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A COMPARATIVE STUDY ON THE MAJOR PROBLEMS OF URBAN GOODS MOVEMENT AND ITS COUNTERMEASURES BETWEEN DEVELOPED AND DEVELOPING CITIES IN ASIA

JUN T. CASTRO
Tokyo University of Mercantile Marine
Department of Information Engineering and Logistics
Etchujima, Koto-ku, 135-8533 TOKYO, JAPAN

HIROHITO KUSE
Tokyo University of Mercantile Marine
Department of Information Engineering and Logistics
Etchujima, Koto-ku, 135-8533 TOKYO, JAPAN

YOJI TAKAHASHI
Tokyo University of Mercantile Marine
Department of Urban and Regional Planning
Etchujima, Koto-ku, 135-8533 TOKYO, JAPAN

Abstract

Southeast Asia is one of the most dynamic regions experiencing accelerated economic development. As a consequence, government infrastructure programs have been struggling to keep up with the present and future demands of this extraordinary growth. In this paper, urban goods movement (UGM) characteristics of seven selected Asian cities were examined. A cluster analysis was done to group the cities based on the choice of countermeasures against the problems of UGM, and its transport and socio-economic characteristics. An investigation between the representative members of the clustered groups was done through a comparison of goods movement characteristics of Tokyo and Manila.

INTRODUCTION

Goods movement is absolutely essential to modern urban civilization. However, this vital sector of transportation is, in a large part, overlooked. Urban transportation planners mainly focus on solving traffic problems brought about by trips generated by people alone. As a result, low or minimal investments are given for goods movement and government policies and regulations are usually unfavorable to the industry. In fact, in the Philippines, there has been no comprehensive studies on freight, and that, notwithstanding the importance of the freight system, freight traffic has always fared badly in almost all transport decisions involving a trade-off (MMUTSTRAP, 1984).

This paper identifies the common problems of urban goods movement in major cities of Asia. An analysis to understand the pattern of choice of countermeasures against these problems is done by reviewing current countermeasure practices in seven selected Asian cities. The countermeasures can be grouped into two types. "Hard-type countermeasures" refers to measures that involve facility and infrastructure development usually characterized by extensive amount of capital investment. On the contrary, "soft-type countermeasures" refers to regulatory and policy measures which do not require huge amount of capital.

A detailed examination of some of the critical differences found in two countries that represent a diverse set of urban freight environments in Asia is also done. These are Tokyo, which is already one of the highly developed cities in the world, and Manila, which is one of the developing cities in Asia. Particular aim of study is to examine the current condition of truck transport and to identify and compare the differences of the countermeasures undertaken by Tokyo and Manila in managing its goods movement problems.

GENERAL PROBLEMS AND COUNTERMEASURES OF UGM

Problems and countermeasures of goods movement

Table 1 – General problems of goods movement

Problem	Description
Traffic Congestion	Road congestion caused by the increased amount of transport activities that include both passenger and freight movements.
Damage to Infrastructure	Inferior design and rampant practice of overloading wherein the maximum permitted vehicle axle loads and gross weight are ignored causes accelerated deterioration of roads.
Safety	Problems in the geometric design, poor road condition, over-utilization of old vehicles, and extended working hours of drivers resulting to increased safety risks.
Environmental Pollution	Vehicle emission, vibration and noise from the transport industry in general is increasing each year with the growth of the number of motor vehicles which causes negative influence on the ecological system and the people's health.

