Chapter 10

Indo-ASEAN Logistics Network

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Chapter 10: Indo-ASEAN Logistics Network

Daisuke Matsushima

1. INTRODUCTION

Indo-ASEAN is a significant axis for East Asia Economic Integration. Currently, however, the relation is not strong enough in terms of trade and intra-investment compared to other axes such as Japan-ASEAN and China-ASEAN. Indo-ASEAN is in fact one of the weakest axis for East Asia Economic Integration.

Trade volume between ASEAN 10 and Japan, China, and Korea is 14 times larger then Indo-ASEAN's. Also, the trade volume between the whole of the ASEAN with Australia and New Zealand is 1.6 times higher than Indo-ASEAN's[1].

ASEAN Statistics

ASEAN trade by selected partner country/region, 2006

as of 15 August 2007

value in US$ million; share in percent

Partner country/region	Value			Share to total ASEAN trade		
	Exports	Imports	Total trade	Exports	Imports	Total trade
ASEAN	189,176.8	163,594.5	352,771.4	25.2	25.0	25.1
Japan	81,284.9	80,495.6	161,780.5	10.8	12.3	11.5
China	65,010.3	74,950.9	139,961.2	8.7	11.5	10.0
Republic of Korea	25,670.0	26,849.7	52,519.6	3.4	4.1	3.7
Australia	23,148.5	13,262.8	36,411.4	3.1	2.0	2.6
India	18,928.1	9,774.6	28,702.7	2.5	1.5	2.0

Source: ASEAN Trade Database (compiled from data submission and/or websites of ASEAN Member Countries' national statistical offices and other relevant government agencies)

Indo-ASEAN is connected with each other through a contiguous national border between India and Myanmar, and experienced considerable cultural and commercial exchange in the past. Yet, their countries seem to make little progress toward their economic integration. In some cases, this glacial pace may become one of the most serious bottlenecks to East Asian economic integration in the future.

[1] IMF International Trade Statistics and ASEAN Trade Statistics Database. This shows export amount. Figure of ASEAN 10 rely on ASEAN Trade Statistics Database, not including exports from Lao PDR or Vietnam.

1.1. Possibility of Japanese FDI activities

In this situation, we need to ask, who can strengthen the relations between India and ASEAN?

The answer comes from Japanese foreign direct investment (FDI) investors who have already spread a huge production network among East Asian economies in a "*de-facto* way". Their vast experience and knowledge can contribute considerably in bringing about the East Asian economic integration.

ASEAN Statistics

Top ten sources of ASEAN foreign direct investments inflow

as of 13 August 2007

value in US$ million; share in perc

Country[1/]	Value				Share to total inflow			
	2004	2005	2006	2002-2006	2004	2005	2006	2002-2006
European Union (EU)-25	10,046.1	11,139.6	13,361.9	44,955.6	28.6	27.1	25.5	26.3
Japan	5,732.1	7,234.8	10,803.3	30,813.7	16.3	17.6	20.6	18.0
ASEAN	2,803.7	3,765.1	6,242.1	19,377.7	8.0	9.2	11.9	11.3
USA	5,232.4	3,010.6	3,864.9	13,736.1	14.9	7.3	7.4	8.0
Other Central & South America[2/]	(60.5)	919.4	1,035.1	3,958.3	(0.2)	2.2	2.0	2.3
Hong Kong	529.6	773.0	1,353.4	3,430.7	1.5	1.9	2.6	2.0
Republic of Korea	806.4	577.7	1,099.1	3,347.3	2.3	1.4	2.1	2.0
Cayman Island	2,029.1	(19.9)	476.4	3,003.7	5.8	(0.0)	0.9	1.8
Taiwan, Province of Taiwan	366.8	(66.8)	668.1	2,417.4	1.0	(0.2)	1.3	1.4
China	731.5	502.1	936.9	2,302.9	2.1	1.2	1.8	1.3
Total top ten sources	28,217.1	27,835.4	39,841.2	127,343.3	80.4	67.8	76.1	74.5
Total	35,117.2	41,067.8	52,379.5	170,821.9	100.0	100.0	100.0	100.0

Source: ASEAN Trade Database (compiled from data submission and/or websites of ASEAN Member national statistical offices and other relevant government

- not available as of publication
x not available/not
n.a. not

1/ identified based on cumulative FDI inflow from
2/ includes countries in Central and South America, other than Mexico and
3/ includes inflow from all other countries, as well as total reinvested Philippines (local banks only) for 2001-2005 and intercompany loans in Singapore
Ranking is based only on countries where data is

However, this paper cannot find any exclusive data on Japanese FDIs that indicates the origin of each capital. We cannot show any specific table that can identify how much of the capital comes from where or emanates from domestic capital. We can surely say though that Japanese companies have already contributed to the Thai economy substantially. In any case, we cannot explain the trend in the ASEAN industries without studying the Japanese manufacturing FDI situations.

