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The Dynamic Sustainability in Supply Chain Context of Malaysia's Industry

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Abstract*: This paper is discussing on the emergence of awareness in Malaysia's supply chain in green practices and implementation towards sustainability. All elements in good supply chain management are being tabled from the various authors & publications within the latest three years period. All business entity inclusive of industries, manufacturing, warehousing, transportation covering the land, sea and air. World population is nearing 7.5 billion directly triggered a massive food production, electrical & electronics appliances, furnitures, housing estates, textiles industries, transportations for movement, upgrading of roads, seaports, bigger airports causing huge consumptions of fossil fuel. Consequently causing damage to the environment. World leaders are united in decision of tacking the global warming at United Nation assembly but the action on the ground is very minimal resulting in the iceberg melting continuously, flooding in low land area in coastal city such as Jakarta, Shanghai and Lagos. Endless effort are being taken to reduce the dependency on fossil fuel by the world leading economy nations such as China in developing electric car engines, Germany in longer lifespan battery operated vehicles as well as solar energy and water based engine (Hybrid). In the market with the pressure from the society and environmentalist manufacturing are aggressively implementing reverse logistics on their products, transportations companies are maximizing their truckloads, factories are reducing the electricity and create awareness and ownership which is resulting the low carbon footprint.

***Index Terms*: Dynamic, Green, Sustainability, Supply Chain**

I. INTRODUCTION

Supply chain management is importance due its activities are connecting from various stakeholders within its perimeters. SCM started from the transportation of suppliers of raw materials/components/parts/semi-finished products to buyers/manufacturers. Once the finished products produced another cycle of transportation to end customer not to mention recycle products. In short, all activities related to transferring a product or services from a point of origin to the customers. Therefore logistics which is part of the SCM is a backbone and recognize to enhance trading, facilitating business performance and spurring economic growing.[1].

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Sea transportation is the cheapest in operations, able to carry huge volume of commerce products even the slowest modes of transportation but yet the biggest spoiler to marine livelihood. There exist challenges on green maritime logistics which affecting the greenhouse gas(GHG) and non-GHS due to emissions[2][3]. Particularly, food industry in Malaysia is failing to maintain its position in core area of micro and micro challenges due to difficulties in integration the SCM in their operation to cope with market demand[4]. China is replacing United States in economy based on imbalance of industrial trading import and exports. However, the direct effect is on the environmental sustainability. China has to pay a price of becoming an industrial nation. Reports are coming from various news agencies of the contamination of nearby lakes resulting in air pollution and shortage of fresh water.[5]. In response to the threat of greenhouse gas emissions reduction and waste generation due to the productions and consumptions activities, a circular economy model is taking place[3].

The purpose is tackling the improvement of management in sewage sludge in a circular economy system.

In big cities and sprawling urban area, traffic congestion and environmental pollution, causing a major trend in doing business by using internet for on-line shopping, food ordering.

The increasing of C2C (Customer-to-Customer), B2C (Business-to-Customer) and smartphone is replacing the traditional business activities.[6]. This paper is also providing a comprehensive understanding on the core definition of green management leading towards business higher performance in sustaining business[7]

II. CHALLENGES IN SUPPLY CHAIN MANAGEMENT

The dynamic trends in every cities which effect the environments originated from the logistics/transportations activities in supply, productivity as well as distribution and warehousing[8]. This happen due to the increasing migration of population from rural to urban area for survival. The need passengers and freight transport causing the impact to human and surrounding environment[9]. In sea management of transportation the logistics executives are dealing with huge pressure in determine cost effective benefits, efficient and other optimization from the perspective of 3rd party logistics, transporter, shipping company or other end user[2]. With regards to the water and land logistics connectivity,

the effective transports are being researched and develop to define the best logistics models in improving the efficiency of SCM in the affected area [10]. Soft activities such as procurement is merely important since all SCM activities are borne from this area. Green and sustainability throughout the chain of SCM in follow-up, evaluating stages in procurement of logistics services quite under-explored in academic literature. Two most important divergence stake holders are shippers and forwarders with other perspective of manufacturers and sellers[11]. China as a leading manufacturer and enjoying a rapid economic development, is experiencing higher and better standard of living. A large number of national car brands are joining the automobile markets resulting more cars on the road daily. Therefore, in recent years China is experiencing bad air pollution, water pollution, land erosion and endless news report. China has to balance the demand and supply internally[12]

III. METHODS IN BALANCING THE HUMAN NEED AND PRESERVING THE WORLD

Green Initiatives & Implementation

Businesses in various sectors reacting differently to environmental issue while sustaining their operations. Since logistics business are not directly in manufacturing of the products, normally they act differently from the manufacturing industries.[13]. It is more towards fuel consumption, green engine technology, mode of choice, behaviors and transport management.

