

**GREEN MANAGEMENT EFFORTS AT  
MALAYSIAN FEDERAL SEAPORTS:  
CONTRIBUTOR TO THE CORE  
COMPETITIVENESS**

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**UNIVERSITI SAINS MALAYSIA**

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by

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## LIST OF ABBREVIATIONS

CONT	Containers
RBV	Resource Based View
RDT	Resource Dependence Theory
TEU	Twenty Foot Units
TOT	Tonnes

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Appendix 1 Interview Guide

Appendix 2 Respondents

**USAHA PENGURUSAN HIJAU OLEH PELABUHAN PERSEKUTUAN  
MALAYSIA: PENYUMBANG KEPADA ASAS DAYA SAING**

**ABSTRAK**

Pengangkutan laut dianggap sebagai titik penting dalam pengurusan rantaian bekalan. Oleh itu, keperluan untuk terus menambah baik dan memperhalusi proses akan menjadi perkara yang baik untuk perniagaan. Terdapat perubahan arah aliran di mana isu hijau telah menjadi isu penting untuk pengangkutan maritim global. Negara maju telah berada di barisan hadapan dalam meneruskan agenda pertumbuhan masa hadapan. Aspirasi Malaysia untuk menjadi hab maritim di rantau Asia Tenggara terletak pada keupayaannya untuk meneruskan strategi kompetitif. Kajian ini membayangkan kepentingan pengurusan hijau dalam operasi pelabuhan di pelabuhan persekutuan Malaysia dengan melihat cabaran dan sebab untuk melaksanakan strategi. Pendekatan kualitatif dilakukan dengan menemu bual 12 responden di 6 pelabuhan persekutuan dan dianalisis menggunakan analisis tematik. Hasilnya merumuskan bahawa pengurusan hijau adalah sangat penting dalam meningkatkan sifat daya saing pelabuhan persekutuan Malaysia yang akan meningkatkan pilihan pelanggan dalam memilih Malaysia sebagai rakan dagangan global mereka dalam proses rantaian bekalan.

**GREEN MANAGEMENT EFFORTS AT MALAYSIAN FEDERAL  
SEAPORTS: CONTRIBUTOR TO THE CORE COMPETITIVENESS**

**ABSTRACT**

Sea transport is considered significant nodal focuses in the supply chain management. Accordingly, the need to consistently upgrade and further develop processes would foreshadow well for the business. There has been a change in pattern by which green issues have become significant themes to the global sea transport. Developed economies have been the leaders in seeking after the plan for future development. Malaysia's desire of being a sea nodal point in the South East Asian district lies in the abilities of seeking after aggressive systems. This study infers the significance of green management at portside activities at Malaysian federal seaports by taking a gander at the difficulties and the reasons of seeking after the technique. A qualitative methodology was directed by interview 12 respondents in the 6 federal ports and investigated utilizing thematic analysis. The outcomes presume that green management is imperative in upgrading the competitive idea of Malaysia's federal seaports which will raise the selection of customers in picking Malaysia as their global trading partner supply chain processes.

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Seaports are utilized by ships for economic development for the country. In Malaysia there are 7 significant federal seaports utilized for this kind of organizations and basically another 20 seaports joining state and breakwaters giving traveler services (MIDA, 2017). Ships are utilized with the end goal of import and commodity for the nation or even as an unpredictable course to other objective country. In economic matters import and commodity are fundamental for a country's economic development. To build this development an ever increasing number of ships are being docked at ports. Sea entries are the life savers of global trade and imperative to the economies of numerous nations all throughout the planet (Barney, 2007).

An expected 85% of world trade is conveyed via seaborne transport attributable for its economic potential benefits over different methods of transport. As interest for all habits of unrefined components and made goods develop along with the development in global populace and request, transporting is set to figure noticeably in diagramming global economic development (Lam, 2015). As per (Wang, Jiao, and Ma, 2018), ports are imperative infrastructural essentials as far as their job as an integrator of public economy with the world economy. They influence the productive utilization of sea transportation. Moreover, to the specification of foundation for global transportation, ports play an essential part in the travel transportation and logistics also. The conceptual significance of a seaport is basically inserted inside a country's progress as a solid seaport upholds the development of some random country (Bichou, 2004).

Since the eleventh Regional EST discussion in Mongolia in 2018, green cargo has been a theme of developing interest. Populations are developing quickly, just as Asian economies. Asia will be liable for USD \$148 trillion by 2050, 51% of global GDP which implies more import and product at seaports, Transportation especially delivering action is developing basically 3.7% each year in Asian nations. Cargo as of now makes up 35% of the global energy utilization. Public wellbeing, street security, working conditions, business, driver protection and energy security are altogether reasons. Innovation as strategic to execute green management for improving competitiveness (Chan, 2012).