In January 2006, around 1,251 Japanese firms participated in the Foreign Chamber of

Commerce, the highest among other participant countries (Second highest contribution came from Taiwan, which was double the US contribution). Based on a research of the Japanese Chamber of Commerce, more than 6,226 companies have already invested in Thailand.

In terms of generating employment opportunities, Japanese FDI companies have already provided employment to more than one-fifth, or at least one-sixth, of the 6.74 million members in Thailand's manufacturing sector.

All these underscore why we need to study the direction of Japanese FDI companies: This to so we can estimate the requirements essential in bringing about East Asia economic integration.

1.2. Logistics reform for reducing transaction costs

Reducing the transaction cost is essential in promoting economic exchange within East Asia. The only way to make this suggestion possible is through effective policymaking. Two constraints behind high transaction costs are *physical* and *institutional*. The former arises due to poor infrastructure/logistics while the latter is due to high tariffs. High tariffs are reviewed and monitored by free trade agreements (FTA) or Economic Partnership Agreements (EPA) or World Trade Organization (WTO) schemes. What needs due attention is the poor logistics situation. Nonetheless, these two constraints should be considered in tandem, like two wheels of a vehicle: Deceleration of one will hamper the other's speed.

The FTA/EPA has already reached the negotiation stage. On the other hand, strong policy recommendations for improving the logistics situation are needed. After all, FTA/EPA negotiations for East Asian economic integration will be unsuccessful without any accompanying reduction in transaction costs, especially freight costs, which can be reduced only by governmental bodies' initiative to effect reforms in logistics. This point is reinforced when ASEAN member-leaders met in Manila, Philippines, in July 2007 and agreed to place logistics on top of their priority to-do list for the ASEAN economic

integration until 2015. Since the ASEAN integration is central to the promotion of the East Asia Economic integration, it follows that logistics should be one of the most significant priorities for East Asia Economic integration as well.

This study therefore attempts to suggest several logistic reforms for better East Asian economic integration. Among the suggestions are those pertaining to FDIs for the manufacturing sector, especially Japanese FDIs.

2. APPROACHES

In this study, policy recommendations were arrived at while taking into consideration three points of views, all of which reveal situations on the Indo-ASEAN logistics network: Views from FDI investors (*micro approach*), views from soft infrastructure development for enhancing logistics networks, and views from users on physical infrastructure.

2.1. Views from Respective FDI investors considered as Micro-Approach

While previous studies focused on macro-perspectives on transportation in the East Asia, it is about time to also consider the strategic views of FDI investors based in the manufacturing sector as these are the key users of the logistics network. Information from these group may be useful in helping FDI investors set up their own Supply Chain Management System.

2.2. Views from Soft Infrastructure Developments for enhancing logistics networks

In tandem with physical infrastructure (or hard infrastructure) development, issues surrounding the soft infrastructure, which includes custom clearance and transportation services, should also be looked into for solutions. This combination of hard and soft infrastructure comprises the logistics network.

Hence, in the future, “transportation,” which simply means bringing items from one

place to another, can be replaced with the word Logistics, which has more a strategic and literal meaning to it.

2.3. Views from Users for Planning the Physical Infrastructures

By conducting follow up surveys on specific routes of transportation, preparing quality assessment forms and interviewing FDI investors, it is possible to highlight the actual issues and problems surrounding logistics in East Asia.

User views are valuable as these are based on real business perspectives. Such can provide insights into how to construct a successful physical infrastructure between India and ASEAN. By looking into multiple aspects of logistics within this region, we can suggest effective policies to the leaders of member-countries in the East Asia Summit.

3. ACTUAL VOICES OF FDI INVESTORS

Listening to the views of FDI investors, the major stakeholders in East Asia, should be the first step. Interviews conducted by personnel under the Japan External Trade Organization's (JETRO) Logistics Network Map Project as well as from other interviews elsewhere, uncovered several issues that can be improved in the transportation or logistics network of the region. Sixty-eight Japanese FDI companies that set up businesses in the ASEAN and India were surveyed using the questionnaire (See Appendix A: Questionnaire of the Distributional Trend) in September 2007.

