] has emerged in recent years (Table 1). The objective of social logistics is to optimize the social benefits of freight transport players, such as shippers, transport service providers, consumers, and government, through initiatives by both private and public sectors. Infrastructure-based logistics and activity-based logistics are necessary to achieve social logistics. Infrastructure-based logistics refers to the provision of physical infrastructure, as well as information and institutional infrastructures. Activity-based logistics, on the other hand, refers to the efficient management of logistics activities in order to minimize externalities and minimize the use of resources through the promotion of reusing and recycling initiatives.

Table 1 Change of the logistics concept

Type	Objective	In charge	Activity	Benefit
Military logistics	Country management	Military	Country activity	Benefit to country
Business logistics	Business optimization	Business Owner	Business activity	Business Profit
	Business = Minimize cost of freight movement + Maximize value addition			
Social logistics	Social optimization	Government, private citizens	Social activity	Social Benefit
(Infrastructure-based)	Infrastructure = Physical Infrastructure + Information Infrastructure + Institutional Infrastructure			
(Activity-based)	Green logistics = Minimize environmental externalities (pollution, etc.) Reverse logistics = Minimize use of resources (reuse, recycle, etc.)			

(1) Infrastructure-based logistics

An efficient freight movement needs physical, information and institutional infrastructure support. First, physical infrastructure can be achieved by a mixture of policy approaches that include both supply side and demand management measures. Second, it is important to provide the necessary information infrastructure that will integrate logistics systems and coordinate logistics operations to facilitate the movement of freight and will ensure minimum interruption and wasted time. And thirdly, institutional infrastructure associated with the formation of institutional measures on logistics is necessary, such as the development of guidelines for the use of information systems to simplify required documentation of freight information.

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(2) Activity-based logistics

Environmental problems have become more serious from the increased volume of transported freight and the increased amount of waste generated by increased packaging requirements. It is desirable therefore to formulate policies that will attempt to modify consumer, manufacturer and logistics company's logistics activities and behaviours to take the environment into consideration. These instruments should aim to minimize externalities to the environment and to minimize the use of resources through the promotion of reusing and recycling initiatives. In recent years, a large number of firms have introduced innovative programs for fuel savings to reduce costs. They have begun to cooperate with other firms and government authorities to reduce the number of commercial vehicles in cities while also satisfying their client's demands.

3. Institutional Arrangements to Support Transport and Logistics

In most developing countries, transport responsibilities are spread among many agencies. Thus, difficulties and problems in inter-agency coordination are common. Some developed countries such as Japan and Singapore have one principal agency to coordinate all efforts in the transport sector including Intelligent Transport System (ITS) development. Also, only few countries have specific logistics units within their transport organizations. Countries with dedicated logistics units apparently have more explicit and focused logistics policies than those with none. For example, the developed countries of Japan and Korea have incorporated within their principal Transport Ministry separate logistics units to take care of logistics policy formulation. In other countries, logistics and freight transport issues are left to a limited number of personnel within the planning division.

Countries in transition such as Cambodia, Laos, Myanmar, and Vietnam, which are recovering from the effects of war, focus their transport policies on the reconstruction and rehabilitation of major road links. A big share of their budget is thus committed to the improvement of road infrastructure. Policies on logistics in these countries, if existing, are still very basic. In fact, transport policies have merely focused on basic passenger and goods mobility. The developing countries of China, Indonesia, Malaysia, the Philippines, and Thailand have implicitly set their logistics policies in their Development Plans. Policies have focused on logistics infrastructure improvement, particularly towards intermodal transport.

4. Institutional Arrangements to Support ICT

The lack of focus in ICT efforts in many countries may be attributable to the absence of a principal agency involved in the development of ICT. As a result, some countries have recently reorganized their National Administration to include a department that will be responsible for all matters concerning ICT and ITS development. Other countries have followed their lead and are in the process of establishing their own ICT agency.