Sea cargo transport has experienced solid development and significant change over late many years. Cargo volumes and container traffic specifically have developed with the escalation of global trade and the topographical scattering of creation. The modern organization of the area has advanced quickly. These progressions have delivered the ports business into a competitive environment (Wang et al. 2018). Numerous experts along the supply chain have occupied with even and vertical coordination of exercises to develop and supplement the supply chain players. The ascent in the job of seaports surpasses the straightforward capacity of essential transshipment of goods. Aside from their job as the conventional sea/land interface, ports are a decent area for value added logistics wherein various partners of various directs in the supply chain can meet and cooperate (Bouman et al., 2017). Subsequently, ports are viewed as not just a vital piece of the transport framework, yet a significant sub-arrangement of the more extensive creation and logistics frameworks in the global supply chain (Wang et al. 2018).

As seaports become supreme in any supply chain, the impacts of green management is clearly noticeable through any drives executed according to a port point

of view. The significance of green management drives at seaports has properly been perceived by the government by holding fast to the way that it is the way forward for seaports in Malaysia. As a point of convergence of economic development, measures taken to present and upgrade green management at seaports are an unquestionable requirement to adapt to the consistently requesting economic scene and steady development of the essential players in the business.

Previous Transport Minister of Malaysia while transporting his discourse at the United Nations Economic and Social Commission for Asia and The Pacific (ESCAP) Ministerial Conference on Transport in Moscow in December 2016 referenced that Malaysia has without a doubt begun fostering a strategy to guide Malaysian seaports toward green turns of events. The approach being developed is known as the green port arrangement that especially centers around the ecological effects and steps to address such worries. The Malaysian federal is likewise sharp for landside developments that could spike green upgrades, as the developing requirement for such skills ceaselessly develop. Among the spaces being considered for green management according to the viewpoint of landside exercises incorporate green innovation and development processes (Demsetz, 2019).

Also, certain fundamental ports in Malaysia have agreed and begun to examine the significance of green management according to a landside viewpoint, including tasks at stockrooms, compartment yards, and logistics action regions. West ports Malaysia has referenced the significance of green by which their media discharge in 2017 expressed they are persuaded that becoming environmentally viable is a fundamental piece of moving towards a more conceptual and more competitive business practice for what's to come (GreenPort, 2019a).



## 1.2 Background of Study

The huge development in Malaysia's industrialization in the course of the most recent couple of many years has changed Malaysia into rewarding trading country. Seaports, at the cutting edge of working with its trade with the world, went through moderate development and colossal improvement during its time of quick economic developments, particularly during the 1990s. Malaysia as an arising business tiger in Asia has set up its seaports as an underlying spine in connecting achievement. Seaports in Malaysia are separated into two authority controls, the Federal Federal and State claimed. The Federal ports were set up under Port Authorities Act 1963 and accordingly were privatized under Port Privatization Act 1990. This move will be capable the government to focus in on giving administrative help and go about as an administrative body (Haden et al., 2009).

The administrative bodies have their own Board of Directors headed by a Chairman. All federal ports are under the locale of the Ministry of Transport. The Federal Ports are under the ward of the Marine Division of the Ministry of Transport (MOT) while the State ports are coordinated by the particular State Ministry. The Federal Ports are additionally separated into major and minor ports. At last, the more modest ports and piers are constrained by the Marine Dept. of MOT. At present there are seven significant federal ports, in particular, Port Klang, Penang Port, Johor Port, Port of Tanjung Pelepas, Kuantan Port, Kemaman Port, and Bintulu Port All these bureaucratic ports are furnished with current facilities (Hallberg, 2016).

Bintulu Port is the main port which handles condensed petroleum gas. Ports in the nation enrolled notable development as of late making Port Klang and the Port of Tanjung Pelepas positioned among the best 20 compartment ports on the planet

(MIDA 2017). In that capacity, the port designs go under the service of transport, by which every bureaucratic port is under the domain of a state experts framed by the national federal (Lloyds, 2019).

Tables 1.1 and 1.2 underneath plainly portray the design of Malaysian seaports as far as experts, related port demonstrations administering federal ports and their working construction:

Table 1.1 Federal Ports & Authorities (Ministry of Transport, Malaysia)

<b>Major Ports</b>	<b>Local Authorities</b>	<b>Related Acts</b>
Penang Port	Penang Port Commission	Penang Commission Act 1955
Port Klang	Port Klang Authority	
Johor Port	Johor Port Authority	
Port of Tanjung Pelepas	Johor Port Authority (Tanjung Pelepas)	Port Authorities Act 1963
Kuantan Port	Kuantan Port Authority	
Kemaman Port	Kemaman Port Authority	
Bintulu Port	Bintulu Port Authority	Bintulu Port Authority Act 1981

Table 1.2 Federal Port Operators (Ministry of Transport, Malaysia)

<b>Major Ports</b>	<b>Ports Operator</b>
Port Klang -North Port -West Port	North Port Sdn. Bhd. West Port Sdn. Bhd.
Johor Port	Johor Port Sdn. Bhd.
Kuantan Port	Kuantan Port Consortium Sdn. Bhd.
Bintulu Port	Bintulu Port Sdn. Bhd.
Tanjung Pelepas Port	Port of Tanjung Pelepas Sdn. Bhd.
Pulau Pinang Port	Penang Port Sdn. Bhd.

