

An Initial Study of Logistics Development in Malaysia East Coast Region

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The logistics industry is one of the catalysts for the development of industrialisation in Malaysia which is linked to the international trade. The performance of the industry will have an impact of the progress of the nation's industrialisation and its competitiveness in international trade. The development of logistics management has facilitated production and distribution processes and created more access to the global market. It is within this competitive environment that shippers and consignees require efficient logistics services to move their goods at the right place, at the right time, in the right quantity, conditions and at the right price. Logistics development is paramount important to the country in supporting economic and growth and enhancing competitiveness. Malaysia as well as many developing countries are still at the moderate stage in developing logistics system and often face considerable challenges and constraints to provide efficient and effective logistics services. Therefore, the research objectives (i) to examine the current logistics infrastructures in the East Coast Region of Peninsular Malaysia, (ii) to find out the constraints and challenges in logistics development and (iii) to identify the capability of logistics service providers in providing the services. To achieve the objectives of this research, interviews were conducted with selected local authority, manufacturer, port operator and logistics service provider in this region to achieve the objectives of this research. The overall findings show that the existing logistics infrastructures are not well occupied the logistics development in the region. Amongst the constraints and challenges were mind setting of the communities and financial issues in organization. However, at the time beings, most respondents were satisfied with the services rendered by logistics service providers.

Keywords: Logistics development, logistics infrastructure, logistics service providers

1. Introduction

The logistics industry is one of the catalysts for the development of industrialisation in Malaysia, which is linked to the international trade. The performance of the industry will have an impact of the progress of the nation's industrialisation and its competitiveness in international trade. The development of logistics management has facilitated production and distribution processes and created more access to the global market. Logistics is widely defined as a backbone to the economic development. It means that a good or systematic logistics system applied in certain organizations will bring good impacts to the organization and definitely could increase their competitiveness among competitors. Up to a certain point, the healthy competitiveness could bring developing countries to stand at the same standard as developed countries.

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The Malaysian government has established the East Coast Economic Region (ECER) as one of Malaysia's economic corridors within the East Coast Region (ECR). ECER will transform the region into a major international and local tourism destination, an exporter of resource based and manufactured products, a vibrant trading centre, and an infrastructure and logistics hub. Strategically located in the east coast of Peninsular Malaysia, the ECER has the potential to become the main gateway for trade and industry within the Asia Pacific region.

The government intends to make Malaysia a centre of logistics and transportation hub. In order to help make the government's intention become reality, logistics development within the ECR should be thoroughly studied. Logistics plays a key role in national and regional economies in two significant ways. First, logistics is one of the major expenditures for businesses, thereby affecting and being affected by other economic activities. Second, logistics supports the flow of economic transactions; it is an important aspect of facilitating the sale of all goods and services. Therefore, the following objectives were established:

- (i) To examine the current logistics infrastructures in the ECR.
- (ii) To find out the constraints and challenges in logistics development.
- (iii) To identify the capability of logistics service providers (LSPs) in providing the services.

To achieve the goals of this paper, we investigated the following research questions:

- (i) Do the current facilities in logistics infrastructure help the practitioner deliver services in the ECR?
- (ii) What are the constraints and challenges facing logistics development?
- (iii) To what extent do the LSPs have the capability to provide the logistics services?

Although there have been studies on logistics development (Razzaque 1996; Hong & Liu 2007; Liu, S 2009), most of these studies have focused on logistics activities without addressing much in terms of the above objectives.

The next section reviews the relevant literature review with the aim of crystallizing the key variables of this study. A research framework exploring the relationship between logistics infrastructures, constraints and challenges, and capability of LSPs is then developed. In order to empirically analyse the proposed conceptual relationship, this paper employs an explorative interview method. The results of the study are then discussed in the context of contribution to the significance of study.