Table 2 - General countermeasures for goods movement

Countermeasure	Description
Coordination And Research	*Agency Coordination* Private and the public sector coordination between government agencies concerned with freight movement and the business sector. *Database of Freight Transport* Accurate data gathering and correct data analysis before any strategies for improvement and implementation of policies is carried out.
Facility Development	*Infrastructure Improvement* Construction and expansion of roads, railway system, etc. in order to accelerate goods transport. *Inter-modal Transport* Measures to increase the efficiency of transport by combining and improving the links with rail, air and sea transport. *Terminal Development* Central facility that is connected directly with the expressway network to concentrate the usage of heavy vehicles on expressways and prevent them from circulating in urban areas. *Parking Facility* Provision of parking spaces for the loading and unloading of cargo, and the promotion of parking area improvements and effective use of street parking lots to decrease on-street parking of loading and unloading trucks. *Use of Advanced Information Systems* Real-time positioning of vehicles, information on cargo, information on road conditions, Electronic Data Interchange, etc. can be utilized to improve the urban freight network.
Travel Demand Management	*Truck Lane* Allocation of a traffic lane, either for the exclusive use of trucks or for the exclusive use of trucks and buses and other high-occupancy vehicles. *Truck Ban* Prohibition of trucks on particular routes on certain hours of the day in order to transfer them to uncongested roads or shift truck movements to a different time period. *Cooperative Delivery* Promotion of change in the form of urban delivery, from independent private transport to consolidated transport using public carriers. Consolidation of different shipments into concentrated goods flow leads to increases in load factors thereby decreasing trip frequencies of trucks. *Quality Truck Licensing and Taxation* Restrictions on operator or vehicle standards, safety measures, pollution, imposition of tax, etc. in order to improve the quality of trucking services. *Parking Fees* Payment of fees for the use of parking facilities in order to discourage long periods of truck parking and low levels of productivity.
Land Use	*Land Use* Ordinances such as administrative approval for location of traffic generators and location of bus and freight terminals in order to effectively control development in urban areas. *Building Code* Measure involving the issuance of building permits with consideration for parking and loading and unloading provision for trucks.
Environmental Policies	*Environmental Regulations* Setting-up of policies which aims to reduce vehicle emissions through the development of environment friendly vehicles, the discouragement of the usage of diesel engines mainly used by trucks, and the proper enforcement of vehicle emission standards.

Urban goods movement problems and its countermeasures vary accordingly to the political, and socio-economical characteristics of a country. In general, urban goods movement problems and its countermeasures can be classified according to Tables 1 and 2.

Travel Demand Management (TDM)

With very rapid growth in the demand for goods movement, Travel Demand Management (TDM) measures for physical distribution have emerged as an important tool for urban transportation planning. The need for TDM has significantly increased over the past years as it has been affirmed that many transport problems can be resolved without large-scale investment in transport infrastructure. The approach that has evolved is management-intensive rather than capital-intensive. TDM achieves this through the planning, design, implementation, maintenance and monitoring of physical and policy measures which promote the efficient and safe flow of people, goods and vehicles. This switch in emphasis from "capital" solutions to "management" solutions is gaining momentum throughout the world as the harsh realities of the current economic crisis are being felt.

EXISTING COUNTERMEASURES BASED ON GOVERNMENT POLICIES APPLIED BY SELECTED ASIAN CITIES

Information Supplied by Government Planning Experts

A questionnaire-interview survey was designed to explore urban goods movement of seven Asian cities, namely Bangkok, Jakarta, Kuala Lumpur, Manila, Singapore, Seoul and Tokyo (Fig. 1). The objectives of the questionnaire-interview were (1) to get a better picture on how each city copes with the problems of urban goods movement, and (2) to bring out the countermeasures utilized to lessen the impact of these problems and to determine if there is an emerging trend towards which each government policies are heading.

A list of goods movement countermeasures along with its description commonly adapted around the world was itemized, and the respondents were made to indicate whether a particular countermeasure is currently adapted by the city or not by simply putting a cross (x) or a check (O) mark. Personnel from the transport planning divisions, and university professors engaged in the field of transportation were requested to answer the questionnaire for their respective countries.

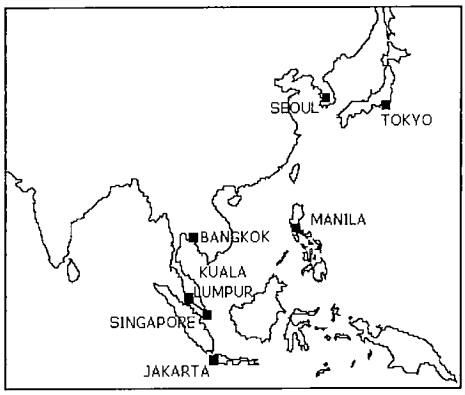


Figure 1 - Location of the selected cities

The gathered countermeasures from the questionnaire and interview results were grouped into two types: *"hard"* and *"soft"* type countermeasures. Hard-type countermeasures are those that involve transportation facility and infrastructure development usually characterized by huge amount of capital investments. Soft-type countermeasures, on the other, include regulatory and policy measures which do not require large expenditures. The percentage of hard-type countermeasures was determined by computing the ratio of the total number of hard countermeasures and the total number of countermeasures used by each urban city.

