GREEN SUPPLY CHAIN MANAGEMENT AND ENVIRONMENTAL PERFORMANCE FOR KPJ HEALTHCARE SPECIALIST HOSPITAL IN SELANGOR

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ABSTRAK

Kajian ini bertujuan untuk mengkaji hubungan antara Pengurusan Rantaian Bekalan Hijau (GSCM) dan Prestasi Alam Sekitar (EP) berdasarkan enam hospital pakar Kumpulan Perubatan Johor (KPJ) di Selangor. Pendekatan kuantitatif digunakan. Data daripada 132 responden daripada pengurusan profesional telah dikumpulkan soal selidik. Data dianalisis menggunakan teknik analisis deskriptif, analisis korelasi Pearson dan analisis regresi berbilang. Hasil kajian menunjukkan semua amalan GSCM mempunyai hubungan yang signifikan dengan EP. Kajian ini mendapati terdapat hubungan signifikan yang paling tinggi antara faktor GM dan EP (r=0.519, p=0.000), kedua tertinggi adalah antara faktor GP dan EP (r=0.516, p=0.000), seterusnya antara ED dan EP (r=0.497, p=0.000), diikuti faktor antara RL dan EP (r=0.479, p=0.000), dan akhir sekali faktor antara GD dan EP (r=0.404, p=0.000). Sebagai kesimpulan, kajian menunjukkan bahawa semua lima pembolehubah bebas GSCM telah meningkatkan EP. Implikasi kajian juga menunjukkan bahawa amalan GSCM boleh meningkatkan EP. Implikasi kajian menunjukkan bahawa amalan GSCM dan EP. Oleh itu, kejayaan mengintegrasi GSCM boleh meningkatkan EP untuk memastikan kejayaan menjaga alam sekitar melalui industri dapat diteruskan dengan jayanya.

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ABSTRACT

The aims of the study was to examine the relationship between the Green Supply Chain Management (GSCM) and Environmental Performance (EP) based on the six *Kumpulan Perubatan Johor* (KPJ) specialist hospital in Selangor. A quantitative approach used. Data from 132 respondents from professional management were collected questionaires. Data were analyzed using descriptive analysis technique, Pearson correlation analysis and multiple regression analysis. The results showed all GSCM practices were significantly relate to EP. This research found that there was a strong correlation between GM and EP factor (r=0.519, p=0.000), the second highest among GP and EP factor (r=0.516, p=0.000), then ED and EP (r=0.497, p=0.000), followed by the factor between RL and EP (r=0.479, p=0.000), and finally the factor between GD and EP (r=0.404, p=0.000). As a conclusion, the study showed all five independent variables of GSCM have increased the EP. The implications of the study indicated that GSCM practice can improve the EP in order to ensure that the success of the environment through the industry can be successfully pursued.

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LIST OF ABBREVIATIONS

AMR	Amran Md. Rasli
BN	Breno Nunes
CSFs	Critical Success Factors
ECP	Economic Performance
ED	Eco-Design
EFA	Exploratory Factor Analysis
EP	Environmental Performance
ETP	Economic Transformation Programme
GD	Green Distributor
GDP	Gross Domestic Product
GM	Green Manufacturing
GP	Green Purchasing
GSCM	Green Supply Chain Management
IP	Innovation Performance
JA	John Anderson
KPJ	Klinik Pakar Johor
MA	Marisa Amirudin
NKEA	National Key Economic Area
OP	Operational Performance
PMS	Performance Measurement System
RL	Reverse Logistic
SCM	Supply Chain Management
SPSS	Statistical Package for Social Sciences

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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Supply chain management and a healthy environment has gained great attention among practitioners or researchers actually began 17 years ago. Through methods and approaches, which are in the care of the environment of an organization will tend to become more integrated. According to (Zhou & Benton, 2007), the integration between supply chain strategy combined with green technology has a positive impact supply chain performance particularly makes it easier. Furthermore, with the manufacturing of information among supply chain that affects the behavior and performance, it is able to make decisions better direction for the healthcare industry.