2. Literature Review

East Coast Region (ECR)

The efficient logistics system is required within ECR in order to cater the economic clusters. The ECR consists of three states, namely Kelantan, Terengganu and Pahang. These 66,000 square kilometres cover 55% of total land area of Peninsular Malaysia. These areas are now developing, with a variety of economic clusters such as oil and gas, petrochemicals, manufacturing, education, agriculture, and tourism. The clusters are reliably part of Malaysia's economic boosters. In Terengganu, for

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example, there are two areas of international trade, Kemaman Supply Base (KSB) and Kertih Port. The port and supply base are very important for export and import both domestically and internationally, and thus need efficient logistics infrastructure and logistics systems. Other than Terengganu, Pahang also has Kuantan Port, one of Malaysia's international ports. A brief of the ports information in ECR is below:

i) Kemaman Supply Base

KSB is located in Terengganu and began operations in 1982 as an onshore support base dedicated solely to service and supply the offshore petroleum operations. It was specially designed and developed as a comprehensive logistics supply base for Peninsular Malaysia's offshore petroleum exploration and production industries. KSB is an all weather port due to the natural shelter and the 850-meter breakwater built as a protection from the seasonal north easterly and south easterly winds. Its 360-meter quay with a depth of 8.0 meters enables it to receive five to six supply vessels at any given time. All these berthing facilities are dedicated to the specialized use of the supply vessels and the oil and gas related cargo traffic. There are more than 220 petroleum supply and service companies with varying degrees of manufacturing and technical service capacities operating at KSB. It is the biggest concentration of experienced contractors in Malaysia supporting petroleum development (EPIC).

ii) Kertih Port

As Kertih has now transformed into a petrochemical hub, Kertih Port as logistics infrastructure supporting to logistics services activities which functioning as Centralised Tankage Facilities and acting as mainly bulk liquid port. It houses the Petronas Petrochemical Integrated Complex (PPIC), which links the entire range of the oil and gas value chain, beginning from upstream exploration and production to the final stages of petrochemical manufacturing.

iii) Kuantan Port

The Port of Kuantan is one of the deepest seaports in Malaysia and the fast-emerging port acting as the new gateway to the Asia-Pacific region. As a deep-sea all weather port operating all year round, it is capable of handling vessels up to 150,000 DWT and various types of cargo ranging from general cargo, dry bulk to liquid bulk. The Port of Kuantan is a logical choice for shippers in the ECR area. It is a port with which other regional ports within the Asia Pacific would like to be associated. In addition, the port is positioning itself as a regional centre for transshipment activities as well as cargo consolidation and distribution activities. The port is also located right in the heart of the oil and gas related industrial zone in the ECR and is poised to benefit from the rapid growth of the petrochemical industries in and around Kertih. Kuantan Port functions as a centralised tankage facility, pipeline and pipe rack system connecting Gebeng area to Kuantan port and acts as container and bulk liquid port.

Besides port's logistics facilities, modes and conditions of transportations are also playing significant roles. Road condition for example, is significant for smooth delivery especially for the usage of hauliers. Railroad is needed as an alternative way to sea and air transport. Railroad is a very good of alternative choice since it offers less cost, less risk and faster delivery time.

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In term of the railway sector, rail haulage of containers is by Keretapi Tanah Melayu Berhad (KTMB) for the movement of containers which linking Kertih, Gebeng and Kuantan Port. The Kertih-Kemaman-Kuantan railway is a 77-kilometre long route connecting the integrated petrochemical complex in Kertih, Terengganu to Gebeng, Pahang and the Kuantan Port. The railway line is capable of hauling cargo in large volumes and in bulk, thus making it a highly economical, safe, reliable and consistent mode of transportation for the movement of raw materials and finished petrochemical material products. Apart from transporting petrochemical products, the railway link is also opened for general freight transport operated by KTMB, the main rail operator of Peninsular Malaysia. The rail link crosses five points in Kemaman (Kertih, Kemasik, Ulu Chukai, Binjai and Banggul) in Terengganu and Sungai Karang in Pahang.