Table 3 – Existing countermeasures of selected Asian cities

	Countermeasure	City						
		Tokyo	Manila	Seoul	Bangkok	Jakarta	Kuala Lumpur	Singa-pore
	Agency Coordination	×	×	O	O	O	×	O
H	Data Collection	O	×	O	×	×	O	O
A	Infrastructure Improvement	O	O	O	O	O	O	O
R	Inter-Modal Network	O	×	O	×	×	O	O
D	Public Terminals	O	×	O	×	×	O	O
	Parking Facility	O	×	O	×	×	×	O
	Information Systems	O	×	O	×	×	×	O
	Truck Ban	×	O	×	O	O	O	×
S	Cooperative Delivery	O	×	×	×	O	×	×
O	Quality Truck Licensing	O	×	O	×	O	O	O
F	Parking Fees	O	×	×	×	O	×	O
T	Land-Use Planning	O	O	O	O	O	O	O
	Building Code	O	×	O	×	×	×	O
	Environmental Regulations	O	O	O	O	O	O	O
	Ratio of Hard Countermeasure (%)	50	25	64	40	25	50	58

Note: O : Applied , × : Not applied

Existing "hard" and "soft" countermeasures

Hard countermeasure

Japan has been spearheading the development of public distribution centers and truck terminals. Most truck operators in Asia have no clear comprehension of the benefits of using these terminals. Since the majority of truck operators in most developing countries are small family-owned businesses, the use of truck terminals is perceived as "extra" costs (Midgley, 1992). Truck parks are designated areas where trucks can park for short periods of time. Public truck parks presently in use are located in the developed cities only. The main reason for this is that, as long as there is a charge for the use of these facilities, truckers will not use them. Advanced information systems are now currently used in the developed cities of Asia. Although other developing cities like Bangkok, and Kuala Lumpur are now developing their own systems, they are still in the early trial stages.

Soft countermeasure

A number of large cities in developing countries have imposed truck bans of various forms. They fall into two types: route limitations and area-wide bans. Manila uses the first type of restriction, while Bangkok and Jakarta use the second. In Manila, the ban prohibits movement of cargo trucks along, but not across, 11 specific routes during the period 6 to 9 AM and 5 to 9 PM during the weekdays. Cargo trucks refer to motor vehicles, whether loaded or empty, having a gross vehicle weight of 4 tons or more, principally intended for carrying cargo. Four and six-wheeled trucks are

restricted in the Greater Bangkok Area during peak hours (6-9 AM and 4-8 PM) while ten wheelers and larger trucks are restricted in the morning between 6-10 AM and in the afternoon between 3-9 PM everyday except official holidays. In Jakarta, trucks whose gross vehicle weight is heavier than 3.5 tons are not allowed to enter the downtown area between 7-9 AM and between 3-5 PM on weekdays and between 7-9 AM and between 1-3 PM on Saturdays.

Reasons for the differences in the adaptation of countermeasures

Financial resource greatly affects the approach of adapting countermeasures for goods movement. Developing cities focus more on the development of transportation systems due to person-trips rather than trips due to goods movement. Presently, the construction of mass rapid transit systems to improve public transport are currently on-going in Kuala Lumpur, Jakarta, Bangkok and Manila. However, there is no development project that pertains to goods movement. This is compounded by the fact that freight transport in these areas, is mainly considered a private sector activity alone. Hence, this neglect of the government has resulted to unavailability of accurate data resulting to freight transport not properly incorporated into the final master transportation plan of the city. This is particularly true for developing countries with minimal financial reserves. As a result, developing countries resort to various low-cost methods through the use of TDM.

Socio-economic and transport characteristics

The socio-economic and transport characteristics of the seven selected Asian cities are presented in Table 4.