I. Obstacles in logistics network from India's side

The most serious problem surrounding trade and investment between India and ASEAN is the underdeveloped Indian domestic infrastructure, both the soft and hard types. In the following section, problems surrounding the Indian domestic infrastructure, which includes ports, railways and roads---considered as functional infrastructure of industries--- are identified.

3.1. Ports

The three major complaints identified with the Indian ports are:

1) Shortage of handling capacity
2) Lack of global standards in soft infrastructure (such as nontransparency, long custom procedures, etc.)
3) Lack of connectivity between ports and roads

3.1.1. Requirement for New Ports Development

India is now facing an absolute lack of capacity in ports. Those engaged in the manufacturing sector think that the over-concentration of containers in JNPT Port or Mumbai Port along the western coastal area will soon get out of control. A similar situation is happening to the Eastern coast (Chennai port) as well.

Because of these, the investors urge that the following two points should be taken into consideration when developing new ports:

Enlarging commercial ports. More than 15m deep ports will be required to accommodate jumbo container ships.

Improving basic port functions. Fundamental facilities such as gantry crane should be added to enhance the port's handling capacity.

3.1.2. Improvement of port operations

In addition to proposed improvements on the physical infrastructure, Japanese FDI investors also suggested enhancements in two aspects of port operation:

1) Improving Port Operators' skills

Some Japanese FDI investors complained of a 3-percent to 5-percent cargo deficit in the

handling process in Indian ports. Therefore, it is necessary to enhance the skill of port operators. To make this possible, capacity building programs or on-the-job training programs can help.

2) Speedy, simple, and transparent custom clearance procedure

Any effective transportation in ports cannot be realized without including user-friendly clearance procedures. Several Japanese FDI investors have complained that they wasted time in ports due to the long and tiring clearance procedures. Therefore, it is essential to introduce one standardized e-custom system that can help simplify, speed up, and allow transparency in custom clearance procedures.

This e-custom system will help prevent several informal/illegal activities such as bribery. It can be used to monitor criminal activities in the transportation sector without incurring any huge transaction costs. Moreover, it will help regional traders if Radio-frequency identification (RFID) tags and pre-custom clearance procedures be used in Indo-ASEAN trade. Moreover, it will be more beneficial if this RFID tag be adjusted to the ASEAN standards and requirements.

3.1.3. Establishing Multi-modal Connectivity

A multimodal connectivity with Indian ports is now eagerly awaited in tandem with the physical infrastructure development of the region. This multimodality can bring about enormous benefits for companies that play active parts in the Indo-ASEAN region.

ⅰ. Connectivity with Freight Railway

Constructing incoming lines that connect ports to main railways will allow travelers to shift to different modes of transportation easily.

ⅱ. Customizing Port Space

Car parks or dedicated berths are required for automobiles inside the Indian ports. Investors and companies who aired such requirement added that they need a parking

space that can accommodate at least 10,000 vehicles per month within the port area.

iii. Bring in more shipping companies in the line between India and ASEAN

The absolute lack of shipping forwarders to handle Indo-ASEAN trade is another serious problem. This, however, seems like a chicken-and-egg dilemma because if only the infrastructure is set up in this region, shipping companies will find more reason to relocate here.

3.2. Railways

Ever since the colonial times, Indian railways has had more potential than ASEAN railways. Today, the government of India also plans to construct one dedicated freight corridor, which is scheduled for completion by 2013. Once this railway project is finished, India will have its own dedicated freight railway line between Delhi and Mumbai, complete with high-speed and huge-capacity trains. Thus, in the future, Indian railways will have even greater capability for inland transportation.

In this case, investors, particularly cargo owners, want to make sure that such railways will be properly operated and maintained.

3.2.1. Satisfactory Railway Operation

Railway operation should also satisfy investors' needs in these three areas:

i. Introducing Market Mechanism in Railway Operations

After June 2006, freight railways were deregulated. Companies need to satisfy only a couple of conditions to receive entry into the freight railway business. However, more deregulatory rules are required for this industry to effect a truly "free-trade operation" system.

The tariff system should be also diversified and discounted, or at least should fit market

requirements when implemented[2].

