

PERFORMANCE OF TRANSPORT SYSTEMS AND DISTRIBUTION NETWORK OF GREEN SUPPLY CHAIN

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Abstract

By pressing government regulations for obtaining environmental standards on the one hand and growing customer demand for green products (without harmful effects on the environment) emerged the concept of green supply chain and its management. Organizations must operate environmental management in all lifecycle of their products because ensure to improve the environmental performance of the supply chain. In fact, basis of green supply chain management is integration of environment and supply chain management to control environmental impacts in the production cycle by sharing information and harmony and cooperation of all members of the supply chain.

Keywords: Transport System, Distribution Network, Green Supply Chain

1. Introduction

The supply chain involves three areas of procurement, production and distribution that are considered one of the main challenges for business managers due to will remain the impact on the environment in all of field (Gilaninia & et al, 2011). Nowadays attention to the environment is not only a social issue but also is considered one of the most important issues of commercial. Transport is the important part in this field that attention to various aspects of this issue and the approaching environmental standards is one of the issues affecting sustainable development and investments in the field improving the environment and attention to costs resulting from its destruction and precision to minimize and eliminate waste and pollutants can improve productivity levels in companies and organizations related (Kaveh & Moosapour Gorji, 2010).

Consideration of environmental factors on the side of supply chain management was first introduced by Beamon in 1999. In mentioned research had studied issues such as environmental factors, the difference between improved supply chain (green) and traditional and its challenges (Paksoy, 2013). In study by Ramudhin and colleagues was introduced linear mixed integer programming model in the environment of emission trading. In the research mentioned two objectives to minimize chain logistics costs and to minimize environmental impacts have been considered as separate. In this context, total emissions will be achieved as a result of transport process (Ramudhin, 2010). Diabat & et al (2009) in

addition to the carbon emissions that occur as a result of production and transport, to store goods in stock have considered the share of emissions (Moayer & Dehghania, 2015).

2. Importance and Necessity of Research

The information revolution and the emergence of new forms of cross-organizational communication and increased customer expectations in terms of cost of products and services, quality, delivery, technology and cycle time promised due to increased competition in global markets and so on, including factors that changes the traditional system of buying and preparing and moving towards modern systems of supply chain management by organizations in the world (Niknejad, 2011). Supply chain management encompasses all activities related to the transformation of goods from raw material stage to delivery to final consumers parallel to the flow of information throughout the supply chain (Gilaninia & et al, 2012). It has a significant impact on the environment. Today in the industry due to the shortening of life and diversification of products, supply chain management decisions have particular sensitivity (Chiniforoosh & Sheikhzadeh, 2010). Green supply chain comes to minds prevent the use of toxic chemicals and dangerous only reduce emissions of pollutants or waste to the environment, although these cases are important, but the importance and benefits of GSCM¹ is not limited to the loss of hazardous substance use or reduction of harmful pollutants. GSCM principles can be applied to all parts of an organization and its effects can spread in all areas of the tangible and intangible. Benefits compliance with GSCM could divide into three categories: material, immaterial and emotional (Imani & Ahmadi, 2009).

3. Research Background

Laari & et al (2015) in study with title “firm performance and customer –driven green supply chain management” sample size was 119 manufacturing companies in Finland. The results showed that before all management activities of green supply chain both internal and external, customers need is as an important factor in the production and implementation of internal resources of supply chain management. Results confirmed that customer pressure and environmental factors in the transmission of the necessary requirements for supply chain management and supplier performance is effective and as well as strong domestic manufacturers with GSCM practices along with monitoring environmental suppliers factors are as a kind of relations and cooperation with customers to achieve environmental goals and improve company performance.

Ahi and Cersei (2015) did a study with title “Analysis of the criteria used for performance measurement in a sustainable green supply chain management”. In this study, to analyze has been used criteria identified in structural content analysis of article 445. In total 2555 unique criteria were identified that most those criteria was used only once, which reflects the lack of agreement on how to measure areas. Five criteria were used more than 20 times that has been including quality (31 times), air emissions (28), greenhouse gas emissions (24), use of energy (24), and energy consumption (21). Results show that, multiple criteria to measure the same issues and environmental issues have been shown to the greatest extent. More than one third of specified criteria were classified as common standards, meaning that they are more of a key feature of SSCM that is provided for development basic structure in GSCM and SSCM.