Logistics Infrastructure

A study conducted under the auspices of the Economic and Social Commission for Asia and the Pacific (ESCAP, 2010) identified the major problems faced by Malaysia's freight transportation community like excessive dwell time for freight at ports or inland border check line (resulting either from or combination of both), congested land transport accesses to ports, poor coordination of rail and road loading or unloading activities in ports, blockages of the free flow of transit vehicles and cargo in the hinterland, inefficient and costly methods for trans shipping containers or cargoes between different railway gauges, lack of a single transport authority document for door-to-door consignments involving more than one mode and fragmented tariff-setting to railway in international transport corridors, putting rail at a competitive disadvantage. According to the study, these problems existed and could be increased might be because of slow customs inspection or slow document transmission at the checkpoints (ports/hinterland), railway institutional problem and because of existing poor infrastructure (ESCAP 2001). Sgouridis (2003) has added that all major Malaysian ports have both road and rail access, but the quality of the connectors can be improved, especially if congestion problems are experienced. The Malaysian government has shown that is focused on the improvement of the management and efficiency of the transport sector, although the major focus remains on the building of new infrastructure (MEPU 2001).

Sgouridis (2003) reported that the Federal Government's decision to assign Port Klang as the load centre for Malaysia had repercussions, both in an increase of economic activity in the area as well as the freight handled by the port. Port infrastructure and handling techniques are currently adequate to service the demand but problems have arisen in the landside handling of the freight, with delays in the delivery of the goods to and from the port. There were some potential reasons that lead to this condition (Sgouridis 2003):

1. The majority of the freight transported to and from Port Klang (95%) is carried by trucks, with rail carrying only 3.5%.
2. Usage of Electronic Data Interchange (EDI) and electronic tracking by the haulage firms is still limited.
3. Even if EDI is used, there is a need for additional paper documents like bill of lading, insurance certificate, invoice, delivery order, packing list, detail packing lists and so on, required for custom clearance.

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4. Company operation requires permit approvals and additional paperwork that may reduce the operating efficiency of both the private and the public sector and increase the transaction costs.
5. There is congestion on the main corridors that delay the delivery of goods and reduce truck fleet utilization. Port generated truck traffic contributes to the problem.
6. Railway performance is not adequate for drawing a significant share of truck traffic.

In a further study by Li & Fung Research Centre (2008) mentioned that although strong exports in past decades have stimulated the infrastructural development in China in important coastal regions, infrastructure capacity in China was unbalanced. Transportation bottlenecks remain common given the vast geographical span, in particular in Central and Western China and the rural regions. Connections between rail, road and port facilities also still have much room for improvement. According to Speece and Kawahara (1995), China's highways, railways and shipping were already insufficient to meet the needs in the 1990s. Yam and Tang (1996) have also found similar transportation issues in Southern China.

Constraints in Developing Logistics

From the research conducted by Ali et al.. (2008) on logistics industry in Malaysia, they found several constraints that limit the logistics development in this country. Among the constraints were lack of follow up actions after certain meetings or issues raised, lack of sophisticated management techniques among the supply chain companies, problems in information technology (IT) systems with regard to (1) costly EDI pricing and charges due to non-transparent mark-ups by freight forwarders and (2) overall performance and functionality of the system, lack of skilled and trained manpower, no single established source of logistics data and information including lack of information of the industry players, facilities, services and capabilities of the sectors, lack of research and development of the industry, lack of regulatory forms to facilitate the industry, lack of dissemination of information with regard to the development and expansion of the logistics industry. This information is important because through the information obtained, practitioners may then suggest on how they could participate in the new business opportunities (Thong, 2007). Also, one of the main problems faced by the local service providers is an inability to participate in international logistics activities as a result of limited IT linkage, overseas corporate network and capital investment (Thong 2007).

Research conducted by Li & Fung Research Centre (2008) found that China was having problem with human resource. It was found that the demand for talent outstripped supply in the logistics industry. Many practitioners lack modern management knowledge and skill sets to cope with ever-changing needs of the industry. In the other hand, they stated that the self-management mentality has hindered the development of China's logistics sector. Speece and Kawahara (1995) found that in China, the fault also lied in adequate transportation infrastructure, bureaucratic inefficiency and corruption. Beside China, Hungary, Korea and Japan also were also facing lack of managerial skills in logistics, apart from issues pertaining to centrally planned economies (Handfield and Withers 1993). Goh and Ling (2003) added that aging infrastructure was inadequate to meet vibrant demand, coupled with archaic handling equipment and the lack of qualified logistics personnel. This naturally leads to high logistics cost. For instance,

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the proportion of logistics cost to total production cost is estimated at 20-30% in China, compared to only 10% in the developed countries (Dekker 2002). Other major logistics barriers in China include the lack of responsiveness and dependability of local suppliers, inadequate communications infrastructure, complicated and time-consuming customs procedures and the unavailability of logistics consulting services (Carter et al. 1997).