In the future, FDI investors/cargo owners wish to see more user-friendly transportation services---e.g., flexible arrival and departure slots through forwarders, that will enable them to apply efficient supply chain strategies such as the "Just in Time" inventory system.

ii. Mixed Loading

The current container loading practice is uneconomical because such utilizes inseparable container service. Mixed-loading technique should become the more common alternative. In reality, however, forwarders would not agree to accommodate small lot items through mixed loading.

iii. Traceability

Traceability is another means of improving the transportation system as well as implementing better cost and time management. Example, trains are hard to track without a system such as the global positioning system (GPS). Should accidents occur to the transport, cargo owners would be at a loss regarding where to get information on the location and details of the accident. The GPS therefore should be a feature that must be added to railway trains.

The introduction of such sophisticated traceability system enhances transportation services. This has been found so useful that at certain cases, this seems to be one of the more priority areas than development of physical infrastructure.

[2] The Indian railways provide three tariff options only: less than 20 tons; 20-26 tons; and more than 26 tons. Therefore, if an auto company wants a car transported by train and if the car weighs less than 2-4 tons, this company is going to waste money. This is why freight cost of a train is more expensive than that of trucks. In fact, the Indian train freight cost seems to be three times higher than international rates.

3.2.2. Requirement for skilled railway workers

Similar to the sea ports, there is a need for skilled and better-coordinated operations workers. Therefore, the only way to achieve this is to focus on the capacity building of human resources in specific areas.

3.2.3. Bigger transport capacity through multi-modal connectivity

Railways should be connected with another mode of transportation. On this issue, below are some demands voiced by FDI investors:

- Incoming line toward each industrial park;
- Logistics hub with a huge amount of space next to the inland depot;
- Purchase plan for importers who can purchase items directly from bond warehouses;
- Reduced loading time from train to trucks.

3.3. Roads

Aside from the issues earlier raised, there are two main concerns with road infrastructure: (1) the absolute lack of road infrastructures; and (2) high transport costs due to the additional state boundary tax or *Octroi* as well as poor services of transportation companies that tend to service only specific locals area, not the whole of India. These concerns are the source of frustration of investors well as cargo owners.

II. Need for Indo-ASEAN multi-modal logistics network

Almost all FDI investors have sought out multiple alternatives for their transportation situation. The following multiple measures agreed between India and ASEAN can provide the needed strategic logistic network to the East Asian economic community.

3.4. Sea Routes: Making Portfolio for utilizing ports

In terms of port use, the presence of more alternative sea routes can help passengers and port users avoid disasters or artificial accident risks. This will also help to provide investors with multiple port options, when faced, say, with unfavorable weather or socio-political constraints in one area of the route.

In this regard, India should develop both the coastal lines in Arabian Sea and Bay of Bengal. The Bay of Bengal has the most potential as it can ensure sea connectivity between India and ASEAN. Special policies should accompany the development of the bay's coastal line, though.

3.5. The Air Routes for the Speedy and Safety Logistics

When it comes to the air travel, cost is the most sensitive factor. High-valued special parts are products most in need of this mode of transportation. Thus, the airport's capacity as well as the air navigation routes are important factors for users.

Companies utilize airfreight to save on time. When faced with dwindling inventories, businesses would not think of personally handling the end-to-end transit of these goods to their production sites. Their more efficient option is to use the airfreight system. This is the reason air customs clearance---not inland route clearance---is extremely important.

Relatedly, the timely arrival and departure of carriers is the lifeline of air travel. In practice, however, no such strict time control system has been developed and agreed between India and ASEAN, which means that India and ASEAN have yet to synchronize their clocks. Time control is essential in preventing severe airway accidents.

The first order of the day, therefore, is to establish a "standard clock"[3] in both business

[3] It is necessary to set up a "Standard Clock" when measuring the correct time. This "Standard Clock"

and social contexts. Standardizing the time will not only make a Just-in-Time type of supply chain management possible; it will also synchronize arrivals and departure in a multimodal transport system involving freight trains, trucks and ships.

From a different viewpoint, the improvement of passenger transportation should also be considered if a nation aims to development its manufacturing sector in this region. For example, Japanese FDI investors invite many maintenance technicians from Thailand from time to time. This type of mass transit is important in setting up a successful industrial network between India and ASEAN.

Note, however, that there is currently a lack of services trade data between India and ASEAN. Arrangement of services trade should be considered a top priority to enhance regional movement.

3.6. International Inland Connectivity

The ASEAN countries have started developing the East-West Economic Corridor across Vietnam, Thailand, and Myanmar. Extending this economic corridor further from Myanmar to India is one of the plans under the Asian Highway Project of the United Nations and Economic and Social Committee for Asia and Pacific (ESCAP). Such was launched as ALTID in 1992 and is expected to cover 141,000km and 92 countries.