Table 4 - Basic data of selected Asian cities

Item	City						
	Tokyo	Manila	Seoul	Bangkok	Jakarta	Kuala Lumpur	Singapore
Area (sq. km)	618	636	605	1,712	661	243	646
Per Capita GNP (US $)	36,315 (1996)	1,130 (1996)	10,076 (1996)	2,680 (1996)	940 (1996)	3,930 (1996)	26,400 (1996)
Population Density (persons/sq. km)	19094	13207	18016	5315	12405	5350	4799
Population Rate (%)	0.30	2.4	1.0	1.3	1.6	2.4	1.0
Vehicle/Person (veh/ 1,000 persons)	446	113	128	221	119	142	161
Ave. Travel Speed (km/hr)	15	10	18	9	15	9	30
Accidents (accid/1,000 veh)	12	15	20	22	18	49	14
Vehicles/Kilometer of Road	202	104	202	819	434	105	45
Private Car Users (%)	33	25	15	33	35	33	16
Public Mode Users (%)	67	73	67	39	53	34	80
Hard Counter measure (%)	50	25	64	40	25	50	58

Source: Various data reports

An examination of the relationship between per capita GNP and car ownership shows a direct relationship. However, developing economies which recently experience high growth rates like

Bangkok and Kuala Lumpur show higher vehicle ownership than some of the already developed economies (Fig. 2). This is by virtue of the absence of car restraining policies in these areas.

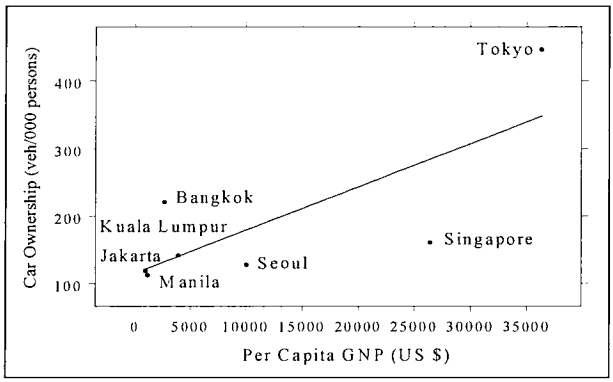


Figure 2 - Per capita GNP vs. car ownership

Figure 3 shows a plot of the per capita GNP and the percentage of hard-type countermeasures used by each city. It can be seen that developing cities usually employ soft-type countermeasures in managing its goods movement problems, whereas developed cities adapt the hard-type. However, with the increase of income, the percentage of hard-type countermeasures decreases as shown by the experiences of Singapore and Tokyo. Since the transportation systems of these cities are already well-developed, stricter TDM measures are now employed resulting to a shift towards soft-type countermeasures.

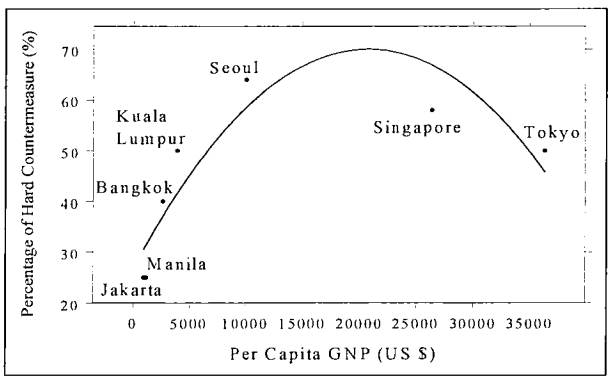


Figure 3 - Per capita GNP vs. percentage of hard countermeasures

Cluster Analysis

The grouping of the cities was determined through cluster analysis. Statistica by Statsoft™ was utilized to perform this task. Cluster analysis identified relatively homogenous groups of cities based on the eleven selected characteristics in Table 5. These values were first standardized to avoid the dominating effects of some variables having very large values. A hierarchical cluster using the farthest neighbor approach and Euclidean distance interval was used for the analysis.

The resulting dendogram in Figure 4 shows that Manila and Jakarta share the same demographic and transport characteristics forming one cluster having a combined distance of 2.7. Following is the group of Seoul and Singapore with a combined distance of 3.1. Kuala Lumpur joins the cluster of Manila and Jakarta at 4.2 while Tokyo joins Seoul and Singapore at the 4.6 mark. Bangkok enters at the 5.2 mark joining Manila, Jakarta, and Kuala Lumpur. If we are to form two clusters from these samples, cluster 1 will consists of Tokyo, Seoul and Singapore, and cluster 2 will have Manila, Jakarta, Kuala Lumpur and Bangkok as members.