The challenges for Logistics Development

Li & Fung Research Centre (2008) stated that even as industry in China grows year after year, there are also some major challenges that interrupt development, like rising cost, financing bottlenecks, in-house mindsets to handle logistics, localized services, lack of unified top level institutional coordination and imbalance transport infrastructure development. For 2006-2007, China's GDP decreased 0.1% due to rising cost of labour and fuel cost. The toll problem there also causes driving to become more expensive.

Results of a survey on 68 logistics managers in Bangladesh showed that the biggest challenge facing logistics development in Bangladesh appears to be infrastructure related; inadequate transport and telecommunication networks and poor port and related facilities are major factors hindering the development of a logistics system in the country. Other than infrastructure, challenges also came from frequent changes in government policies, lack of understanding of the nature of market economy and its management. More severe, its modus operandi may not be well understood by the economy managers. Logistics managers also fail to understand and appreciate the role and importance of logistics as a distinct management function, as such, was reluctant to support the establishment of the organization (Razzaque 1996).

Generally, in today's world of continued growth and globalized markets, supply chain stakeholders have opportunities to realize substantial value potential. At the same time, the resulting increase in complexity has created significant challenges for players. Most major logistics players experience unstable growth and eroding margins, while supply chain operators (shippers) face increasing pressure to lower their costs whilst at the same time improving the efficiency and effectiveness of supply chain operations (McKinsey 2011).

Capability of Logistics Service Providers

With the increase of the of the global competition and the rapid progress of the IT technology, the logistics industry has become one the most influential subjects of the 21st century. The scope and role of logistics have changed dramatically over recent years. In the past, logistics has played a supportive role to primary functions such as marketing and manufacturing. Now the scope of logistics has expended beyond its traditional coverage of transportation and warehousing activities to include purchasing, distribution, inventory management, packaging, manufacturing and even customer service (Chin et. al 2010). More importantly, logistics has dramatically evolved from a supportive role characterized as passive and cost absorbing, to a primary role and critical factor in competitive advantage (Sum and Teo 1999). Companies experiencing growing pressure to reduce costs and provide better service can improve their logistics by outsourcing to logistics firms, an option that can increase both efficiency and effectiveness. Fernie (1999) classified studies

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on logistics outsourcing into the following three types: (1) the outsourcing decision from theoretical perspective; (2) broad conceptual views on the relationship between the logistics service users and their LSPs; and (3) empirical research on the users' perceptions of logistics service providers.

The outsourcing of logistics activities to specialized logistics service providers can help increase the efficiency and effectiveness of a company's logistics function (Vowles 1995; Christopher 1993). Outsourcing is also an option for companies that perceive the existence of gaps between what they want to accomplish with their logistics operations, and what they can achieve with their in-house expertise (Buxbaum 1994). Using logistics providers allows companies to concentrate more closely on their core business. Other key drivers for the use of logistics providers include globalization of businesses and implementation of just-in-time (JIT) principles. Ali et al. (2008) have mentioned that since the outsourcing of the production function has led to the outsourcing of logistics activities, many multinational companies, such as automobile, electronic and electrical companies have outsourced their logistics activities to third party logistics (TPL) service providers in order to enable the companies to focus on their core business.

In China's logistics industry, four main distinct groups of different origins experience intensifying competition. Based on a survey of 177 LSP companies conducted by (Chin et al. 2010) in Shanghai, it was found that the respondent companies generally possess well capability of performing traditional logistics services such as freight forwarding, direct transportation service, customs clearance, shipment consolidation, tracking and tracing shipment information and warehousing. They are also capable of performing logistics services involving the use of basic logistics information technology. These services include receiving and sending shipment notices using EDI and logistics information systems. The results suggest that logistics companies in Shanghai have been investing in basic information technology to enhance their service capability. Nevertheless, they appear to lack the capability to provide advance logistics services such as purchasing services which requires relatively large investments in human and physical assets and in information technology infrastructures. One plausible reason for their lack of service capability in these "value-added" services is that most of the respondent companies are small to medium size. They lack of financial resources, employees with those abilities, and operating scale to expand the scope of their services to include these categories in their services menu.