### **1.3 Problem Statement**

As the world economy faces huge internal and external headwinds, global development has hindered and meagrely moving. Delivery exercises have gotten destroyed and numerous companies are twisting up or converging to endure the assault. The following space of development is continually being recognized to spike development of seaports in the midst of dynamic changes. Certain seaports have left on methodologies not sought after by the normal to energize and accomplish competitiveness in different regions. Port of Rotterdam has dispatched Maasvlakte 2 by which another terminal is being developed utilizing green development as the strategic development driver. Such not really set in stone fundamental as the global trade and customers the same are moving along the value chain upgrading their supply chain through green management (Peteraf, 2016).

Global goliaths in the transportation business, for example, Maersk and other significant delivery lines have sworn to green their whole supply chain by 2030 to fulfil customer needs and hold fast to global guidelines (Chen et al., 2018). This drives via seaports green customers squeezing point for seaports to be prepared according to a functional viewpoint to cook for the customers, or risk losing to different ports moving quicker in the green plan land tasks (Notteboom, 2016). Table 1.3 underneath portrays the development of Malaysia’s significant seaports as far as container volume took care of contrasted with global friends (POLB, 2011d).

Table 1.3 World Port Ranking based on container volume (UNCTAD, 2017)

<b>Rank</b>	<b>Port</b>	<b>Volume 2017 (Million TEU)</b>	<b>Volume 2016 (Million TEU)</b>	<b>Volume 2015 (Million TEU)</b>
1	Shanghai, China	33.62	32.53	31.74
2	Singapore	32.6	31.65	29.94
3	Shenzhen, China	23.28	22.94	22.57
4	Hong Kong, S.A.R., China	22.35	23.12	24.38
5	Busan, South Korea	17.69	17.04	16.18
6	Ningbo-Zhoushan, China	17.33	16.83	14.72
7	Qingdao, China	15.52	14.50	13.02
8	Guangzhou Harbor, China	15.31	14.74	14.42
9	Jebel Ali, Dubai, United Arab Emirates	13.64	13.30	13.00
10	Tianjin, China	13.01	12.30	11.59
11	Rotterdam	11.62	11.87	11.88
12	Dalian, China	10.86	8.92	6.40
13	Port Kelang, Malaysia	10.35	10.00	9.60
14	Kaohsiung, Taiwan	9.94	9.78	9.64
15	Hamburg, Germany	9.30	8.89	9.01
16	Antwerp, Belgium	8.59	8.64	8.66
17	Keihin ports*, Japan	8.37	7.85	7.64

Table 1.3 (Continued)

<b>Rank</b>	<b>Port</b>	<b>Volume 2017 (Million TEU)</b>	<b>Volume 2016 (Million TEU)</b>	<b>Volume 2015 (Million TEU)</b>
18	Xiamen, China	8.01	7.20	6.47
19	Los Angeles, U.S.A.	7.87	8.08	7.94
20	Tanjung Pelepas, Malaysia	7.63	7.70	7.50
21	Long Beach, U.S.A.	6.73	6.05	6.06
22	Tanjung Priok, Jakarta, Indonesia	6.59	6.46	5.65
23	Laem Chabang, Thailand	6.04	5.93	5.73
24	Ho Chi Minh, Vietnam	5.96	5.19	4.53
25	Bremen/Bremerhaven, Germany	5.84	6.13	5.92

The highlight note is that development has been nonpartisan to negative for specific ports while ports that have accepted new systems and innovative ways have reliably followed through on development. Qingdao port of China, known as the Green port of Asia as of now has beat peers by focusing in on new innovative and green methods of working together further developed port implementation dependent on volume dealt with. Furthermore, Kaohsiung Port of Taiwan has distinguished green processes and strategies as a component of its port all-inclusive strategy to upgrade competitiveness. This has permitted the port to raise their degree of mindfulness among customer profiles and has been recognized as a port of future (Porter, 1980).

