Green Logistics Adoption among 3PL Companies

R.Abdullah[#1], MS.Mat Daud[*2], F.Ahmad[#3, A]A.Shukti[#4]

[#]*Industrial Logistics, UniKL MITEC*
Persiaran Ilmu, Seri Alam, Johor
[1]rozelin@unikl.edu.my
[2]mimisuriani@unikl.edu.my
[3]faradina@unikl.edu.my
[4]athirah.shukti@unikl.edu.my

[*]*Universiti Teknologi Malaysia*
81310, Sekolah Agama Universiti Teknologi Malaysia, Johor Bahru, Johor, Malaysia
[1]Assoc. Prof. Dr Muhammad Zaly Shah
[1]b-zaly@utm.my

***Abstract*— Logistics is one of the causal factors of environmental pollution through its activities. Previous studies had shown Green initiatives adoption by Third Party Logistics (3PL) companies may reduce environmental impact. These companies are the stakeholders of logistics activities and supply chain management. The aim of the research is to investigate the involvement of Third Party Logistics (3PL) companies in applying Green Logistics initiatives in the event of rendering logistics services to its customers. The parameter of this study is within the scope of 3PL companies that have already adopted Green Logistics practices in Malaysia. The paradigm of green logistics implementation in this study are within three domains which are the customers, the logistics operations and the logistics amenities. This study will identify the positive and negative impacts of adopting Green initiatives experienced by the 3PL logistics companies in satisfying its customers' requirement. Evidences are included to support these adoptions through previous studies especially on the influence of Environment Management System (EMS) and Green Supply Chain Management (GSCM) practices by manufacturing companies. The focus of this paper is the adoption of Green Logistics initiatives by Third Party Logistics (3PL) companies in Malaysia via case study research methodology.**

***Keywords*—** *Green Logistic, Third Party Logistics (3PL), Customers, Logistics activities, Logistics amenities, Logistics operations, Green Supply Chain Management (GSCM),*

1. Introduction

This paper focus on the adoption of Green Logistics by Third Party Logistics (3PL) companies in Malaysia. The study covers three domains that are closely related to the 3PL companies' daily environmental operation which are the customer environment, the logistics operational environment and the logistics amenities environment. These three domains underpin decision making and logistics operations of 3PL companies. The customers of 3PL companies are the manufacturers, the importers, exporters, the traders or distributors. Each customer has its own set of standard requirements and capacity in managing its Supply Chain. Distribution activities of the customers involve packaging, labelling, break bulking, transferring and transporting. Logistics support this supply chain by getting the product from point A to point B while 3PL companies are the stakeholders making sure the delivery objective is accomplished through the integration of several logistics activities. Georgiana (2014) explained that the environment has direct relationship with logistics activities.

2. Literature Review

Efficient 3PL services require several logistics activities support which include transportation, warehousing, procurement, customs brokerage, order processing and customer service. These logistics activities operate around the world and in doing so, the 3PL companies have to abide by the rules and regulation of the governing bodies the country it operates. Among the activities related to the governing bodies involve documentations, approval of import or exports, tariff, duty, tax and fumigation. These paperwork are controlled by the customs, ports, airports and Ministries. 3PL companies are also bound by the availability of infrastructures, facilities, technology systems in the respective country it

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operates to perform its deliveries. Activities such as documentation, procurement, customer service, packaging and inventory management requires sturdy and advance information systems, transportation needs proper highways, rail tracks, up to date airports and port facilities to function efficiently. In order to look into these aspects, three paradigms had been identified which have direct influence toward 3PL operations.

2.2.1 Customer Environment

Type of product determines the type of logistics service support required by customers. Norlinda et al (2015) identified the relationship between 3PL activities and customer pressure in ISO 14001 manufacturing operations. Raw material, semi-finished and finished product requires different packaging, handling, customs documentation and distribution support. Among the three product types, lays another layer of product differentiation which are the consumer, construction, electronics, chemical and dangerous goods as well as foodstuff products. Logistics support of these various products varies according to its sizes, weight and volumes as well as the quality and safety. Thus, manufacturing companies producing green products or ISO 14001 certified will require appointed 3PL companies to provide green logistics services in order to comply with the quality and standard. These companies implement Green Supply Chain Management (GSCM) with the support of designated Environment Management System (EMS) and practice sound Reverse Logistics activities. According to Tambovcevs (2012), logistics share the same requirement when it comes to Environment Management System (EMS) under the certification of ISO 14001 and ISO 9001.

Distribution activities are complicated which involve integrated logistics support such as re-packaging, labelling, export, transportation, customer service and procurement. Some manufacturing company do not manage own inventory thus outsource the storing and distribution activity to the appointed 3PL partner companies. Some manage their own inventory management and only hire 3PL company to manage their procurement, export and transportation activity. Rodrigue's (2001) explanation on the theory of distribution was reported in 2001 and the concept of operations by 3PL logistics is still relevant until today.

2.2.2 Logistics Operations Environment

In this norm, logistics services are very much bound to the awareness and its corporate company's directions. Most Multi National (MNL) companies are well aware of the importance and impacts of green logistics especially of those originating from the European and American companies. This is derived from the home country's concern over the environmental protection policy. Nevertheless, it is not the same for local Small Medium Enterprise (SME) companies due to its sizes, capital caps and awareness. Type of services these companies provide varies according to the availability of its capital framework against its operational costs.