In terms of LSPs, LSP companies in Shanghai are particularly good at helping customers to solve cargo transportation dispute, making efforts to help in emergencies and giving pre-alert notices of shipment or delivery problems. Thus, the results show that logistics companies in Shanghai recognize different performance aspects of their services and give them equal attention when carrying them out (Chin et al. 2010).

A survey conducted by Sum and Teo (1999) for 51 logistics companies in Singapore showed that they pursued different strategies performed differently in order to give best logistics service to their clients. Those companies aim to provide reliable and consistent service, to offer a short delivery lead time, to meet customer's specifications or special request, to operate at low cost, to meet customer's due dates, to offer service of good design and performance, to be flexible in accommodating changes and to maximize value-added products for

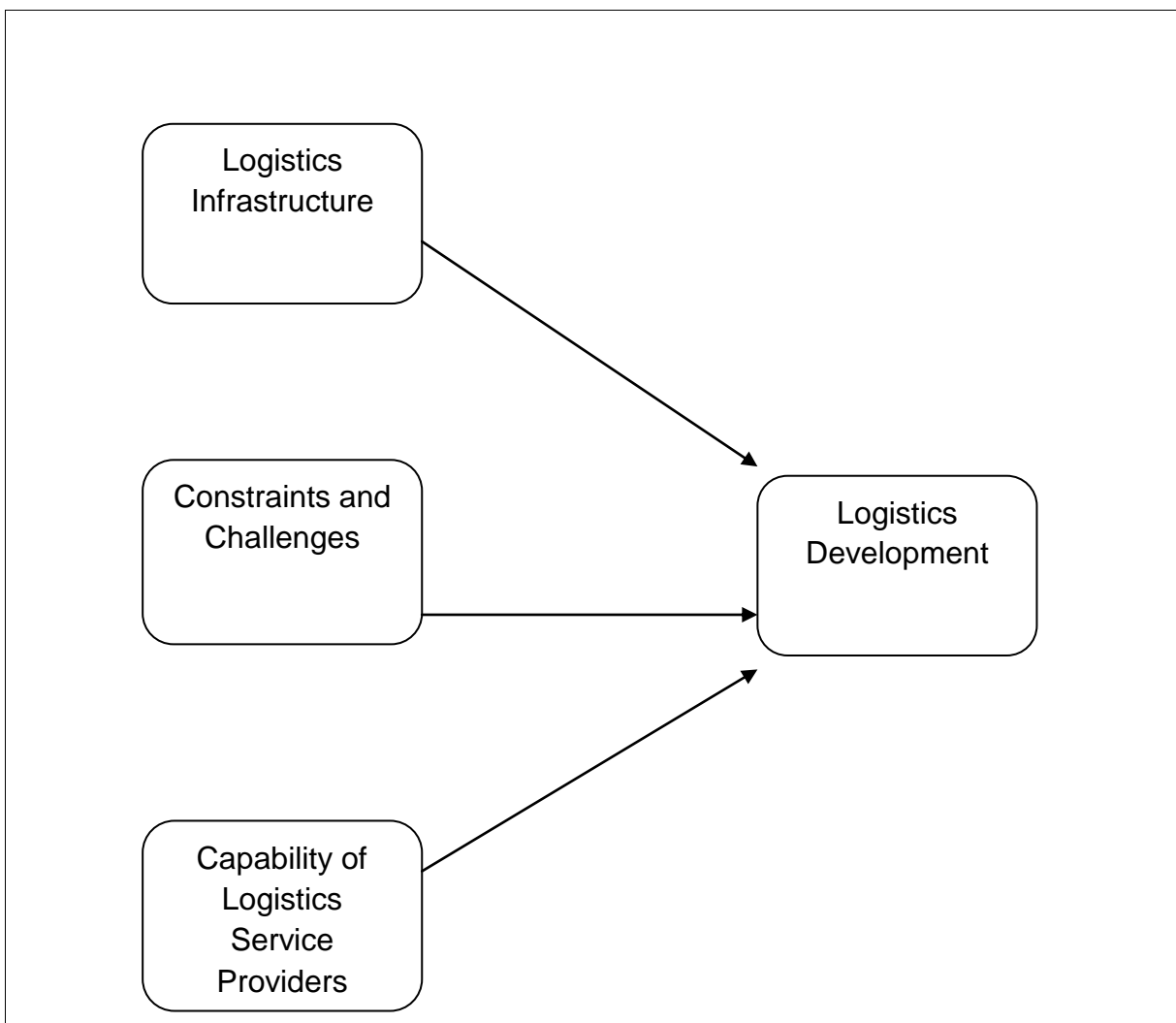
clients. From this research, they also found that the respondents agree that IT could contribute significantly to their operations capabilities. As Singapore prepares to position itself as the logistics hub of the Asia Pacific region, the logistics service industry must achieve higher standards of customer service and product quality.