Countries in transition still do not have any major application of ICT in transport, let alone in logistics. For developing countries, there are a number of ITS applications in the form of computer controlled traffic signal systems, computerized expressway monitoring systems such as variable message signs and traffic detectors, and electronic toll collection systems. Some of these technologies, nevertheless, are still in the introduction stage and its application is not as comprehensive when compared to more developed countries. However, most of the developing countries have recently passed laws governing e-commerce. It is expected that ICT applications in logistics, such as Electronic Data Interchange (EDI) and electronic transactions through the Internet, will become popular in the near future. All developed countries, on the contrary, have formulated and passed their own laws concerning the promotion of ICT in trade, logistics and transportation.

5. Logistics Policy Instruments

The various Asia-Pacific countries use a variety of instruments to implement their policies on transport or logistics. These include regulatory and legislative measures, as well as economic measures, such as pricing and subsidies. The overall policy objective set by each country determines the type of policy instruments used. For example, countries that prioritize transport efficiency have focused their policy on the provision of infrastructure, such as improvement of road links and intermodal facilities. They do this through either direct government funding or financial incentives to transport operators to encourage the development of intermodal terminals. In contrast, countries that put priority on environmental objectives have focused on economic instruments such as taxes and charges, regulatory instruments such as vehicle restrictions, and giving subsidies to companies that use low-emission vehicles for their logistics operations.

However, one problem experienced by developing countries is the inadequacy of their urban roads to accommodate heavy vehicles used in distribution. Developing countries thus tend to favor regulations related to truck weights and dimensions. These initiatives discourage the use of heavy trucks in certain hours of the day to decongest urban roads and to ration limited road space to public utility vehicles and private cars.

(1) Road infrastructure improvement

A majority of the in-transition countries are exerting their efforts to rehabilitate their road transport infrastructure. In particular, countries such as Cambodia, Laos, Myanmar and Vietnam have focused their reconstruction efforts by developing basic road networks. Developing countries, on the other hand, have continued to improve their road links, as well as the basic nodal points for transfer.

(2) Freight terminals

Public truck terminals had been proposed in several Asian cities as alternatives to help alleviate traffic congestion, and to reduce costs related to the environment, energy, and labor. They have remarkably been utilized to solve physical distribution problems in large urban areas of Japan and Korea. In developing cities, although past studies on the development of such facilities had been done in Jakarta and Manila, their implementation had suffered long delays due to problems in funding, land acquisition, and some opposition from the trucking industry. In Manila, truckers had opposed the development of public truck terminals, and suggested that the government should focus their attention and investments in more urgent issues such as road development, provision of adequate off-street loading/unloading facilities, and strict enforcement. In Bangkok, public truck terminals have been constructed and are administered by the Department of Land Transport (DLT). However, projected users of the terminals have not been very supportive of the new freight facilities as the current usage rate is extremely low. Critics have raised issues of the suitability of the location of the terminals since they are located too far from the city center.

(3) Truck restriction

A number of cities in developing countries (e.g. Bangkok, Jakarta, Kuala Lumpur, Manila) and developed cities (e.g. Seoul), prohibit large trucks from traveling along major roads or entering the city center during peak hours. There are complex rules allowing some access on designated routes, but the general effect is to push truck arrivals and departures into the night. Large truck restrictions are implemented in developing cities mainly as a road-rationing measure. However, the truck ban has caused other problems wherein congestion has been transferred to the city borders where long queues of trucks are observed waiting for the end of restricted time periods for entering the city. It is also believed that small trucks not covered by the ban had replaced large trucks during peak periods. Bangkok, for instance, has been experiencing high annual growth increases of 10 percent, and Metro Manila, 14 percent[2)] in the registration of small freight vehicles during the last decade. Thus, it may be that the effect of the truck ban is to worsen congestion in peak hours.

(4) Intelligent Transport System (ITS)

At present, the less developed countries have no significant application of ITS. Some developing countries have a few applications of ITS and these are largely confined to control systems for expressways, including toll roads, and fairly simple Area Traffic Control (ATC) systems. Japan has pursued ITS technologies since the late 1970's and now leads the world in many ITS areas, particularly in-vehicle information systems and computerized traffic control centers. Also, Singapore has ITS applications equal or better than most Western countries and these include Electronic Road Pricing, sophisticated ATC systems, freeway congestion management systems, and vehicle positioning systems for fleets such as taxis and trucks. Meanwhile, Korea has made great efforts to establish and implement ITS projects to reduce traffic congestion and increase safety. One of its sub-systems under the Integrated Logistics Information System (ILIS) is the development of Commercial Vehicle Operation (CVO) designed to reduce transportation costs and improve efficiency and safety of freight and fleet operations.