National Key Economic Areas (NKEAs) under the 10th Malaysia Plan (2011-2015) has outlined an activity that is identified as the healthcare industry. The healthcare industry in Malaysia has grown rapidly and steadily since the early 90's until now. Malaysia has been continuously vigilant about their healthcare system for many years in the healthcare industry (Habidin, Omar, Kamis, Latip, & Ibrahim, 2012). According to (Castro, 2009), activities that operate in Malaysia through healthcare has undergone a radical transformation. Malaysia should review its healthcare business strategy either to adopt a health care system that is driven by markets such as China, Singapore, and Japan which use the single-payer national health system (NHS). This is because today's healthcare industry continues to face a surplus rising costs, falling profits, steep regulatory compliance and administrative inefficiency.

The healthcare industry is seen as one of the industry's responsibilities for the development of society and the nation. Coinciding with this, the healthcare industry also gave great service to the community to produce and develop a healthy society which can contribute to the country. Therefore, various programs and provisions have been made by the Malaysian government in order to see the people's welfare. Through Budget 2014, the operating and development expenditure in the healthcare industry in Malaysia has allocated RM22 billion (Ministry of Health Portal, 2015). In addition, the Malaysian government has also set up 1Malaysia clinics which aim to reduce treatment costs to be paid by the people. This shows the healthcare industry is one of the pillars of the economic development of the country towards becoming a developed nation by 2020.

Currently, the private health sector has also become more important. If seen before 1980, especially public or philanthropic developing private hospitals and many hospitals, but it is only a small number of developed. (Olorunniwo & Hsu, 2006). However, in 2000, the private health sector has contributed about 40 percent of healthcare spending. The development of the private health sector is rapidly due from government policies that allow the private sector to play a more important role in the health field (Chee & Barraclough, 2007).

Since independence, Malaysian healthcare system has provided critical services and invaluable for Malaysians. Through an extensive network of a healthcare delivery system that is effective against public, private, and rural areas, as well as preventive care strategies, especially at the regional level and successful health promotion. According to Global Aids Response Progress Report Malaysia (2015), it can be accessed through the 355 hospitals (141 government and 214 private), 7832 clinic doctor (1,031 public and 6,801 private) and 2,075 community clinics operated by a paramedic (Community Clinic and 1Malaysia clinics), and it increased during the year by doctors to patient ratio of 1: 6332. The Ministry of Health plays the role of financiers, suppliers, and regulators following the dual healthcare system. Therefore, with the commencement of the 10th Malaysia Plan: 2011-2015 (10MP), the government is committed to improving the standard and sustainability of quality of life of Malaysians through GSCM.

At this time, a number of challenges also faced by the healthcare sector, including supply chain increases, rising costs of drugs and equipment, the increasing demand for quality healthcare and advanced equipment, as well as changes in disease

patterns that can be cause healthcare costs is higher (Ministry of Health Malaysia, 2015).

Therefore, to protect the environment, reduce costs, approaches to protect the environment and reduce the cost of doubling was carried out by many hospitals. While achieving cost reduction, their profit margins continue to shrink every year. Implementing the GSCM in the healthcare industry, it can help to maintain environmental protection, profit healthcare organization and at the same time, reduce costs and improve the quality of their services (Roslan, Habidin, Zainudin, Norazlan, & Abdul Hadji, 2014).

Green Supply Chain (GSC) has become an important strategy in order to compete globally in the service industry. Since 1980, the supply chain has been concerned with almost all organization. Priority is now more focused on issues for many companies, not just a profit, venture capital, or the government, but also engage healthy manner within their company (Hannon et al., 2011; Smith, 2012; Jamaludin et al., 2013; Habidin et al., 2014). According to (Jamaludin, Habidin, Shazali, Ali, & Khaidir, 2013), a source familiar to define ‘green' is from the report of the World Commission on Environment and Development 1987. It states that sustainable development as development that meets present needs without compromising the ability of future generations to meet their own needs. A complex system of interacting as a sustainable healthcare can be defined as an approach to recovery manage and optimize human health and the environment, and competitive in economic and social development (Beamon, 1999).