The above studies provide a robust framework for the research methodology for analyzing the logistics development in ECR. The input variables to the research framework depict the organization-specific characteristics such as the logistics infrastructures, constraints and challenges; and capability of LSPs. This research framework is shown in Figure 1.

3. Methodology

Qualitative research is appropriate for this exploratory research, since it can be applied in organizational business as a means of identifying common threads in management style, processes, and strategies in context-specific situations. In our study, we looked out the common issues related to the objectives of the research in the view of authorities, port operators, manufacturers and supply base (service providers). In an effort to gain rounded, holistic explanations, we collected data using a qualitative technique, specifically interviews.

Figure 1: Conceptual framework



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To achieve the goal, we chose one representative organization for each category mentioned above. We conducted our interviews with above mentioned organization in Terengganu and Pahang. Overall, each interview lasted for 2.5 hours. Each organization was represented by at most two personnel from managerial level with had years of experience in the logistics field and who also served the organization for several years. The interview's questionnaires were constructed thoroughly with the division of four sections that approach the respondents' views, knowledge and experience in logistics industry at the organization plus the adjacent areas.

- i. Section one covers demographic studies.
- ii. Section two emphasized on current logistics infrastructures owned by the organization. The respondents required to state the level of satisfaction on existing infrastructures, including the logistics facilities.
- iii. Section three discussed on the constraints and challenges faced by the respondents in order to develop with the goodness of logistics development (facilities, infrastructures, services etc).
- iv. Section four asked respondents about the capability of logistics service providers to provide different types of services. The questions were applied same to authority, manufacturer and port provider because they used the service of logistics service provider.

The responses were later transcribed and analyzed. Four organizations interviewed were:

- Local authority in Terengganu – the functions of this authority is to handle the management of domestic logistics in term of planning, transportation and residential requirements before submitting the implementation process to the logistics players, based on approval from federal government.
- Manufacturer in Pahang – core business of this manufacturer is assembling cars, including car body, storage, unpack, assemble, and supply to the line as well as distribution.
- Supply base in Terengganu - the respondent comes from a supply base company. Main function of the company is to provide facilities for port operators and logistics players.
- Port operator in Pahang - the main function of the port operator is to manage port activity and also acted as feeder port.

The responses indicated that features of logistics development in ECR are in line with the Logistics Development Study of the Greater Mekong Subregion North-South Economic Corridor model study by Banomyong (2007). This model indicated Infrastructure, Service Providers, Institutional Framework and Shippers/Consignees are the logistics system components for logistics development.

4. The Findings

Current facilities

Table 1: Issues of current facilities

Local Authority	Manufacturer	Supply Base	Port operator
<ul style="list-style-type: none"> • Insufficient network and low quality road • No specific lane for heavy transport • Two-way lane for rail 	<ul style="list-style-type: none"> • Insufficient Warehousing facilities • Road conditions within their area improved 	<ul style="list-style-type: none"> • Road condition not expanded up to the level of current business development • Facilities do not cover the logistics requirement 	<ul style="list-style-type: none"> • 19 wharfs available to serve customer • Container and liquid wharfs are sufficient • Flexibility on the storage and warehouse • Problem in accommodating the dry bulk and conventional commodity • Majority used trucking and hauliers for cargo movement • Low performance as most of cranes were old

Source: Interviews with the respondents

In the view of representative of local authority, the current logistics facilities in Kemaman area were deemed insufficient in term of network, width of the road and also the quality of the road. Kemaman had only one main road shared with the public users. Among their nodes were supply base to Kerteh, supply base to Gebeng and supply base to Kuantan. In addition, there was no specific lane for heavy transport. Even there was a lane of two-way of railway from Kerteh to Kuantan for the purpose of accommodating the industrial goods to the port, it was not enough to support industrial development in the area.