Cluster 1 can be called the "*already developed*" cities while cluster 2 can be called the "*developing*" cities. Cluster 1 is characterized by high per capita GNPs, low accident rates, high public transport usage, low population rates and high percentage of hard-type countermeasures used for goods movement. Cluster 2 is characterized by low per capita GNPs, high accident rates, low public transport usage (except Manila), high population rates, and low percentage of hard-type countermeasures adapted for goods movement.

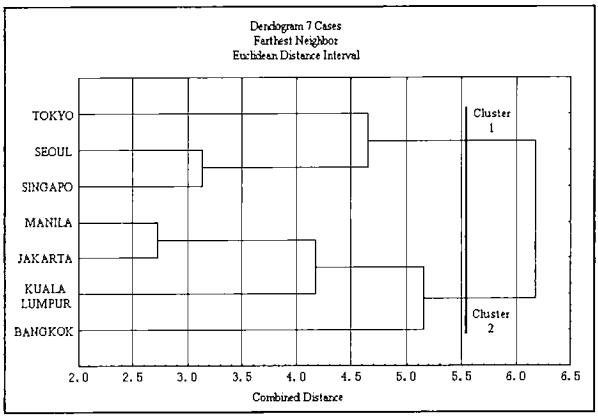


Figure 4 - Cluster analysis

COMPARATIVE UGM STUDY BETWEEN TOKYO AND MANILA

Demographic and Transport Characteristics

A comparison of the geographic, demographic and passenger and freight transport characteristics between Japan, the Philippines, USA and Europe is shown in Table 5. Passenger movement in all regions is mainly through the use of road transportation. However, in Japan, a major amount of passenger transport is also carried by rail because of its extensive urban mass rail transport system. Road transportation accounts for more than half of freight domestic traffic in all the countries except the USA, wherein the majority of freight is carried by rail. In Europe, rail and inland waterway together account for less than a quarter of all ton-kilometers performed. Yet, only a matter of a few decades ago, rail was the largest carrier of goods and inland waterways were considerably more important than they are now. USA and Europe gets considerable freight movement through pipelines because of their geographical nature, whereas Japan and the Philippines, two countries made up of a chain of islands, freight movement through pipelines is considered negligible. As a result, it is not surprising that freight carried by waterway is also a major contributor of freight domestic traffic in Japan and the Philippines.

Table 5 - Table of Comparison between Japan, Philippines, USA and Europe

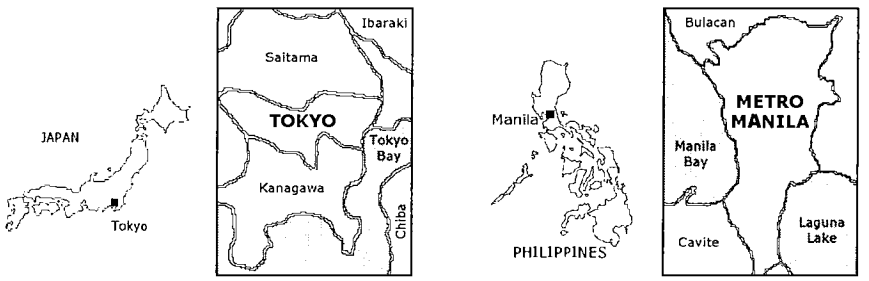
Characteristic	Asia		USA	Europe
	Japan	Philippines		
Geography	Archipelago	Archipelago	Continent	Continent
Passenger Transport (percentage of passenger-kms)	Road: 59.8 Rail: 34.3 Water: 0.5 Air: 5.4	Road: 89.0 Rail: - Water: 9.0 Air: 2.0	Road: 90.3 Rail: 0.6 Water: - Air: 9.1	Road: 93.2 Rail: 6.8 Water: - Air: -
Freight Transport (percentage of ton-kms)	Road: 51.3 Rail: 4.5 Water: 44.0 Pipe: -	Road: 53.0 Rail: - Water: 47.0 Pipe: -	Road: 25.3 Rail: 35.8 Water: 22.2 Pipe: 16.4	Road: 70.7 Rail: 15.7 Water: 7.5 Pipe: 6.1
Population	126 million (1996)	69 million (1996)	266 million (1996)	494 million (1993)
Urban Population	78 %	46 %	76 %	70 %

Sources: Japan: Transportation Outlook in Japan 1996
Philippines: DOTC 1990
USA: Department of Transportation 1995
Europe: R. Gruber, 1996