Seeing the current global market scenario, Hart (1995) mention that competitive advantage and environmental sustainability is believed to co-exist. (Cote et al., 2008; Habidin et al., 2013) shows that companies need to undertake a paradigm shift of their environmental responsibilities. Therefore in order to gain a competitive advantage to meet environmental responsibilities, the organization realized that they cannot work in isolation. To ensure a healthy environment in the supply of a resource, not only on the walls of the company but across the entire supply chain. These companies are often subject to environmental liabilities from their suppliers should urgently to integrate environmental initiatives, to ensure a healthy environment (Sarkis, Darnall, Nehman, & Priest, 1995). In addition, environmental issues have grown out of their organizations by entering their supply chain partners (Trowbridge, 2001; Sah, Habidin, Latip, & Salleh, 2014). It is supported by (Reese, 2008) stating such organizations realize that industrial ecosystem can only be maintained through the green supply chain management. In addition, according to (Ageron, Gunasekaran, & Spalanzani, 2012), although there is not a new concept gained widespread recognition in the Asian region.

In order for Malaysia to achieve a developed nation status, improvements in term of healthcare services are required. This is because of customer very concern and seeks for the quality of products and services (Chen and Tsou, 2012). In line with that, Malaysian healthcare industry should provide the quality of their services or product in order to meet the customer's requirement.

In this study, GSCM has five domain categories in this study that are namely; Green Manufacturing (GM), Reverse Logistic (RL), Eco-design for Environment

(ED), Green Purchasing (GP) and Green Distributor (GD). Furthermore, this paper also focused towards Environment Performance (EP). There are three elements of EP: Operational Performance (OP), Economic Performance (ECP), and Innovation Performance (IP).

1.2 Problem Statement

Each country faces different pressures especially where the environmental issues are concerned (Christmann and Taylor, 2001). Based on the Environmental Performance Index (EPI) 2014, it measures the effectiveness of the efforts of national environmental protection in 178 countries. EPI in 2014 showed that 178 countries on 20 performance indicators that reflect the best environmental data available worldwide on the scale of the country. Refer to the table 1.1 Malaysia was ranked 51 on the 2014 EPI, which is not comfortable rank.

EPI 2014 entering Malaysia in the medium level, it also shows that green awareness and GSCM in Malaysia can be improved, so there will be a need to spread knowledge of GSCM. Therefore, with the help of GSCM, the Malaysian healthcare industry get their cost and efficiency improvements like those that any applicable in a better outcome.

Table 1.1

Environmental Performance Index 2014 for Malaysia

Name of Indicator	Score	Rank	Compared To GDP Peer Set (%)	Compared To Region Peer Set (%)
Health Impacts	95.83	34	27.29	27.95
Air Quality	90.54	55	4.67	21.65
Water and Sanitation	77.21	45	41.8	53.8
Water Resources	8.64	94	-46.9	-67.07
Agriculture	57.68	124	-15.4	-4.22
Forests	1.68	129	-96.62	-95.4
Fisheries	17.6	82	-18.14	-36.85
Biodiversity and Habit	93.37	22	66.28	46.16
Climate and Energy	40.24	95	-7.61	-16.03
Overall Score	59.31	51	13.06	12.71

Source : Environmental Performance Index (EPI) Survey report (2014)

Table 1.2

Environmental Health for Rural Area 2014 for Malaysia

Houses Serve Item	Percentage (%)
Clean water supply	96.12
Sanitary Latrines	96.04
Sullage Disposal	66.33
Solid Waste Disposal	71.04

Source: Ministry of Health Portal (2015).