It was on July 4 2005 when the multilateral agreement for an Asian Highway Project was endorsed by 20 member-countries, including India, China, Japan, as well as ASEAN countries. The agreement, however, faced its most serious hiccup with the nonparticipation of Bangladesh.

Under this agreement, each participant has to follow three rules:

- Endorse the Asian Highway Network Project's highway routes development
- Follow the Asian Highway standard or classification of traffic rules

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can cover 6,000km across area. Japan, the United States, European Union and China have already had done so to synchronize time in their regions. If we can build a "Standard Clock" in India, Brazil as well as Australia, such will synchronize time all over the world.

- Set up Asian Highway traffic symbols

This project will provide the possibility of another transport mode---the inland connectivity between India and ASEAN---but it also faces certain difficulties in construction. At presently, some investors doubt such will be a success. Currently, its implementation is in need of more multinational cooperation.

Keep in mind that the level of development of roads in ASEAN/South-East Asia and India or South Asia has a _____ gap of 16 percent of the whole Asian average. To step up its road development, its 26,000km priority routes alone would need an additional investment of about US$1.8 billion. Of this, India can provide financing mechanisms such as Public and Private Partnership (PPP) schemes as well as technique transfers, which can be co-joined with Japan or other countries.

This project also emphasizes on an inter-modal transport in connecting supply bases such as factories, to markets. Connecting sea routes with the Asian Highway is also regarded as an option.

Under the Asian Highway project, 121 priority projects have already been implemented. What is now needed is an assessment of these projects.

III. Transportation Quality all over the East Asia

Transportation should first be regarded as logistics if one were to ensure the quality in the transportation sector of East Asia. Transportation quality is in fact one of the most sensitive agenda in the business community.

To ensure such quality in India's transportation sector, it first has to overcome two major challenges: how to solicit institutional recognition from ASEAN as well as how to develop its human resources. For instance, adopting the advanced transportation strategies employed by ASEAN or Japan can help improve the transportation situation in India.

Elsewhere, a number of quality-focused initiatives have been implemented. Below are some of the transportation institutes established with Japanese assistance:

3.7. Manila Commercial Shipping University lead by a Japanese transportation company

This educational institute was established in 2007 with the purpose of educating middle-class ship handling officers. It provides education on such topics as practical navigation techniques, mathematics and cargo handling techniques, which are different from the regular curriculum of other universities. This training is in answer to the need for more skilled workers in the transportation field.

3.8. Haiphone Vietnam Commercial Shipping University headed by a logical company and in collaboration with a Japanese company

This school has been in operation for 50 years and has been producing more than 2,500 graduates every year. It ranks among the top 15 high-level schools in Vietnam. It provides not only navigation-related courses but IT and sea transportation management courses as well, which help produce specialists in these logistics fields.

India, too, has some good institutes but the educational structure is too pyramidal, which limits the number of high class students. This is why it is essential to bring its local institutes' standards up to global standards.

4. BEST PRACTICES

What are some of the Japanese logistics/transportation strategies that India can adopt? Some of Japan's business models in logistics explain a lot about how to develop both the hard and soft transportation infrastructure. However, it should be kept in mind that these best-practice models are based upon the current transportation situation. If this situation is changed, then it becomes necessary to change the models as well.

Following the example of the Japanese, some of the current best practices that can be adopted are:

4.1. Overcoming underdevelopment of India's domestic infrastructure by utilizing railways.

India's inland transportation is currently over 70-percent covered by trucks. However, there is valid reason to shift to railway transportation: To prevent the complicated procedures associated with travel taxation or value-added tax[4], which are now each imposed on every transporter.
On a per-industry basis, some of the requirements are:

4.1.1. Electronics & Electric Appliance

If high-quality service can be provided in railway transportation, then it brings with it two advantages: Shorter delivery time and reduced freight costs.

4.1.2. Capital Goods such as Manufacturing Machines

Transportation quality should apply across levels, i.e., such should not only apply to the transport of some small machinery, where it is already in effect, but to high-level precision machines as well.

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[4] In terms of value-added tax (VAT), the government of India has already announced that it should apply a uniform taxation system, including VAT, until 2010.