Characteristics of Goods Movement in Tokyo and Manila

Goods movement in Tokyo

Tokyo is one of the most crowded cities in the world with a population of 11.8 million in 1996. An enormous concentration of economic activity is focused within this relatively small area. Goods flow in Metropolitan Tokyo[1] was 3,270 thousand tons/day in 1972 and declined slightly to 3,000 thousand tons/day in 1982. However, the volume of freights increased from 1,580 thousand freights/day to 2,630 thousand freights/day. Goods flow in Tokyo mainly depended on rail and water transportation until trucks became popular after the second-world war. Thus, many physical distribution facilities are concentrated in the waterfront areas along Tokyo Bay close to the Central Business District (CBD) (Kuse et al, 1992). After the first oil shock in 1973, goods movement evolved with the changes of industrial structure, the diversification of consumer demands, and advances in the field of technology.



Note: Maps not the same scale

Figure 5 - Map of Tokyo and Manila

Goods movement in Manila

Metro Manila is the center of economic activity in the Philippines. It comprises 7 cities and 10 municipalities having approximately 8.4 million inhabitants. Freight transport in Manila is heavily dependent on trucks. Freights by rail and air are at present insignificant in volumes. A study made

by Japan International Cooperation Agency (JICA) in 1993 indicated a goods inflow of 42,000 tons/day and an outflow of 22,000 tons/day in Manila (LISR, 1993). Licensed for hire (TH) trucks in Manila are only making up for 15 percent of the entire truck fleet. Thirty-one (31) percent of the total truck fleet is in Manila alone. The controversial issue of the truck ban is still unresolved. Kirby, Tagell and Ogden (1986) concluded that the introduction of the ban has led to the increase in the number of small trucks not covered by the ban. An examination of the truck registrations in Manila showed a rapid increase in the Utility Vehicle (UV) category after the imposition of the truck ban in 1978 (Fig. 6). UV vehicles are vehicles with four wheels of less than 4.5 tons, with a truck type body and are exempted from the ban. A decline in the number of private trucks in the over 4.5 ton category was also noted.

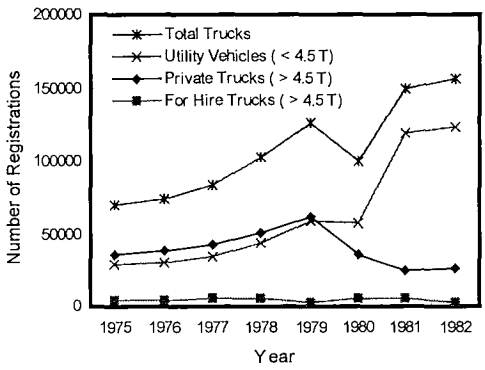


Figure 6 – Truck registrations in Manila

Discussion of Existing UGM Problems and Countermeasures

Tokyo's Existing Problems and Proposed Countermeasures

In response to demands for advanced and diversified distribution, the Japanese Ministry of Transport is promoting the construction of complex distribution centers equipped with advanced information processors and distribution systems, in addition to conventional cargo storage and handling functions. The Comprehensive Program of Logistics Policies by the Japanese Cabinet states that by the beginning of the 21st century, the total loading efficiency of trucks will be increased 50% by undertaking the following measures: increase sharing rate of commercial trucks, computerization improvement, cooperative delivery, and effective commercial practice.

- *Traffic congestion*

Road congestion levels in Tokyo during peak hours have been increasing steadily over the past years. Data from the Ministry of Construction showed that there has been a decline on travel speeds during peak hours from 22.5 km/hr in 1980 to 18.5 km/hr in 1990. Loading efficiencies for small cargo vehicles has also decreased from 33.2 percent loading in 1970 to a 16.1 percent loading in 1991 for private use, and 42 percent in 1970 to 35 percent in 1991 for commercial use cargo vehicles (Fig. 7). As a result, more frequent trips were needed as shown in the increase of frequency of shipments per establishment from 3 deliveries per day in 1980 to 5 deliveries per day in 1990.