Insufficient warehousing facilities was the main problem facing the manufacturers in this region as explained by respondent from manufacturing. As stated by the respondent, they have to rent the warehouse far away from their manufacturing area which increases cost. However, road condition within their area in Pekan, Pahang was improved with the expansion to four lanes.

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However, representative from supply base were disappointed with the road conditions within their area. This is because the road is not expendable in line with the businesses and activities development. Even though, there was improved, but still was not sufficient to accommodate the logistics business activities. As a result, supply base operator concluded that the facilities in Kemaman and Kerteh still not at the acceptable level.

Respondent from port operator explained the current port handles four main commodities such as dry bulk, break bulk, liquid and container with the total of 19 wharfs (3 wharfs for palm oil, 3 wharfs for liquid chemicals, 3 wharfs for containers and the rest for other jetties). The infrastructure for container and liquid bulk was sufficient but there was a bit of a problem with dry bulk and conventional, especially for iron ore as the volume keep increasing. The port operator was not facing a problem with storage and warehousing as their clients build their own concept and port operator provided space for them to choose.

Previously, port operators used the railway as transportation mode, but since the railway ceased operation as maintenance cost was high, they changed to trucking and hauliers as the transportation mode. Port operator also mentioned that at the moment, performance of container throughput productivity was low as the cranes were old.

This result supported study by Li & Fung Research Centre (2008) who found that logistics infrastructures such as connection between rail, road and port facilities still have much room for improvement. The finding also supported Speece and Kawahara, (1995) who found China's highways, railways and shipping were already insufficient to meet needs in the future.

Constraints and challenges of logistics development

Table 2: Constraints and challenges

Local Authority	Manufacturer	Supply Base	Port operator
<ul style="list-style-type: none">• Financial• Management ability• Community attitude	<ul style="list-style-type: none">• Lack of skilled manpower	<ul style="list-style-type: none">• Shortage of manpower• Insufficient facilities• Road congestion• Limited space	<ul style="list-style-type: none">• Insufficient feeder vessels

Source: Interviews with respondents

The representative of a local authority in Terengganu highlighted three main constraints and challenges, which were financial, management ability, and attitude of the communities involved in the development of logistics in this region. There are some spaces to expand the facilities but it was limited by the financial capability. Expansion need to be implemented immediately as parking space was insufficient for transportation and the transport owner parked randomly at the edge of main roads. Another constraint and challenge is the attitude of the people to accept and

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support the changes. Based on previous study by the local authority, the attitude problem contributed about 80% of town planning problems.

The respondent from manufacturing in Pahang has only highlighted one constraint and challenge in developing the logistics in the region. That factor is lack of skilled manpower. Many of them do not prefer to stay in this area as they prefer to live in a bigger city like Kuala Lumpur.

Shortage of manpower was a crucial factor that affects the logistics development in this region as highlighted by respondent from service provider. The reason was the investors will look into facilities such as residential areas, hospitals and school. Another constraint and challenge was road congestion. This is because everyone uses the same road especially when there were constructions at the adjacent areas. Furthermore, the limitation of space within supply base area to upgrade caused to the slow development of logistic.

The respondent from port operator explained that insufficient feeder vessels were the constraint and challenge in supporting the shipping and logistics activities in this region. Most of the existing feeders were moved to the East of Malaysia. There was no direct feeder to Sabah and Sarawak from this region.

The findings are in line with the study by Li & Fung Research Centre (2008), who found that China was having a problem with human resources. Demand for talent outstripped supply in the logistics industry. Many of their practitioners lack modern management knowledge and skill sets to cope with ever-changing needs of the industry. The results were also supported McKinsey (2011), who found that most major logistics players experience unstable growth and eroding margins, while supply chain operators (shippers) face increasing pressure to lower their costs while at the same time improving efficiency and effectiveness of supply chain operations.