4.1.3. Iron and Steels

After 2013, when the dedicated freight corridor (DFC) will be completed between Delhi and Mumbai, delivery time will be reduced to two or three days and consequently, companies will prefer their deliveries to be handled via railway trains rather than trucks. Also, the recent hikes in crude oil prices will surely make train use more popular and economical than trucks.

However, for trains to be truly preferred by users, one condition is to make sure trains' freight capacity is increased by simply adding such vehicles' quantity. The dedicated double-decker trains, which can carry cars and iron and steel, should be considered as s way to expand freight capacity.

4.2. Utilizing some facilities for creating a multimodal transportation system

Around the Indian west coast, Mumbai's Jawaharlal Nehru Port (JNPT) is already facing excess capacity. Moreover, during the monsoon season, the port is susceptible to damage due to the harsh rain[5]. Thus, there is a need for a new port along the Bay of Bengal. The presence of a new port will also help reduce port tariffs[6].

In the southeast part of India, the Chennai port is one of the most crucial structures; unfortunately, this port has no potential for additional development because it exists in the center of Chennai City. The local government does have plans to develop new ports but it currently needs to make sure that this is consistent with the port development agenda for the whole of India.

Multiple port development activities should be comprehensive; i.e., this should include connectivity with railways, roads, and ports. For instance, in the northwestern part of India, the Delhi-Mumbai Industrial Corridor project has been launched, which should

[5] We require adequate port development under the DMIC project.

[6] One auto company has already changed port from Mumbai to Kandhra because of increasingly higher tariffs.

provide the area with a multimodal transportation system.

In terms of modal shifts, the strategic behaviors of each business should be taken into consideration. For example, airfreight is generally used for ensuring pilot supply to markets. Therefore, in accordance with the emerging markets in East Asia, each company should consider mixed sea-and-airfreight options as best practice.

4.3. For Transportation quality

Transportation seems to be regarded only as a cost by companies. It confounds many that so many firms would agree to pay for transportation. The reason is that there is a trade-off problem between reducing freight cost and achieving the quality in transportation service, including speed in delivery as well as deficit in cargo items.

Should one outsource transport of cargoes or handle it internally? This is the question. There are different practices followed by different companies:

4.3.1. Outsourcing Transportation Strategy

Many automobile giants try to impose their transportation cost on their levels. However, in reality, the cost of such distribution system from their levels gets transferred to the supplier's product cost center.

For some companies, outsourcing their transportation requirements is one way of reducing cost. Establishing their own logistics network is an outsourcing strategy. Some companies would set up their logistics base such as a hub-and-spork system all over India so as to access the diversifying Indian market.

In this case, the risks of each logistics base are transferred to each landowner. In this way, outsourcing is used as a way of avoiding risks in transportation.

4.3.2. Strategies for self-supply

In the region between India and ASEAN, where there exists an underdeveloped transportation infrastructure, instead of outsourcing, a company's strategy of taking on the task of handling the delivery and transport itself might be a better option for reducing logistics costs.

For instance, a forwarder company may now decide to provide its own trucks, which can be traced every 15 minutes through the GPS tracking systems as well as conduct training for its own truck drivers to enhance quality of the transport service. These trainings include lessons on safe driving, cargo sanitation and accurate delivery.

Both alternatives discussed here prove that there are options for surviving the premature Indo-ASEAN infrastructure situation. For now, however, these options seems be old ways of surviving in business and therefore need to be modified based on the developing infrastructure of this region.

Hence, depending upon the socio-economic environment, each company should decide its own efficient strategy for transportation, which literally means "logistics."

5. CONCLUSIONS AND POLICY RECOMMENDATIONS

There are three points that can be derived from this study on enhancing the Indo-ASEAN logistics network:

1) Strengthen Indian domestic physical transportation infrastructure;
2) Set up multi-modality for Indo-ASEAN logistics network;
3) Ensure transportation quality as value-added logistics.

The next section suggests several policy recommendations for how to solve the problems discussed in this paper, all with the purpose of promoting Indo-ASEAN economic integration.

The following policy recommendations for both India and ASEAN take into serious consideration the needs of Japanese FDI investors.

5.1. Special measures for developing domestic infrastructure in India

The government of India has already launched one of the biggest projects for enhancing domestic infrastructure, especially physical infrastructure, in collaboration with the Japanese government. This is the Delhi-Mumbai Industrial Corridor (DMIC) Project. With reforms in such areas as entry restrictions for FDI investors now in place, transportation services are also picking up. These situations can create a better climate for the logistics network in India.