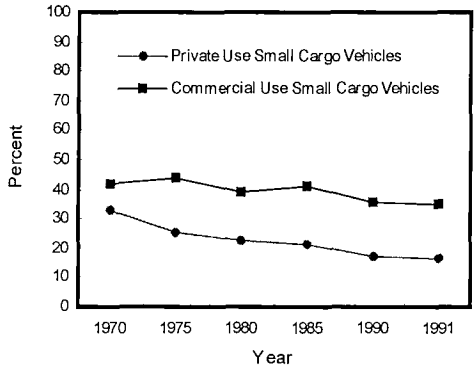


Figure 7 - Loading efficiencies of trucks in Tokyo

- *Safety*

The trucking industry fails to attract young workers because of the harsh and difficult labor conditions. As a result, truck drivers are forced to work overtime leading to increased safety risks. The shortage of drivers in Japan has kept the use of trucks below capacity. A study revealed that the estimated required number of truck drivers per truck is 1.2 persons, but the actual number of truck drivers is only 0.8 persons in urban cities (Ozawa, et al, 1992).

- *Deterioration of the environment*

CO_2 emission from the transport industry amounted to 20 percent of the total CO_2 emission in 1989. Trucks accounted for 9 percent of the total CO_2 emissions. The Japanese Ministry of Transport is presently promoting the widespread use of low-pollution vehicles and acquisition of environment-friendly physical distribution equipment by offering special tax incentives to those who will use them. Cooperative and consolidated transport and delivery using public haulage has also been practiced to increase truck load factors and decrease frequency of truck trips.

Table 6 - Tokyo's problems on goods movement

Problem	Cause	Countermeasure
Traffic Congestion	Frequency of trips Increase in traffic volume Insufficient parking spaces	Terminal development Inter-modal network Parking Facility
Safety	Labor shortage due to difficult labor conditions	Cooperative delivery
Environmental Pollution	Small lot goods are frequently delivered due to JIT	Cooperative delivery Environmental regulations

Manila's Existing Problems and Proposed Countermeasures

The principles of sustainable development embodied in the development plan of the Philippines are the following: 1) *Devolution* - transfer of decision-making responsibility to the lowest units possible, 2) *Deregulation*- liberalization in the production and trade in goods and services, 3) *Decentralization* - provision of resources and services in the countryside, 4) *Democratization* - people participation in governance, 5) *Privatization* - reduction in government's stake in business and promotion of private sector-financing government project. These aims of the Philippine government are in line with the needs of the transportation industry, particularly with goods

movement. The question remains on how effective the redirection of policies will be.

- *Traffic Congestion*

Insufficient road network: Given the volume of traffic experienced in Manila everyday, the existing network is dismally insufficient. The 1994 Road Handbook in the Philippines shows that addition and maintenance of road networks in the Philippines currently gets the greatest attention in terms of amount of government investments with 77 percent of the total infrastructure budget. The government clearly recognizes the improvement of road network as its top priority.

Lack of coordination and data: Although a transportation planning hierarchy is distinctively defined, and agencies are properly mandated by the national government to perform their specific duties, it is obvious that the big number of agencies involved in the transportation planning process will lead to inter-agency conflicts. Therefore, in order to achieve the intended purpose of a transport plan, the planning process must be a coordinated effort among the different planning agencies involved.

Mixed land-use: Central areas of Manila are poorly utilized for high-class residential subdivisions called "exclusive villages" wherein ordinary traffic is prohibited to pass through. This problem is mainly due to the historical growth of Manila and its solution has not been investigated, as this is a highly political area of contention. Most residents within these subdivisions are highly influential people who would not easily give up their prime land ownership in the heart of the city.

- *Damage to infrastructure*

In order to compensate for the many disadvantages encountered by the trucking industry, like the truck ban, poor road conditions and chronic traffic congestion, the practice of overloading has become prevalent. This has resulted to accelerated deterioration of roads that are initially not designed for passage of heavy trucks.

- *Safety*

Lax policies and illegal practices in the issuance of driver's licenses and operator's permit for urban goods distributors have resulted in a number of truck drivers who do not even know the meaning of basic road signs. This lack of knowledge about their occupation results in low levels of productivity and safety problems.