Port Portfolio Analysis (PPA) developed by (Haezendonck, et al., 2006) as an instrument in breaking down port competitiveness has uncovered that ports accepting green management showing upgrades in volumes and piece of the pie development while ports focusing in on customary cutthroat variables keep on falling behind. (Hollen, Van Den Bosch, and Volberda, 2015) further repeated the significance of

green management by investigating the PPA model of chosen ports in Asia and Europe that have or are accepting the thought. As a state of correlation, the table 4 underneath portrays the piece of the pie of Qingdao port since the port began to take on and embrace green management practices into port activities. Accordingly, another table 1.5 portraying the piece of the pie of Port Klang during a similar period legitimizes the distinction and lull in portion of the overall industry experienced because of the impacts of green management (Oliver, 2019).

Table 1.4 Data for PPA - Port of Qingdao Port of Qingdao - Traffic Categories (x1,000 Twenty Foot Equivalent - TEUs or Tonnes)

<b>2012-2018</b>	<b>CONT (TEUs)</b>	<b>CONT (Tonnes)</b>	<b>TOT (Tonnes)</b>
Average Traffic	9,910	109,010	287,460
Share Traffic Category %	/	37.92%	100.00%
Average Market Share 2012-2018	6.27%		8.61%
Market Share 2012	6.85%		8.47%
Market Share 2013	6.99%		9.48%
Market Share 2014	6.99%		9.26%
Market Share 2015	7.50%		9.63%
Market Share 2016	7.72%		9.90%
Market Share 2017	7.82%		10.04%
Market Share 2018	8.19%		10.57%

Table 1.5 Data for PPA - Port of Klang Port of Klang - Traffic Categories  
(x1,000 Twenty Foot Equivalent - TEUs or Tonnes)

2012-2018	CONT (TEUs)	CONT (Tonnes)	TOT (Tonnes)
<b>Average Traffic</b>	7,609	83,702	143,933
<b>Share Traffic Category %</b>	/	58.15%	100.00%
<b>Average Market Share 2012-2018</b>	<b>4.84%</b>		<b>4.52%</b>
Market Share 2012	4.88%		4.25%
Market Share 2013	5.17%		4.63%
Market Share 2014	5.06%		4.80%
Market Share 2015	5.13%		3.79%
Market Share 2016	5.15%		4.40%
Market Share 2017	5.15%		4.54%
Market Share 2018	5.58%		4.65%

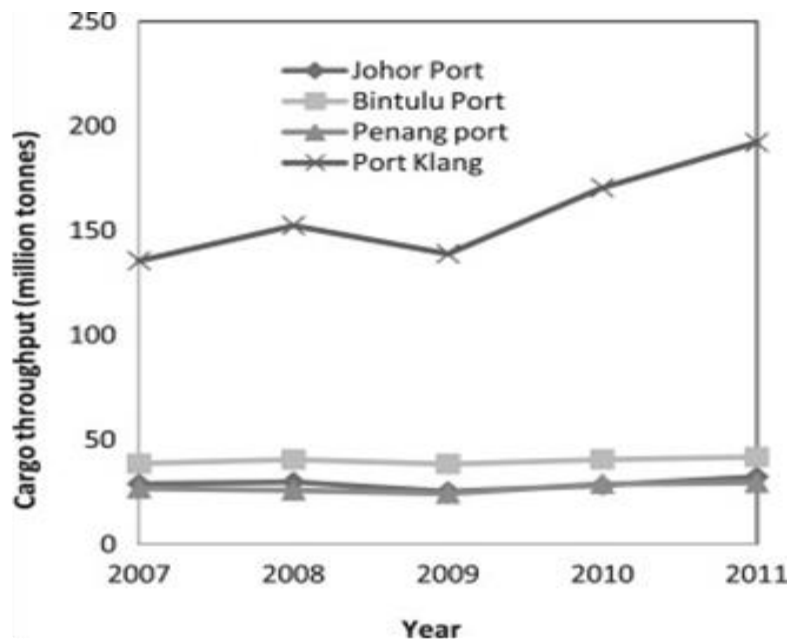


Figure 1.1 Non containerized cargo volume (MIDA, 2017)

Figure 1.1 above demonstrates the volume of non-container cargo dealt with in Malaysian seaports. The measurement obviously shows an extremely normal volume in many ports other than Port Klang which joins 2 ports on the double which are Northport, and Westport. Malaysian ports have been genuinely normal to say the best, yet as rivalry increases, new systems through green management are expected to

upgrade the business implementation of the ports. (Chang and Jhang 2016) further repeated this thought while referencing those South East Asian ports are falling behind peers because of the absence of innovation and green management. Competition among seaports is causing monstrous moves among customers by empowering them in picking the port that best offers value and effectiveness. (Lam and Notteboom, 2016) agreed in their study that new trade opportunities and rivalry is dissolving edges and pushing customers from customary fortification ports including Port Klang. Then again, (Wang and Notteboom, 2015) further referenced that the need green management techniques are obstructing South East Asian ports including Port Klang and Port of Tanjung Pelepas from seeking after green management in improving competitiveness (Sarkis, Zhu, & Lai, 2017).