Refer to Table 1.2, there is a need to investigate the link between GSCM and EP in every dimension of healthcare (Vachon and Klassen, 2008). This situation requires further investigation on the association between practice GSCM and EP.

Therefore, renewed focus on the impacts of the importance of the healthcare industry such as regulatory, shareholders, customers, and employees requires that healthcare organizations be more responsible for the environment with respect to their products and processes (Amrina and Yusof, 2010).

While it is important, the resistance to integrated GSCM practices has been attributed to the high cost of practicing such practices (Anbumozhi and Kanada, 2005). Due to this barrier, the establishment of Ministry of Energy, Green Technology, and Water (KeTTHA) on 9 April 2009 has encouraged business organizations to adopt a green culture in their business operations as well as to promote green practices. The government's laws and regulations as well as public awareness of environmental impact have been the main driver of the green supply chain and the sustainability of the company (Liu, Kasturiratne, and Moizer, 2012).

In the Malaysian context, within the implementation of the GSCM, further study on the integrated GSCM practices are required (Abdullah, Hassan & Johari, 2014). Most researchers conducting research on GSCM in countries such as Taiwan and China (Rao, 2002; Zhu & Cote, 2004) which may share similar social-cultural situation as Malaysia. However, early works and reviews have a narrow perspective and focus limited because they do not adequately cover all aspects of GSCM practices and its relationship with EP (Abdullah, Hassan, & Johari, 2014).

Responding to this need, this study is considered necessary to bridge the gap with GSCM primarily on the relationship between GSCM practices and their impact on the EP. Therefore, in this study, the concept of GSCM will be examined in the

context of healthcare in the private sector, which is targeting for 6 branches of KPJ healthcare specialist hospital in Selangor. GSCM key determinant will also be reviewed, the current study also aims to explore the concept of GSCM to enrich it with new variables and their relations with the EP.

1.3 Research Objectives

In order to achieve this aim, the purposes of this research has three main objectives, which are as follow:

1 To identify the Critical Success Factors (CSFs) of GSCM implementation KPJ healthcare specialist hospital in Selangor.

2 To determine whether there are relationship between the implementation of GSCM practices represented by green manufacturing, reverse logistic, eco-design, green purchasing and green distributor, and environmental performance of KPJ healthcare specialist hospital in Selangor.

3 To determine which practice of GSCM represented by green manufacturing, reverse logistic, eco-design, green purchasing and green distributor that influence environmental performance of KPJ healthcare specialist hospital in Selangor.

1.4 Research Questions

There are three research questions to be emphasized during research, the following research questions to be addressed during this research are:

1. To what extent does the KPJ healthcare specialist hospital in Selangor implement GSCM practices?

2. Are there any relationship between the implementation of GSCM practices (represented by green manufacturing, reverse logistic, eco-design, green purchasing and green distributor) and environmental performance of KPJ healthcare specialist hospital in Selangor?

3. Which of the GSCM practices (represented by green manufacturing, reverse logistic, eco-design, green purchasing and green distributor) has the most impact on the environmental performance of KPJ healthcare specialist hospital in Selangor?

1.5 Hypothesis

To understand the relationship of each GSCM construct on EP for KPJ healthcare specialist hospital in Selangor, the following hypothesis were set up to be tested. These hypotheses will be stated based on a numbering system from H_1 to H_6.

H_1: There is a positive and direct significant relationship between green manufacturing and environmental performance for KPJ healthcare specialist hospital in Selangor.

H_2: There is a positive and direct significant relationship between Reverse Logistic and environmental performance for KPJ healthcare specialist hospital in Selangor.

H_3: There is a positive and direct significant relationship between Eco-design and environmental performance for KPJ healthcare specialist hospital in Selangor.

H_4: There is a positive and direct significant relationship between Green Purchasing and environmental performance for KPJ healthcare specialist hospital in Selangor.

H_5: There is a positive and direct significant relationship between Green Distributor and environmental performance for KPJ healthcare specialist hospital in Selangor.