Neither MNL nor SME 3PL companies is far from the pressure of competition. Customers evaluate and compare services against prices of 3PL services in order to gain more profit. As logistics is the most expensive single cost compared to other manufacturing costs. The higher the logistics costs the lower the profit of the customers. Shishi et al (2015) identified that the level of impact concerning the environmental factors and decision making on green practices of small and medium size companies varies. Thus it is difficult for the 3PL companies to deliver excellent service within tide operation budget. Karin (2014) mentioned that some pressure from competitors is one of the factors influencing Logistics Service Providers (LSP) to adopt green initiatives in its services.

3PL companies offer various types of services. Some provide not only customs brokerage, procurement, fumigation, transportation but also warehousing services which involve packaging, break bulking and distribution. It depends on the company's image and direction, capital and skills. This adoption of green logistics initiatives also varies according to the type of services a company provide. According to Rodrigue (2001), different types of logistics activities or services is one of the determining factors to adaptation of green logistics among others.

Establishing green initiative in logistics activities require high budget as most of green initiatives supported by innovations. Discussion on the relationship between logistics activities and innovations will lead to the third domain which will be explained right after.

2.2.3 Logistics Amenities

Aforementioned logistics activities are very much dependent on its operational amenities and it differs from one country to another. Developing country such as Malaysia is far left behind in terms of green initiatives and advancement in comparison to the developed country like the European and American countries. This somewhat imposes certain level of challenge to 3PL companies in adopting green logistics in Malaysia. Similarly, with the size of the company, MNL companies are able to invest on better equipped facilities such as Information System (IT) and equipment. Herina et al (2009) identified the importance of green technology innovation in the adoption of green initiatives in transportation companies in Malaysia. The level of awareness in green logistics initiatives among workforce between companies also varies. Transportation requires good infrastructure to operate while distribution centres require modern inventory systems which minimize real time of impact on product arrival and delivery. The

effectiveness of distribution, procurement, customs brokerage and packaging can be determined by the innovation of IT. Paperless customs declarations, Quick Respond code (QR) and Efficient Customer Respond (ECR) technologies are examples of improved logistics activities. These improvements affect the percentage of carbon footprint release to the atmosphere. Green Energy as in Biodiesel and NGV towards Carbon Dioxide release to the air and the usage of solar panels in warehouses or distribution centres will reduce electricity consumption and heat. These innovations support the adoption of green logistics adoption and it costs high financial investment decisions of the 3PL companies.

Research Methodology

The adoption of Green Logistics among 3PL companies as explained is bound by the three paradigm through three underpinning factors which are the Customer Pressure, Government policy and the development of Innovation. This study focus on the three variables which integrate all functions of logistics operations run by 3PL companies.

Research Design is based on collective Case Studies of several 3PL companies in Malaysia which have already adopted green logistics in its services. According to Donna (2009), triggering issues related to certain phenomena may be through collective case study of more than one cases. Since there are various 3PL companies operating in Malaysia, three European and Japanese based MNL and local SME 3PL companies, this study is exposed to various ground base of data source. Some statistical data is gathered from Federation of Malaysian Freight Forwarders Association (FMFF) and Department of Statistics Malaysia. Case study includes interviewing relevant parties in the 3PL companies that involve directly with Management, customer service and operation team divided by customs brokerage, warehousing, transportation. The interview consists of properly designed sets of questions covering the objective and scope of the underpinning factors (Donna, 2009). Online survey services will be conducted on the customers of 3PL companies in Malaysia to gain data on logistics service, performance and prizes.

4. Discussion

Previous studies on the paradoxes of green logistics implementation and initiatives focus in Europe and other parts of the world. The willingness of adopting Green Logistics are growing, however, it is difficult to measure the effectiveness as the adoption styles and extensiveness differ from one logistic company to another depending on the size of the company and the country it is operating. Georgiana (2014) concluded that the application of green logistics by SME and MNE companies have not been extensively explored. While the influencing factors are different from one company to another depending on the environment the operations being carried out by the 3PL companies (Evangelista et al, 2010). In the context of Malaysia, there are 3PL companies that have already adopted Green Logistics nevertheless influencing factors to adopt and the impact the company gain require further elucidation. In Malaysia, the awareness of Green practices is raised through the government initiatives by nationwide promotion of better disposal to the public, green manufacturing, green building and products, however, the initiatives towards 3PL worth exploring. According to Eltayeb et al (2009), regulation formation by the governing authority is one of the important driver towards the adoption of green logistics in Malaysia. While CY Lin (2008) states that government projects and financial incentives encourage LSP to adopt green logistics positively.

5. Conclusion

Information and data gathered as a result of this study added new body of knowledge to the development of green logistics adoption in the daily practices of 3PL companies in Malaysia. Though there are differences in green logistics approaches depending on the types of service provided by these companies to its customers as well as the size of the companies, a little effort carries significant milestones towards the effort of making the world a better place by reducing pollution.

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