Furthermore, as expressed in Malaysian Investment Development Authority MIDA (2017), explicit regions referenced and required due consideration in improving the port business in Malaysia include:

- further developing efficiency of port landside activities through green management;
- port privatization in improving competitiveness;
- development and improvement of subordinate services at ports; and
- development and improvement of land-side transportation (hinterland)

The difficulties distinguished spotlights on working on the proficiency of seaports in the nation to spike development in the economy and work on the competitiveness of the country's doors. The improvement being thrown around has focused in on green management as a tool at the front line of issues to accomplish the



ideal outcomes. This is because of different variables. Malaysian seaports by and large need and slow as far as competitiveness of working together and upgrading processes through green management tools. Further supporting this thought, (Jeevan et al., 2017) referenced that the Malaysian port strategy intends to address difficulties looked by port which are bringing down the proficiency levels which include:

- Use existing limit
- Upgrading green management plan at portside planning
- Advancing the improvement of innovation through green management
- Working on secondary services inside landside including innovative green solutions

Malaysian ports need to improve cutthroat levels to remain pertinent and advance business possibilities. Measures in improving business possibilities incorporate tending to functional worries, for example, developments each hour, timing of cargo stream inside the seaport, and variable expenses related to functional issues (Dasgupta, 2017). Further developing competitiveness through new measures that could accomplish maintainable competitive advantages is an unquestionable requirement as indicated by MIDA and port approaches should be distinguished in guaranteeing competitiveness. Further loaning support in improving competitiveness through green management is the way that Singapore Port, being Malaysia's nearest rival in the sea business has left on different green development strategies to upgrade competitiveness and assemble notoriety from the inside and to external customers (MPA, 2018). In that capacity, the need to improve competitiveness through green

measures is important to upgrade a port and stay significant in the always advancing supply chain setting (Barney, 1991).

#### **1.4 Research Objectives**

The aim of this study is to emphasize the importance of green management in the context of the port industry in Malaysia. As such, green management is to be researched in depth by gaining an understanding of its application to the federal ports in Malaysia especially from the port operators' perspective. Specifically, the objectives of the research include:

- To examine the application of green management at Malaysian federal seaports portside operations
- To emphasize the importance of implementing green management at Malaysian seaports portside operations in enhancing seaport competitiveness
- To identify challenges faced by Malaysian federal seaports in pursuing green management in portside operations

#### **1.5 Research Questions**

Seaports in Malaysia are contending inside and remotely in acquiring a traction in an as of now competitively developing supply chain. The development of trade exercises and need for competitiveness on the global market are driving ports all throughout the planet to deliberately and constantly assess all opportunities for the improvement and related costs decrease techniques. Green implementations around most ports center around ecological impacts and efforts in diminishing such components. Most port experts have been focusing in on ecological effects when

discussing about green drives, yet significantly more should be done from the port management point of view (Lam and Notteboom, 2016)

Green management ought to and would identify with upgrading port competitiveness along with existing measures set up. There have been questions asked with respect to the thought on whether green management adds to port implementation upgrades (Wang and Notteboom, 2015). In that capacity, the need in relating green management to port management efforts from inside at any point increments. Questions emerge on the requirement for ports to realign their plans of action in focusing in on green management implementation to improve competitiveness and plans of action. Each other note, challenges proliferate for Malaysian seaports on the purposes behind lethargic development in green implementation from the port services jobs.

As such, the research questions which will direct the study are:

- How are green management practices currently being pursued by federal port operators in Malaysia through portside operations?
- What are the challenges faced by Malaysian federal seaport operators in pursuing green management in portside operations?
- Why seaport operators need to implement green management into the current and future portside operations business model?

## **1.6 Contributions of the Study**

This study revolves around the 6 federal ports in Malaysia. This is basically because of the way that these ports have comparable variables of conditions and capacities identified with one another. Every one of the ports expressed are focus ports

and direct import and commodity exercises comparable in quality. Accordingly, the result of this study will significantly help the ports and the overflow impacts to the country's economy all in all. Ports would have the option to recalibrate their techniques to more readily suit changing global patterns and keep on benefitting through higher productivity and adequacy (Haden et al., 2009).

### **1.6.1 Theoretical Implications**

Studies on ecological issues and sustainability efforts in the sea business have acquired ubiquity of the years. In any case, there are restricted analyses connecting port competitiveness to green management explicitly. This is additionally upheld by (Wu and Goh, 2016) who referenced that there is restricted research in analyses connecting port competitiveness and green management. This study intends to take a gander at a general viewpoint of seaport tasks that would improve the case for green management activities at seaports. Such an idea is additionally upheld by the need to investigate a port services viewpoint as past analyses have looked according to different viewpoints including experts, and other supply chain individuals exclusively (Haezendonck, 2016).