In case of sea and river management in connecting to the inland, truthfully is an ongoing process to restore the relevant perimeters to inland waterways whereby the government interference is required. The investment of structural construction on the beach and river bank need to overcome at the earliest possible. So, sufficient funds need to be secured.[13].

Recent study, concluded that for logistics index performance is to be measured by CO2 (Carbon Dioxide) emissions and fuel consumption from the transport used using range adjusted measure (RAM) from the data envelopment analysis (DEA). This area alone are contributing to 42% of transport related CO2 emissions in the world in 2018[14].The result of the study showed that the country with high income is better in preserving the environment compared to the country with lower income. The result also favor the wealth continent especially in Western Europe.

Continuous effort in replacement of fossil fuel usage to renewable energy systems is holistic in green transform to decarbonize the overall economic systems and overcome the global climate change. Europe and China are progressing rapidly within their offshore border developing wind logistics[15]. The wind energy mainly used for producing electricity at the industrial scale. These countries is moving to inshore wind energy to sustain continuous electric supply for their population. However, inland wind facilities required larger turbines because receive less wind in comparing to the offshore area. Procurement plays an important role in reducing the carbon footprint by

Consolidating the supplier source

All the deliveries within the region will be combined and transported by one third party logistics provider. This integration requires good consolidation of strategic planning and transport among supplier.

Delivery at one point stop center

This method measured by efficient and last mile delivery. It also produce new potential business model and cost measurement.

Changing procurement policy and behavior

The delivery is being done simultaneously within the exact moment regardless the urgency or not in used moment, example: the customer is not going to use now but the delivery is being done to avoid the repetition of the delivery.
The success of the above method is depending of the internal data from the purchase records, logistics, transports and actual address[16].

Outsourcing and Logistics Performance

It is a strategic approach to use the external resources to perform activities previously done by internal department. Companies are focusing on the main activities internally[17]. The common activities are the shipment of the finished goods with the custom clearance package. Thus, there are companies outsource their less critical assembly products or semi-finished parts in substitution to main and critical process. As to protect the confidential information about the product characteristics from being expose to competitors. Some companies practiced risk transfer by outsourcing to competitors or suppliers by taking small profit margin. In doing so (sub-contract) the main company is maintaining the quality team to check on the products.

Manufacturing Green Supply Logistics Practices

Company need to progress in order to be sustained in business and wealthy. It has to be balanced because we only got one world. Each unit of company needs to play owns role to preserving the environment [18]. A few steps in benchmarking the manufacturing best green practices:

Paper reduction in logistics processes.

The transition from manual to computer and internet linkages among the stake holders from suppliers to manufacturers to end customers. Even Royal Customs and Excise introduced e-dagang for shipment clearance.

Re-improving and recycling of wooden/plastics pallets and containerization.

This popular practices are carried out in most of the manufacturing six main sectors such as in textiles, metal, plastic injection, oil and gas, metal and wood industry.

New technologies in packaging and materials in contamination reduction

Instead of using corrugated paper, the introduction of fabricated recycle plastic materials are being used.

Materials contains with cancer chemical are being replaced with approved chemical in lowering the exposure of chemical spillage, example: CR3 to CR6 in plating industry.

Carbon foot print measurement

The safety and health section are conducting regular inspection to all departments with the manufacturing to detect any irregularities and inform the respective head of section to take immediate action. The outcome of the inspection will be tabled in the management meeting to ensure all department are following the standard operating procedure (SOP).

Fuel consumption monitoring

A healthy activity in controlling the unnecessary waste of fuel and reduce company expenditure

IV. RESULT

Pilot testing is mainly conducted to help the researcher detect any weakness in design and instrumentation as well as providing proxy data for selection of probability sample. Pilot testing helps to correct the vocabulary, spelling and the structures of the question itself. 18 articles were selected.

Case Processing Summary

		N	%
Cases	Valid	18	100.0
	Excluded[a]	0	.0
	Total	18	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.835	37

The reliability test in Cronbach's Alpha is .835 which is within the threshold and excellent for internal reliability.

V. CONCLUSION

This is a review paper on the selected articles based on the latest 3 years from various publication house. The global warming and climate change is on a high agenda on every international conference. Various action have been taken form the world leader to the industry but more holistic actions to be taken. More damaged happened on daily basis even with little improvement. All the positive measurement have been taken, however the effort must be taken as a whole unit not belongs to certain nation or company or individual.

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