Tian & et al (2014) with title “A system dynamics model based on evolutionary game theory for green supply chain management diffusion among Chinese manufacturers”, is considered relations of stakeholders such as governments, companies and consumers through evolutionary game theory. Results show that subsidies for manufacturers are better than

¹ Green Supply Chain Management

promoting and publicizing and promoting consumers to GSCM and environmental advertisements.

Ala & Petri Helo (2014) in title with “Green supply chain decisions – Case-based performance analysis from the food industry”, environmental impacts such as gas contaminants emissions GHC, supply chain management was charged as an additional parameter in delivery time. Supply chain management represents a significant source of effective and environmentally decision making that is considered in the design of supply chain in the food industry. The results show that finally correlation between performances measurements can provided as a decision making framework and their impact on performance.

Hosseini & et al (2014) in study “Identify and prioritize the factors affecting green supply chain using approach of path analysis”, identify and prioritize the factors affecting green supply chain in production companies of chemicals and detergents. A sample of 16 production companies has been analyzed by software "PLS". The impact of internal stimulus of green supply chain management on green supply chain management activities was not confirmed. While the impact of external stimulus on internal stimulus and impact of external stimulus on the operational activities of green supply chain management were confirmed and this means that external stimuli with positive vote can provided internal stimulus to the side of operating activities in green supply chain management and companies to stay in the competition, are required to implement these activities.

Ahmadi & et al (2011) in study “Presenting a model for measuring the success of organizations in green supply chain management - green supplier (case study: Alayaji Steel Company of Iran)”, was done in two different phases: in the first phase 34 index of green supply chain by studying scientific literature and obtaining expert comments of industry was extracted and was basis of preparation and in the second phase were studied method of six extractive factors to select the company's suppliers. According to the collected material concluded that this research with approach of to identify component could create a suitable ground for the implementation of green supply chain management in the industry, especially the steel industry and importance and attention to environmental issues and more attention to customers is considered as requirements and rules.

Olfat & et al (2011) in study “Requirements to achieve Green Supply Chain Management Iran's automotive industry” according to identify requirements (Stimulants, constraints, actions and results) have been investigated in supply chain management. Results obtained of the enforcement action of design for environmental, environmental partners with stakeholders and waste management respectively have priority first to third. Similar research among automotive companies in China and power plant industries, automotive and electronics and power plant in China shows that results are similar to findings of other research in China.

According to statement contained and previous research, research analytical model is presented as follows:

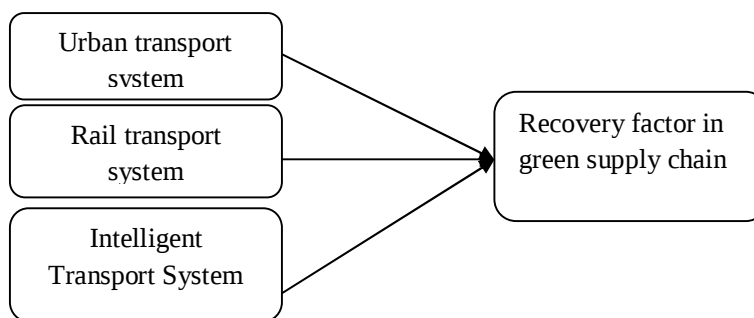


Figure 1: Research analytical model(GILANINIA,2016)

4. Discussion and Conclusion

By pressing government regulations for obtaining environmental standards on the one hand and growing customer demand for green products (without harmful effects on the environment) emerged the concept of green supply chain and its management. Today, green supply chain managers through the creation of utility and satisfaction in terms of environmental throughout the supply chain in leading companies try to benefit from green logistics and improve its environmental performance in entire supply chain as a strategic weapon to gain sustainable competitive advantages. Organizations must operate environmental management in all lifecycle of their products because ensure to improve the environmental performance of the supply chain. In fact, basis of green supply chain management is integration of environment and supply chain management to control environmental impacts in the production cycle by sharing information and harmony and cooperation of all members of the supply chain. Green supply chain management is integration of supply chain management with environmental requirements in all stages of product design, selection and supply of raw materials, manufacturing, distribution and transmission processes, delivery to the customer and finally after consumption, waste management and reuse in order to maximize amount of energy productivity and resources along with improved performance of the entire supply chain. To develop strategies of investment for the improvement of the environmental performance of the supply chain will have many advantages and benefits such as savings of resources energy, reducing emissions, eliminate or reduce waste, create value for customers and ultimately increase productivity for organizations of manufacturing and services.

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