Until this point in time, as being referenced at the prior discussion, most of literature on port competitiveness focused in on the conventional variables that impact port implementation and external elements outside the ability to control of port management. The onus to make new systems to improve port competitiveness is on the port management who faces firm global competition for volume development, high need of effectiveness, and furthermore to upgrade benefit capacities to fulfil different partners (Wang and Notteboom, 2015).

Further reinforcing the requirement for such a study is taken from (Lirn, Lin, and Shang, 2013) who referenced those studies on green management have just centered around compartment terminals by which other activity terminals have been ignored. Also, such written works have focused in reliably on the overall cutthroat elements accessible to each port. Be that as it may, findings of these analyses developed blended outcomes and are not predictable to one another. Moreover, minimal methodical exertion has been committed to comprehend the hidden variables by which port implementation could be improved by focusing in on the part of port inner resources utilizing RBV theory (Chan et al., 2017).

The majority of the analyses directed will generally focus in on the port outside resources. To the extent implementation of port industry studies are concerned, no conceptual arrangement exists on the impact of ports resources on port competitiveness. This study is an effort reinforcing the need to concentrate into green management according to ports viewpoint that would improve supported competitive advantages, which co-identifies with the theory being consolidated, resource based view theory.

### **1.6.2 Managerial Implications**

Seaports are amazingly cutthroat these days because of the global progression of enterprises. In that capacity, states are empowering all the more free and liberal trades to happen by which seaports become nodal points of development for such decisions. Container volume without anyone else isn't the main income space of a seaport, despite the fact that it contributes greatly to a seaport positioning and picture. Different spaces of business need cautious contemplations and significant value adding to additional supplement compartment volumes. According to an administrative

viewpoint, this study would add to regions inside the perplexing tasks of a seaport that could additionally be upgraded through green management exercises to invigorate development and make value added services (Demsetz, 2019).

Various partners look for value upgrades when managing ports. (Wang and Notteboom, 2014) further emphasized that ports are looking for elective measures to cook for partner requests by which systems are currently being tailor made to incorporate explicit business needs, for example, costs decrease, net revenue improvements and value creation to supplement social and ecological angles. Accordingly, this study would empower chiefs to check out an alternate point of view to adjust business methodologies and further change inside as opposed to focusing in completely on the external changes alone. Innovative thoughts and the idea green management would be additionally investigated and incorporate fundamental estimates that could be incorporated to provide food for truly changing elements of partner prerequisites. Done and tidied, port management would have more clear view on the requests of global changes not simply completely focusing in on the environment alone, yet to cook for the business needs also. Supporting the above view, the Wall Street Journal announced a figure by the Asian Development Bank in 2014 which reaffirmed that Asia will contribute 52% of global GDP continuously 2050 and South East Asia has been perceived as the development motor in Asia (World Bank, 2015).

## 1.7 Operational Definition of Strategic Terms

The following definitions of terms in this study are important to identify:

**Green Management** relates to the organization-wide process of applying innovation to achieve sustainability, waste reduction, social responsibility, and a competitive advantage via continuous learning and development and by embracing environmental goals and strategies and that are fully integrated with the goals and strategies of the organization (Haden et al., 2009).

**Green Port** is a port that manages to balance environmental concerns and at the same time enhance economic competitiveness through operating and strategies within any given supply chain (Li, Liu, & Jiang, 2011).

**Federal Ports** are under the purview of the federal government through jurisdictions enacted under Port Authorities Act 1963 and subsequently privatized under Port Privatization Act 1990. As such, the ports identified for this study are the major ports classified under the jurisdiction of the Marine Division of the Ministry of Transport (MOT) in Malaysia.

**Seaport Competitiveness** refers to competitiveness in seaport industry, specifically the ability of seaports to offer services that meet the quality standards of the local and world markets at competitive prices and provide adequate returns (Cruz, Ferreira, & Azevedo, 2012). Such specific abilities include geographical location, hinterland chains, availability and efficiency of transportation, port tariffs, port stability and port data systems.

**Green Supply Chain Management** refers to integrating not just environmental concerns into the inter organization practices of supply chain

management in which have significant effects on firm performance but also innovative methods to in operational dimensions that could affect firm competitiveness (Sarkis, Zhu, & Lai, 2017, Chan et al., 2016).

**Portside Operations** are landside operations including intermodal terminals, warehousing sites, logistics centres, or a combination of one or all of these. At the seashore interface, such operations include providing value-added logistics services for sea-bound goods at both origins and objectives (UNCTAD, 2015).

