

AWARENESS OF GREEN SUPPLY CHAIN MANAGEMENT PRACTICES OF SRI LANKAN SMEs

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ABSTRACT

As many economies embrace global supply systems, there is a pressing need to focus on reducing the supply chains' adverse environmental impact. Green Supply Chain Management (GSCM) is an alternative idea that combines supply chain effectiveness with environmental considerations. GSCM is a powerful tool for distinguishing or separating a company from its competitors, and it can have a substantial impact on the company's success strategy. It is becoming more significant for Sri Lankan SMEs as they become more attentive to corporate social responsibility and the obligation to follow the terms of eco-friendly policy. Recently, it was found that there are many issues in the area of supply chain to the balance of biodiversity specially from the Small and Medium sector enterprises in Sri Lanka. Though various researchers have highlighted the penetration of GSCM practices in large-scale manufacturing industries, the present study is aimed at exploring the awareness of green supply chain management practices in Small and Medium Scale Industries (SMEs) in Sri Lanka. Therefore, the purpose of this research was to evaluate the current state of Sri Lankan Small and Medium Enterprises in the context of Green Supply Chain Management Practices (GSCMP). This research study takes a qualitative approach rather than a quantitative one. The study depends on primary data, collected through face-to-face, semi-structured interviews with seven Small and Medium enterprises in North Western Province, Sri Lanka. Interviews were conducted with managers of a set of SMEs in the Sri Lankan market in an attempt to meet the main objectives of this research. All the targets are located in North Western Province, as a matter of determining the geographical coordinates of the target. This study follows a thematic analysis approach to analyze the data. Highlighted findings were such that insignificant attention from SMEs in Sri Lanka is being paid towards the environment. SMEs were found not to be willing and seriously ready to take action so as to help in reducing environmental threats. Lack of customer awareness, Lack of knowledge & experience training to personnel in Green supply chain management, Lack of top-level management commitment in adopting green supply chain management, Suppliers or vendors are reluctant to adopt Green supply chain management practices, Cost of Implementation for Green supply chain management and Lack of support & guidance from regulatory authorities are the main reasons for lower level adoption to the green supply chain management practices among Sri Lankan SMEs. Various suggestions were offered in this study and proposed solutions according to the identified insufficiencies.

Keywords: Green supply chain management, Small and medium enterprises

1. Introduction

The rise of environmental pollution and changing biodiversity has brought the world's sustainability towards imminent danger. Researchers, scientists, practitioners, and academicians from various fields came together to discuss strategies to ensure environmental sustainability. To achieve greater sustainable objectives, organizations need to play a vital role and need to be concerned about the external environment, which is often referred to as the 'going green' mission (Bensal & Roth, 2000). 'Doing things while integrating environmental or ecological concern' is how the 'green' notion is defined.

Companies are now attempting to reduce their environmental impact by incorporating environmental considerations into their supply chain activities. The integration of environmental concerns into supply chain management practices is referred to as 'green supply chain management' (GSCM) (Sarkis J., 2012).

Green supply chain management (GSCM) is considered an environmental invention. Because of that, the mounting prominence of the concept of green supply chain management (GSCM) is discussed by researchers today more than ever before. Over the years, green supply chain management (GSCM) has attracted extensive research interest as a business practice and strategic option (Chin, Tat, & Sulaiman, 2015). However, the majority of such studies have been confined to large corporations with less attention devoted to Small Medium and Micro Enterprises (Ahi & Searcy, 2015). In addition, little research attention is devoted to this area in developing countries (Seman & Aslinda, 2012) and they further emphasized the need for studies on adoption and implementation of GSCM in developing countries. Similarly, there is a lack of an extant body of knowledge for the same phenomenon in the Sri Lankan context in relation to the Small and Medium sectors as well.

Though various researchers have highlighted the penetration of GSCM practices in large-scale manufacturing industries, the present study is aimed at exploring the awareness of green supply chain management practices in Small and Medium Scale Industries (SMEs) in Sri Lanka.