Capability of logistics service providers to provide the services

Table 3: Capability of logistics service providers

Local Authority	Manufacturer	Supply Base	Port operator
<ul style="list-style-type: none"> • Insufficient to cater to demand • Focused on one service 	<ul style="list-style-type: none"> • Satisfied with current service of LSPs 	<ul style="list-style-type: none"> • Satisfied with the LSPs 	<ul style="list-style-type: none"> • LSPs were not local players • Multiple services

Source: Interviews with respondents

The representative of the local authority observed that LSPs were insufficient to cater the demand in logistics business. As a result, the customer will use the less performance LSPs as there is no alternative to choose it. Most LSPs in Kemaman served for transportation only, as the industrial players have their own warehouses. However, respondents from manufacturing and supply base explained that they were satisfied with current services provided by LSPs. On the side of port operator, respondent explained 70% of LSPs came from outside of this region and remaining were local companies. Port operators added that LSPs that deal with them provided multiple services to the customer.

The result indicated that two respondents are satisfied with the LSPs services. This finding was supported Chin et al. (2010), who found that the LSPs are capable in delivering their services either in traditional logistics services or performing logistics service involving the use of logistics information technology.

5. Discussion and Conclusions

It was found that the current logistics facilities in ECR were not sufficient to cater the continuously developing industry within this area. The main factor was the road network and condition for both states Kemaman, Terengganu and Kuantan, Pahang. The roads were not wide enough to support the increasing number of vehicles and there was no specific lane for the industrial transportation. As a result, the industrial transportation is sharing with public user and caused to road congestions and unsafe conditions. With the limitation road access, it gives impact to the logistics player to deliver the goods timely. In addition, the road condition was not acceptable as there was holes and dust which would risk to the logistics players and public users.

However, Pekan, Pahang was quite fortunate to have good road conditions with a new highway. The high quality of road condition is important to attract investors to this region. Network access from port to manufacturing and customer is first priority for the investors and logistic players to deliver efficient service. In addition, warehouse facilities were another point found in this study. The demand exceeded over the supply. Currently, several warehouse in the middle of construction but all of them were fully booked. As such, the authority should resolve the problem immediately in order to be in line with the growth of manufacturing industry in ECR.

There are many constraints and challenges to developing logistics in the ECR. It includes financial, the ability of management, people attitude, lack of manpower skill, shortage of manpower, insufficient facilities, road congestion, limited space, and insufficient feeder vessels.

The logistics development was limited due to financial issues where the development projection by the local authority was unparallel with the government's provisions. The findings also found that the mindset of the people was a significant factor in facing the changes in logistics development. Some of them were not ready for it and tended to lay back without supporting the efforts done by the authorities. It was similar to the causes of lack of manpower skill as most of the professional would not prefer to move from the big city to this region. As result, the shortage of manpower will be main constraint and challenge in developing the logistics in this region. Therefore, current facilities need to be upgraded in order to influence potential workers to move into this region. Land space limitation was also an issue in order to develop logistics facilities.

In the case of logistics service providers, all of our respondents were satisfied with the services of their logistics service providers; except the local authority rated the service as average, but still satisfied. About 70% of the logistics service providers came from outside of this region and they are able to provide variety of services required by the customers.

Despite the above insufficient logistics infrastructure and obstacles, there would be potential development, especially in Kemaman. From the sources of respondents,

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there will be two new plants from big investors in Telok Kalong, railway extension from Kerteh to Gebeng, construction for sea transportation, Kijal Dry Port and also an old road will open to Kuala Kemaman in order to lessen the road congestion in that area. To increase safety, the authority will provide a new lane for heavy transport so that they do not cross public users. All of these efforts are hoped to boost economic development in that area and at the same time give employment opportunities to the community.

Since there were insufficient warehousing services, the authority has planned to develop new warehouses at an adjacent area on the land provided by the ECER. The project is expected to be completed in next two years. For the supply base, they are now working out for an inland port, Bandar Baru Kijal, which also will be an area for small and medium business to expand.

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