H_6: There is a positive and direct significant relationship between green supply chain management and environmental performance for KPJ healthcare specialist hospital in Selangor.

1.6 Theoretical Framework

Exploring the previous literature review concerning the relationship between GSCM practices and EP for KPJ healthcare specialist hospital in Selangor gets the wide

attention from researchers and practitioners but the investigation for KPJ healthcare specialist hospital in Selangor still hard to find. Coinciding with that, this study attempts to fill this gap.

1.6.1 A Propose Research Model

The purpose of this study is to review structural analysis between GSCM practices and EP in the healthcare industry. The study focuses on the relationship between GSCM consisting of green manufacturing, reverse logistic, eco design for environment, green purchasing, green distributor and EP for KPJ healthcare industry in Selangor. Figure 1.1 below shows the research framework of the study.

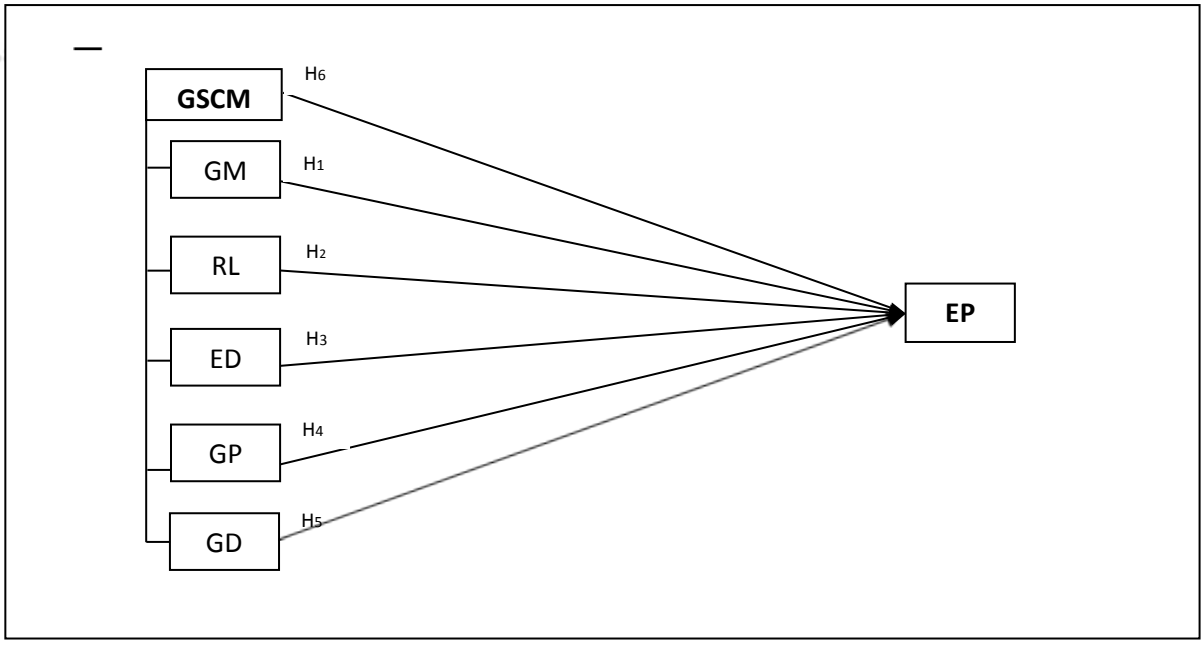

Figure 1.1. Research framework

Note: GSCM: green supply chain management; GM: Green Manufacturing; RL: Reverse Logistic; ED: Eco-design; GP: Green Purchasing; GD: Green Distributor; EP: Environmental Performance

1.7 Significant of The Research

This study is important for providing valuable information on the implementation of GSCM and EP within the healthcare industry in Malaysia. GSCM and EP is seen as useful to be undertaken in order to increase knowledge and understanding the organization's process. This study provides an opportunity to examine the role of GSCM and EP and will lead to better understanding the quality management initiative that has been used in the healthcare industry.