## **1.8 Organization of the Study**

This first chapter outlined in brief the background of this study as well as the basic premises of this study. The purpose statement, background of the study, research objectives and research questions were articulated as well as definitions of strategic terms were emphasized. Chapter 2 provides a summary and analysis of the literature. Chapter 3 contributes a detailed explanation of and rationale for the methodology and strategies. Chapter 4 will present relevant research results through the chosen method of data collection. The final chapter, chapter 5 displays the discussion, conclusions; implications of the findings for the federal seaports and the supply chain as a whole and propose recommendations for future research.



## CHAPTER 2

### LITERATURE STUDY

#### 2.1 Seaborne Trade and ASEAN Port Developments

The most recent few decades have seen marvellous world economic developments and this has brought about the quick development of seaborne trade. As displayed in figure 2.1 below, development in GDP, stock trade and seaborne shipments are interlinked and keep on moving pair. Trade can by and large become quicker or slower than GDP, despite the fact that since the 1990s it has would in general develop about twice as quick. Adding hopefulness to this incorporate by and large certain for global economic and modern yields, with world GDP gauge to extend constantly. World product trade possibilities are likewise improving and are relied upon to build on account of an expanded interest from Europe, a fortifying recuperation in the United States and rising intra-Asian trade (UNCTAD, 2015).

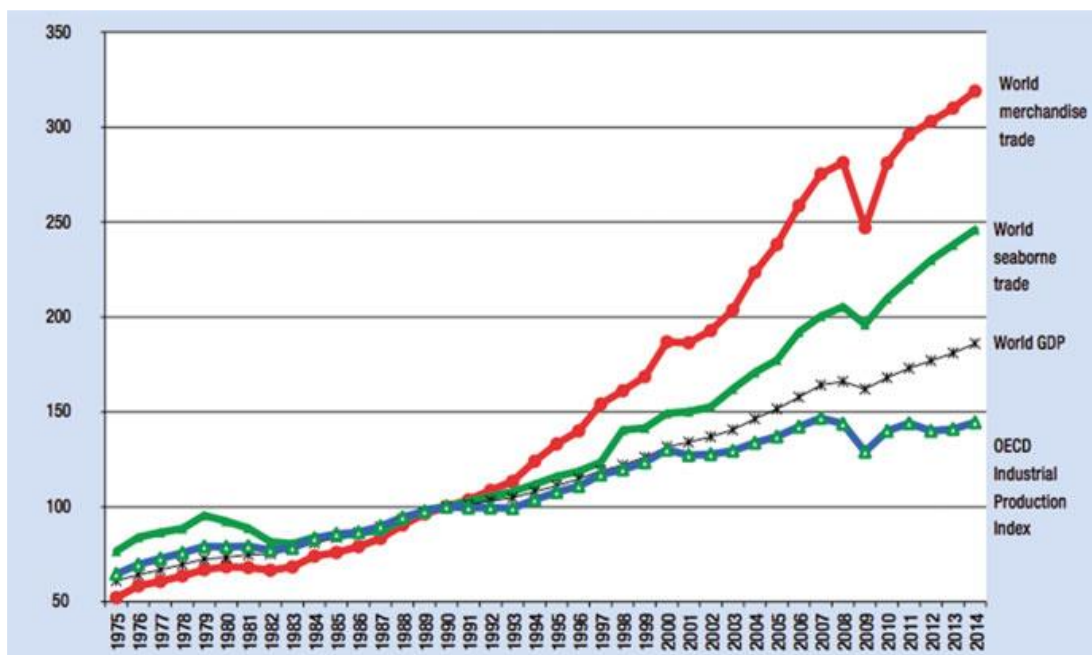


Figure 2.1 World economic growth and seaborne trade. Source: (UNCTAD, 2015)

The flood of both container and mass cargo throughput is connected with the development of global trade expansion to the reception of multi modular applications as special vector for sea delivery and inland transportation. In any case, it is properly acknowledged that economic conditions and a country's ports extraordinarily influence the mind-set and business conditions as far as essential ventures and in general productivity levels. Ports are essential connections in an supply chain and a country's development pointer by goodness of commitments toward world trade (Lun, Carlton, and Bichou, 2016). Similarly loaning backing to the significance of ports are the thought that it structures nodal points of a global transport framework and have assumed a critical part in the economic improvement of any country on the planet. Port improvement throughout the most recent thirty years has been sensational; primarily being driven by populace development, economies, outside trade and containerisation. Practically all overall ports have experienced a supported time of development, and many new ports have developed at astounding speed as far as throughput, particularly in business sectors like China and Southeast Asia (Jeevan, Chen, and Lee, 2019).