The DMIC project covers not only the physical infrastructure development but soft infrastructure development as well, in one of the most significant parts of India: the section between Delhi and Mumbai.

5.1.1. DMIC Project

What is the DMIC project? Delhi, the official capital of India, has more than 13 million people while Mumbai, the "capital of commerce and finance in India" is home to over 16 million individuals. The DMIC project's infrastructure facilities will be located between Delhi and Mumbai, stretching 1,463km in length and 150kms in width. Here, the area will be converted into an attractive investment and industrial area of India. This idea of developing an industrial belt in India takes its cue from the Japanese Pacific Ocean Belt Area project, which concentrated several economic resources in the area between Tokyo and Osaka or Fukuoka, along the Pacific Ocean. This was in the 1960s, around the same time Japan got its so-called miracle economic growth of 10 percent per year.

By developing world-class physical infrastructure in the DMIC area, India will be able to attract several manufacturing FDI investors. Such industrial concentration in this area,

envisioned to be one of the largest production bases as well as an export base, is going to bring a huge economic boom, together with exports from India.

5.1.2. Goals for DMIC

In terms of the DMIC construction deadlines, Phase I is supposed to take five years (from 2008 to 2013) and phase II covers another five years (from 2013 to 2017). The Indian government has already announced ambitious targets:

- Generation of employment opportunities (15% annually)
- Industrial production (25% annually)
- Export (32% annually)

This way, India definitely aims to promote its manufacturing base in DMIC so as to provide employment opportunities as well as develop its export sector. In the project's concept paper, its government also plans to construct industrial infrastructure such as industrial parks, food processing industry hubs, and IT or IT-enabled services centers. Logistics hubs, which can establish an effective supply-chain such as multi-modal transportation connectivity, are among these. In this plan, the DMIC project will create a comprehensive transportation infrastructure, where facilities are combined: port, railway, road, and inland depot. New roads and railways should also be connected to existing routes.

5.2. Multi-modal transport system and logistics network

5.2.1. "East Asia Optical Infrastructure Development Vision"

To enhance the logistics network among ASEAN+6 countries, investors' development plans for East Asia should be brought to the public's attention. This vision to develop ports, optical navigation, or aviation routes can help stakeholders in East Asia to understand how valuable this region is in the future.

Getting each investing company to declare its clear future plans for infrastructure development in this region will not only help in setting a sustainable policy for East Asia. Such will also prevent duplication in investments and ensure a stable investment in this region.

All these plans on infrastructure, including a description of the current situation, will be included in a white paper. Japan External Trade Organization (JETRO), too, has already published the "ASEAN Logistics Network Map" and is currently working on the "India and Indo-ASEAN Logistics Network Map," which describes practical logistics behaviors of companies in this region as well as surveys specific routes used.

5.2.2. Export of PPP scheme for collaborated infrastructure development among the East Asia

In the process of developing the infrastructure in ASEAN+6, financing is the most challenging issue. India has already established PPP schemes and implemented these, specifically in the DMIC project. Therefore, "exporting this PPP scheme" from India effectively to other East Asian countries seems a good way of overcoming financing issues. Other countries, including Japan, should cooperate in this field.

5.2.3. Indo-ASEAN Collaboration for developing physical or hard infrastructure

To physically connect India to ASEAN, the physical infrastructure mentioned earlier, including the land, sea and air routes, should be placed at the top of the to-do list in the future.

ⅰ. The extension of East-West Economic Corridor under the Asian Highway Project

India, ASEAN as well as other members of ASEAN+6 countries should help in developing the Asian Highway project or Hanoi-Delhi Railway project under UN-ESCAP. Under this project, roads have been constructed in almost all the parts between India and ASEAN. However, it is also necessary to upgrade certain routes, such as expand the road width, especially between India and Myanmar. This project can provide trade opportunities among Indo-ASEAN nations once infrastructure for both

sea routes and air routes is in place. To extend the East-West Economic Corridor, the first step is to conduct a feasibility study on the Indo-Myanmar road routes.

ⅱ. "Commercialization of Bay of Bengal", CBB Project

As a sea route, the Bay of Bengal has the maximum potential for development with reference to utilizing the feeder ship network as well as port and optical sea routes between India and ASEAN. The infrastructure needed to commercialize the Bay of Bengal has to be in place if one were to effectively promote the Indo-ASEAN economic trade partnership. Unfortunately, such is hampered by currently unstable political conditions in the area.