(5) E-commerce

Recently, all sixty-one member countries of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) have adopted a joint declaration to promote e-commerce as a means of boosting development in the region and called for urgent action to narrow the digital divide. The "Declaration on Electronic Commerce and Development" calls on governments to support and facilitate national e-commerce policy and strategies that would bring the region in line with global Internet connectivity and trade.

(6) Electronic Data Interchange (EDI)

The Asia Pacific Council for Trade Facilitation and Electronic Business (AFACT) is a group that actively

promotes and encourages the use of EDI standard messages among various countries. In Indonesia, there were more than 2,300 institutions actively implementing EDI to support their business as of August 2001. In Korea, the number of companies using EDI has steadily increased with the enactment of the Legislation on Trade Automation in 1991. The Ministry of Commerce in Thailand, meanwhile, has been working on an EDI project concerned with "Issuing import and export certificates by using EDI" in three stages. Likewise, the number of EDI users in the Philippines has increased due to the EDI Promotion Program conducted by the Garments and Textile Export Board to encourage garment exporters to process their documents through EDI. With the e-commerce law now effective in these countries, Customs has launched efforts to align their systems and procedures accordingly.

(7) Cross-border facilitation

An agreement to facilitate cross-border transport was completed between Laos, Thailand and Vietnam in November 1999. The "Agreement for Facilitation of Cross-Border Transport of Goods and People" is a comprehensive agreement covering cross-border procedures, such as single window and/or single inspection of passports, visas, taxes, quarantine, driver's licenses, and vehicles. This also includes the exertion of efforts to perform pre-arrival customs clearances, and authorization on mutual cross border passing of trucks.

6. Logistics Policy Trends

The focus of logistics policies has changed from large-scale infrastructure actions to managing the existing transportation or logistics system resulting in a more social-oriented emphasis. Most of the policy instruments were initially directed towards relieving traffic congestion in urban areas. These essentially focused on the development and improvement of the physical infrastructure, such as provision of road networks, freight terminals, and truck parking facilities. Logistics infrastructure has been gradually improved with new policies that promote the development of information infrastructure combined with the provision of adequate institutional measures on freight. Recent logistics policies have started to focus on activity-based logistics that put importance on environmental objectives. For example, policy instruments that encourage the efficient management of logistics activities include the use of advance information technology, and forming partnerships of logistics companies to promote joint collection and delivery efforts.

Apparently, financial resources greatly affect the approach of adapting policy instruments for logistics. The preference of developing cities has been to focus more on the development of transportation systems for person-trips rather than freight-trips. In addition, because logistics in developing countries is primarily considered a private sector activity, government support, funding and research are extremely limited. Hence, this neglect of the government has resulted in unavailability of accurate data, which results in freight transport not properly incorporated into the final master transportation plan. As a result, developing countries have been forced to apply low-cost measures for the time being through the use of demand management, such as the very controversial policy of banning trucks in urban areas, to alleviate traffic congestion.

7. Conclusion

Governments encourage logistics and ICT applications in transport in different ways. Some countries have clear policies on logistics and ICT visible in formal policy documents, either specifically on logistics or ICT, or as part of a wider transport policy. For example, Japan has explicitly written down its specific logistics policies in a formal document approved by the Cabinet[3]; Korea has its National Logistics Master Plan; and Malaysia has its ITS Strategic Plan. In other Asia-Pacific countries, there is no specific policy on logistics or ICT and their policies are focused on transportation in general.

In recent years, a shift from economic objectives to environmental and social objectives has been observed in some developed countries. In developing countries, although freight transport policies still focused on alleviating traffic congestion, a look at their national transport plans will reveal that they have likewise included environmental and social objectives in their transport policies.

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