Through previous studies, many developing countries such as Malaysia are still trying to learn how to incorporate green practices into their daily operations. (Rao, 2002; Sarkis, 2012). Constant study needed for management and practical contribution. The findings of this study may provide useful information in helping the healthcare industry to identify an effective approach towards ensuring the success of GSCM as well as ensuring their EP.

Moreover, this study documents the process that healthcare environment utilizes when designing and implementing quality programs. Thus, it is expected to be able to help researchers and practitioners in the healthcare industry to enhance understanding and identify opportunities for improvement in the process of implementing GSCM and also improve the decision-making process. This study is expected to provide benefits and be a guideline for various parties, especially in healthcare area in order to achieve better performance.

1.8 Scope and Limitations of The Study

In an effort to assess GSCM, KPJ healthcare specialist hospital in Selangor have been a focus of study. According to Ganesan (2012), the hospital is an important role in Malaysia's economic growth at present. However, the hospital has experienced a lot of stress. This happens because the hospital chain is working hard to reduce their supply while maintaining or improving the performance of the natural environment and their profits. In an effort to perpetuate their environments, advantages, various boarding reduction strategies have been implemented. Nevertheless, diminishing return were observed rather than improved profit margins.

In the pursuit of meeting all the objectives, the scope of this project is crucial. The scope of this research focuses on the following two areas:

1 This research focuses on the relationship between the GSCM and EP measures for KPJ healthcare specialist hospital in Selangor.

2 Population and sample of survey respondents are only targeted to the KPJ healthcare specialist hospital in Selangor.

At the same time, there are certain assumptions that has to be made in this study. They are:

1 Respondents in this study have broad expertise in GSCM and environmental performance measurement to answer all questions in the questionnaire.

2 Respondents consisting of a panel of experts and managers with and the best of knowledge and experience answer all the questions given.

1.9 Operational Definition

In this study, there is the use of some specific definition of a particular purpose. Operational definition in this study are as follows:

1.9.1 Supply Chain Management

Suppy Chain Management (SCM) is the control of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer and customer (Ageron et al., 2012).

1.9.2 Green Supply Chain Management

GSCM is to integrate a healthy supply chain management problems are environmental concerns (Zhu, Sarkis, Cordeiro, Lai, 2008). Activities related to the transformation of the flow of goods or services of the resource to the end user (Bowersox and Closs, 1996). GSCM designed at various levels, including internal and external perspective. By creating a comprehensive system of productive maintenance covering the entire life of environmental management in healthcare industry.

1.9.3 Environmental Performance

Environmental performance (EP) is the ability of manufacturing plants to reduce the use of hazardous materials and toxic, by reducing air emissions, solid waste and hazardous waste as well (Chiou et al, 2011; Conding et al., 2012; Zainudin et al., 2014). EP also implemented by economic, operational dan innovation.

1.9.4 KPJ healthcare specialist hospital

KPJ Healthcare organization is an industry studied in this research. It covers the list of six branches of KPJ healthcare specialist hospital in Selangor and referred as the population of this study.

1.10 Summary

This chapter presents the basic research. Healthcare is an important issue around the world, this is due to the development of the country affected by a healthy society. Consumers are very concerned with the quality of their healthcare. To meet these requirements, the healthcare industry needs to continue to move forward to improve the product or service they provided. This action is to implement quality management initiatives in their processes. Therefore, this study has explored the gaps in the implementation of GSCM and EP to six branches KPJ healthcare specialist hospital in Selangor. This study contributes to knowledge about how the implementation of GSCM and EP have an impact on the healthcare industry. The implication of this study is that healthcare organizations will get a better understanding of the influence of GSCM practices eventually lead to more effective performance. The framework also includes research in this chapter. Research framework has been developed according to the research questions and objectives. Finally, the thesis and operational definition GSCM and EP are also presented. Next, further studies regarding the literature review will be presented in chapter 2.