ENVIRONMENTAL SUSTAINABILITY STRATEGIES AND IMPACTS: A CASE STUDY IN NORTHPORT, KLANG MALAYSIA

By

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Abstract

Environmental sustainability, a focal point for the government of Malaysia, is also important in developing business sustainability for businesses including ports. Following this, the research objectives of this study were threefold: 1) investigating the impact of strategies implemented by Northport, Klang in order to be environmentally sustainable, 2) ascertaining the priorities of these strategies and 3) determining the barriers or challenges faced by the port in its efforts of implementing the strategies. Using qualitative research design, data was collected through semi-structured interview with the officers in charge of environment at the Northport, Klang, Malaysia. Findings indicate that strategies implemented by the port have been successful in their efforts to reduce emission and improve air quality, a big step in being environmentally sustainable. Several criteria were used to prioritize the strategies, chief among them being implementation cost and time, maintenance cost and reduction of carbon emission. In terms of priority, the first strategy was operational strategy in terms of vessel speed reduction initiative, followed by infrastructure and equipment strategy with equipment and engine replacement and emission control technology and lastly, image improvement strategy with the initiative of the implementation of green building. The biggest barrier in implementing these strategies was cost.

Key words: Environmental Sustainability, Air pollution, Port, Northport, Klang, Sustainable Supply Chain Management.

Abstrak

Kelestarian persekitaran, adalah tumpuan utama bagi kerajaan Malaysia, di mana ianya adalah penting dalam membangunkan kelestarian perniagaan untuk perniagaan termasuklah di pelabuhan. Berikutan itu, objektif utama kajian ini terbahagi kepada tiga: 1) mengetahui impak terhadap strategi yang telah digunakan di Northport, Klang untuk menjadi persekitaran yang lestari, 2) menentukan keutamaan di dalam setiap strategi dan 3) menentukan halangan dan cabaran yang dihadapi oleh pelabuhan dalam usaha melaksanakan strategi. Dengan menggunakan kaedah kajian kualitatif, maklumat diperolehi melalui temu bual separa berstruktur bersama pegawai yang bertanggungjawab terhadap persekitaran di Northport, Klang, Malaysia. Dapatan kajian menunjukkan bahawa strategi yang dilaksanakan oleh pelabuhan telah berjaya dalam usaha mereka untuk mengurangkan pencemaran dan meningkatkan kualiti udara, ianya adalah satu langkah yang besar di lakukan untuk mendapatkan persekitaran yang lestari. Beberapa kriteria digunakan dalam mengutamakan strategi, yang paling utama adalah kos dan masa pelaksanaan, kos penyelenggaraan dan pengurangan kadar pencemaran. Dari sudut keutaaman, strategi pertama adalah strategi operasi dengan inisiatif mengurangkan had laju kapal, diikuti dengan strategi insfrastuktur dan peralatan melalui penukaran peralatan dan enjin serta menggunakan teknologi mengawal pencemaran dan akhir sekali, strategi peningkatan imej dengan inisiatif melaksanakan bangunan hijau. Kos adalah halangan utama dalam melaksanakan strategi ini.

Kata Kunci: Kelestarian persekitaran, Pencemaran udara, Pelabuhan, Northport, Klang, Pengurusan rantaian bekalan yang mampan

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List of Abbreviations

CO_2 - Carbon dioxide emission

DOE - Department of Environment

HFO - Heavy fuel oil

IAPH - International Association of Ports and Harbours

ICS - International Chamber of Shipping

IMO - International Maritime Organization

LNG - Liquefied natural gas

LPG - Liquefied petroleum gas.

NOx - Nitrous Oxide

PM10 - Particulate Matter

SOx - Sulphur oxides

TEU - Twenty - Foot Equivalent Unit

UNCED - The United Nations Conference on Environment and Development

UNCTAD - United Nation Conference on Trade and Development

WCED - World Commission on Environment and Development

WSSD - World Summit on Sustainable Development

CHAPTER 1

INTRODUCTION

1.0 Introduction

In the era of globalisation and the rapid expansion of world trade, ports are crucial links in contemporary supply chains and logistics processes, serving as transport hubs with their intermodal transport networks (sea, road, rail and inland shipping) (Pettit & Beresford, 2009). Therefore, seaports have become an essential part of the maritime transport industry and play a key role within integrated transport chains (Cullinane, 2002; UNCTAD, 1996).

It is very important for the port to provide efficient, adequate and competitive services to better service its customers (Okeudo, 2013).Time and cost play an important role especially for the vessel owner because if the port provide inefficient services resulting in cost increase and slow movement at the port, the vessel owner will probably go elsewhere as there are many other ports that can serve their need with better services.

According to International Maritime Organization (IMO) in 2011, there are about 2,814 international ports catering to freight traffic in the world. The movement of goods in the world trade have been increased rapidly, and, based on the Table 1, the amount of vessels that travelled and involved in the world seaborne trade is significant with the total number of vessels estimated around 47,122 vessels. Out of this estimate, 41,215 vessels comes from the world top 35

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