Globalization has likewise helped nations in South East Asia (SEA) further develop their trade implementation. The Organization of Southeast Asian Nations (ASEAN) (2014) revealed that the normal yearly development pace of in general ASEAN trade was 9.2% during the period 1993 to 2013. The high speed of expansion in trade this district has brought about a developing volume of compartments being shipped through different transport hubs in hinterlands of ASEAN, with a considerable limit of transport foundation and services being needed to help seaports fulfil the need for the seaborne trade. Essentially, Malaysia as one of the nations in ASEAN, has likewise had huge global trade implementation as shown by a normal development pace of 9.6% during the period 1993 to 2013. The huge development is because of the

essential area of Malaysian seaports being between the Indian Sea, Pacific Sea and South China Sea. The significant seaports including Port Klang, Port of Tanjung Pelepas (PTP) and Penang Port are the foundation of the Malaysian global trade and economy. With the potential for expanding cargo volumes apparent in these seaports, there is more prominent tension on the seaport area to work on functional productivity in order to successfully work with cargo streams (Jeevan et al., 2017).

These port improvements have fuelled economic development, yet additionally brought inward difficulties. The adverse consequences of ports are firmly identified with delivery, hinterland traffic and strategy on the port site, including, warehousing, cargo taking care of and modern exercises. Extreme improvements north of twenty years have made adverse consequences port tasks (Merk, 2013). Expanded data on the results of negative functional effects infers a need for ports to effectively advance green management practices (Bichou, 2016).

## **2.2 Malaysian Seaport Industry**

Because of the effect of globalization, China, India and SEA nations have become fundamental exporters to numerous nations and in this manner ports in the district have become imperative hubs in the global supply chain (Hollen et al., 2015). Because of higher compartment volumes developed in Asian hinterlands, the size of ships has developed and accordingly many ports in Asia have been confronting the sample of restricted limit in port access and port terminals. Consequently, a considerable measure of interest in port limit development projects has been embraced by legislatures in the area (Bird, 1988).

Simultaneously, they have put resources into cutting edge port innovation, basically in cargo taking care of, and affording to safeguard their competitiveness in the midst of developing trade liberalisations. Malaysian ports have put vigorously in port framework and port limit extension projects fully expecting expanding cargo volumes. The area of significant Malaysian ports along fundamental trade paths, for example, the Straits of Malacca has turned into a propelling component for such certain methodologies. Ports in Malaysia are delegated federal ports, state ports and private ports. The federal ports were set up as bureaucratic legal bodies which are under the locale of the Ministry of Transportation. Port Klang Authority, Penang Port Commission, Johor Port Authority, Kuantan Port Authority and Bintulu Port Authority are the significant instances of this sort of class. Moreover, Lumut Port, Sabah Port Authority, Kuching Port Authority, Rajang Port Authority and Miri Port Authority are ports claimed and worked by state federal. (MIMA, 2013).

Port Klang, Port of Tanjung Pelepas (PTP), Johor Port, Penang Port and Kuantan Port contributed nearly USD 373.44 million to the public economy in 2012 (MITI, 2013). Notwithstanding alluring federal strategies, for example, advancing multi-modalism, pushing ahead with port privatization, developing secondary services, developing land side transportation and upgrading computerization and PC in port activity however adequate limit with respect to every compartment port is pivotal to guaranteeing the fruitful exhibition of ports. All things considered, PTP, Penang Port and Kuantan Port experience the ill effects of an over-limit issue, Johor Port is under-limit and Port Klang accomplished the ideal level in container taking care of by accomplishing an even extent of capacity limit with compartment taking care of (Cahoon, 2008).

Absence of functional unbending quality and absence of innovative processes have controlled the development and federal efforts in advancing Malaysian ports as territorial center points for transportation lines and logistics players, especially at landside regions (Soon and Lam, 2013). Landside activities incorporate multi-purpose terminals, warehousing locales, logistics focuses, or a mix of one or these. At the beach interface, such tasks incorporate offering some benefit added logistics services for sea bound products at the two beginnings and objections (UNCTAD, 2015).

### **2.3 Green Management and Port Developments**

Customers are center supporters of any organization. Without consumers, the actual presence of a business is being referred to. It ought to be noticed that today's buyers focus on products and services they use. This in a real sense implies the manner in which the product was secured or even the very way benefits are offered (Nielson, 2011). Customers in the 21st century consider organizations that are cutthroat through green management more significant and influence their decisions in partner with such elements (EcoPorts, 2016). Green management is characterized as the organization wide course of applying development to accomplish sustainability, waste decrease, social obligation, and an competitive advantage through ceaseless learning and improvement and by accepting ecological objectives and techniques and that are completely coordinated with the objectives and strategies of the organization (Haden et al., 2009).

Accordingly, green supply chain management (GrSCM) is the strategic for accomplishing the above green double methodology as (Sarkis et.al., 2018; Chan et al., 2017) has characterized that GrSCM as coordinating not simply environmental worries into the busy organization practices of supply chain management wherein