In June 2004, countries along the coastal line of Bay of Bengal agreed with the BIMSTEC scheme[7] and started discussing possible FTA agreements that aim to promote trade and economic integration of this region. Unfortunately, this did not progress far either.

Today, some companies continue to call for the improvement in the shipping facilities between India and ASEAN. Again, special conferences or dialogues with experts will have to be called for such aim to become a reality.

ⅲ. Cooperation for Constructing "Standard Clock"

If Indo-ASEAN wishes to realize its dream for a world-class logistics network, it is essential that its countries synchronize their time with each other. This is one of the most important requirements for any Just-in-Time strategy and will contribute to making the logistics network more efficient and competitive.

To synchronize time, one standard clock is required. This is especially a necessity in the

[7] Under the framework of BIMSTEC FTA agreement, India, Sri Lank, Thailand will reduce the tariff as a first truck group, Bangladesh, Butarn, Maynmar as well as Nepal will follow this first group as normal truck group.

aviation system as there are nowadays numerous flights to and from India and ASEAN, and these flights are increasing each day. Synchronizing the time of airport control towers and pilots will contribute to safety in air travel.

To set up a standard clock, US$20 million to US$30 million is required. As this nonexclusive and noncompetitive service is for the public's interest, there should be a political will between the governments of India and ASEAN countries to see this through.

5.3. Measures for High Quality Transportation Services

5.3.1. The Creation of Conference body for the East Asian Logistics Networks

To enhance the quality of transportation services, drawing up its list of standards for the logistics industry to abide with is the top priority. In this sense, FDI investors or companies in Indo-ASEAN---or East Asia in general---should be willing to come to the discussion table. Two bodies needed are:

ⅰ. Cargo Owners Council

A Cargo Owners' Council in East Asia can provide the forums for discussing East Asian logistics network issues. This council should also become a permanent body that provides policymaking recommendations for the logistics industry. It should set the priorities in services, facilities and infrastructure development based on the program for East Asian economic integration.

ⅱ. Studies under the ASEAN Common Investment Climate Project

To generate discussions within this future Cargo Owners' Council, members need objective data from existing comparative studies on the East Asian logistics network. The ASEAN Common Investment Climate project of the ASEAN Secretariat Bureau has conducted an in-depth study on the investment climate of East Asia. This project's study should be extended to the logistics industry.

ⅲ. Indo-ASEAN Services trade Statistics Foundation Project

If Indo-ASEAN trade is to be enhanced, it is necessary to complete the services trade statistics on Indo-ASEAN. Estimating mass transit within the region can be a take-off point for many fruitful policy recommendations for East Asian economic integration. At this point, the services trade statistics, which presents a picture of the logistics activities, should be driven by the multilateral cooperation among the East Asian countries. Services trade is important to India because of it great profit potential compared to goods trade.

5.3.2. Standardizing, Bringing Transparency & simplifying Transportation Standards

When reviewing the quality of transport services, such services should be compared with each other with the aim of setting standards across all these areas.

ⅰ. "Transportation Service Tariff Table" Project

In this project, the tariff for each of the transportation services will play a significant role. Once details of this transportation service tariff table is announced to the public, it will be easier to enhance or standardize the system for transportation services via market mechanisms.

These relative views on all the transportation service costs can act as a kind of peer pressure against the groups who act based on vested interests and who perpetuate inefficiency in the transportation service sector.

ⅱ. Standardizing Transportation facilities

Standardizing the transportation facility in East Asia is among the most effective strategies. Examples of ways to do this is to standardize RFID tags in inventory tracking as well as custom clearance rules.

5.3.3. Capacity Building for Human Resource Development in the Transportation Field

ⅰ. Public-Private Cooperation for Logistics Educational Institute as Capacity Building Centers

In terms of human resources development, the public sector has to collaborate with the private sector, where there is a huge amount of knowledge and skills. The establishment of Indo-ASEAN Logistics College is one of the most symbolic projects in this context. Such educational institute should include three types of transportation specialists under the East Asian-specific standard: (1) Technicians for controlling or operating ports; (2) Technicians for operating trains, especially freight trains; and (3) Technicians for managing custom clearance or for operating warehouses.

ⅱ. Sharing Japanese experience in "modernizing the transportation sector"

Japan can help in capacity building by dispatching its transportation or logistics experts to India and ASEAN and helping to develop the basic structures of these areas' logistics network. This way, Indo-ASEAN will learn from Japan's experiences in modernizing the logistics network and on how to remove obstacles to an efficient transportation system.