- *Environmental Pollution*

Manila has been known to surpass safe levels of pollutants in the air. According to a study of the Department of Environment and Natural Resources (DENR) in 1994, average Total Suspended Particulate (TSP) at the most traveled street in Manila, EDSA, is 200 μ g/m^3. This is well above the standard limit set by the World Health Organization (WHO) of 60-90 μ g/m^3. Trucks and buses account for nearly 40% of the TSP. This is primarily caused by the proliferation of diesel powered second-hand trucks and public buses. A survey on the trucking industry specified that truck fleets in Manila are usually 6 and 10 wheeler trucks mostly imported secondhand from Japan (MMUTSTRAP, 1984).

Table 7 - Manila's problems on goods movement

Problem	Cause	Countermeasure
Traffic Congestion	Increase truck movement	Truck ban
	Insufficient road network	Infrastructure improvement
	Loading and unloading problems	Terminal development
	Parking problems	Parking facility
	Lack of coordination	Agency coordination
	Lack of freight transport data	Database of freight transport
	Mixed land-use	Land-use planning
Damage to Infrastructure	Increase in volume of trucks	Quality truck licensing
	Overloading of trucks	Enforcement of loading regulations
Safety	Lax practices in the issuance of license	Quality truck licensing
	Problems in the design of roads	Infrastructure Improvement
Environmental Pollution	Emissions from old vehicles	Quality truck licensing

Comparative Discussion

A comparison between Tokyo and Manila shows that both encounter similar problems brought about by goods movement. However, the approach of each to mitigate these problems is quite different.

First, in developed cities like Tokyo, the availability of technology and ample budget ensures that transportation planners always get the proper data they need. In most developing cities like Manila however, this ideal situation is uncommonly seen. Due to budget constraints, primary surveys are often skipped and transportation planning is usually based on secondary data which are in most occasion is outdated. This has resulted in incoherent transportation plans that usually do not account planning for goods movement.

Second, the government of Japan has prepared definite steps to improved urban goods movement by providing public freight facilities such as distribution centers, truck terminals, parking facilities, improved inter-modal transport, and advanced information systems. Furthermore, the government has been showing interest on the feasibility of creating underground networks for freight transport that will ultimately separate people and goods. On the other hand, the Philippine government apparently gives minimal support to help the freight industry as manifested by its inability to provide public trucking facilities and unbiased enforcement of transportation policies and regulations. The issue of the truck ban, which inhibits the trucking industry, is one policy that definitely needs to be reviewed. Government attention and action should be done even at least to simple land-use and zoning policies where adequate and suitable land may be reserved for truck terminals, parking, and loading and unloading areas near traffic generating sources.

Third, the effective implementation of low-cost measures such as Travel Demand Management (TDM) will certainly help improve urban goods movement. Despite infrastructure investments by the Tokyo Metropolitan Government and its private and public companies, goods movement still suffers and much has to be desired. Thus, the implementation of TDM measures has become popular even in areas where good transportation systems exist. In Manila however, the absence or the lax implementation of these government policies causes more chaos and deterioration of the transportation and physical environment.

CONCLUSION

An analysis of countermeasures to enhance efficiency in urban goods distribution in some Asian

cities showed differing approach in the application of prescription methods. Most developing cities usually adopt the "soft" type countermeasures such as travel demand management to alleviate urban goods movement problems. On the other hand, developed cities focus more on the "hard" solutions wherein it tries to improve on the conventional methods by adopting pioneering approaches such as development of distribution business centers, and utilization of advanced information systems.

The study also examined the existing goods movement characteristics of two representative cities in Asia – the highly developed city of Tokyo, and the developing city of Manila. Differences in the formulation of measures to manage goods movement between the two cities were discussed. Tokyo, despite its huge investment in infrastructure improvement, still has its share of goods movement problems. Manila, on the other hand, is still laying the foundation of developing its transportation system mainly directed towards public transport through infrastructure building. However, it should be noted that the experience of Tokyo clearly shows that effective Transportation Demand Management is one of the best measures to alleviate goods movement problems.

An extensive number of measures exist that can be applied by both the public and the private sectors to address the problems created by goods movement. Nevertheless, there is not one recommended approach to manage urban goods movement problems. There are many options and varieties of measures that can be taken to address the problems. With strong government support, and if applied in coordination with other measures, these have the potentiality of being effective, regardless of their level of sophistication.

Note:

1. Metropolitan Tokyo comprises Tokyo's 23 wards and the surrounding prefectures of Saitama, Chiba, and Kanagawa having a population of approximately 32 million and area of 14,000 km^2.

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