The main objective is to explain the extent to which Sri Lankan Small and Medium enterprises are engaged in Green Supply Chain Management Practices.

The following research objectives are expected to be achieved by the end of this independent study.

- To explain the extent to which Sri Lankan Small and Medium enterprises are engaged in Green Supply Chain Management Practices.
- To discuss the reasons for lower-level awareness of green supply chain management practices.

As discussed in the background study there is an essential requirement to be concerned about the health of the environment. The following research questions are addressed in this study.

- The extent to which SMEs in Sri Lanka have engaged in green supply chain management practices?
- What are the issues of implementation of Green Supply Chain Management Practices?

2. Literature Review

Supply chain has been defined in a variety of ways by different researchers, but there is no commonly agreed definition for it. La Londe and Masters (1994) proposed that a supply chain is a set of firms that pass materials forward. Normally, several independent firms are involved in manufacturing a product and placing it in the hands of the end user in a supply chain—raw material and component producers, product assemblers, wholesalers, retailer merchants and transportation companies are all members of a supply chain (La Londe & Masters, 1994).

The management of the flow of goods and services, money, and information between the business and other associated parties is known as the supply chain. Another definition notes a supply chain is the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer (Christopher, 1992). A supply chain consists of multiple firms, both upstream (i.e., supply) and downstream (i.e., distribution), and the ultimate consumers. As a philosophy, SCM takes a systems approach to view the supply chain as a single entity, rather than as a set of fragmented parts, each performing its function (Ellram & Cooper, 1990). In other words, the philosophy of supply chain management extends the concept of partnerships into a multi-firm effort to manage the total flow of goods from the supplier to the ultimate customer (Ellram, 1990).

In today's world, there is an increasing need to include environmentally friendly perspectives in supply chain management processes. The literature on both environmental management and supply chain management has roots in green supply chain management. By incorporating the concept of "green" into supply chain management theory, researchers hope to better understand the relationship between supply chain operations and natural environment balancing.

Academics and practitioners are presenting the concept of GSCM as a possible approach for increasing environmental performance and ensuring optimal biodiversity. Although the concept of GSCM can be found in the early 1990s, the trend in the growth of academic publications shows that it gained popularity after 2000 (Srivastava, 2007).

The notion of green supply chain management has been extended from the product design stage to the end of consumption. As a result, all parties involved in this process are accountable for environmental preservation. Essentially, it is the suppliers, producers, and consumers who should bear the brunt of this catastrophic issue.

According to Garen (2009), Green supply chain management is categorized as green manufacturing, green marketing, green procurement, green logistics, green human

resource management and green information technology management. Sukardi (2007), collection of green purchasing, green manufacturing, and green distribution. From my point of view, green supply chain management practices can be categorized as green purchasing, green designing, green manufacturing, green packaging, and reverse logistics. Green purchasing is defined as an environmentally conscious purchasing initiative that tries to ensure that purchased products or materials meet environmental objectives set by the purchasing firm, such as reducing the sources of wastage, promoting recycling, reuse, resource reduction, and substitution of materials (Zsidisin & Siferd, 2001). Green Procurement (formerly known as Affirmative Procurement) is the purchase of environmentally preferable products and services in accordance with one or more of the established green procurement preference programs (Vershuren, 2002). Green Purchasing ensures that purchasing or supply chain managers consider the issue of sustainability in the purchasing of inputs, in addition to the traditional purchasing criteria of cost, quality, and delivery (Kannan, G; 2008). Green purchasing emphasizes cooperating with vendors for the purpose of developing products under environment-friendly processes and without any harm to the environment (Zhu, Sarkis, & Lai, 2008a).

The small-scale supplier is one of the most important yet hardest groups in a supply chain. Research has shown that small-scale companies do not attach as much importance to the management of an environmental problem as large companies. Indeed, small and medium-sized ventures that contribute to green procurement present major barriers for producers (Sarkis, 2009).

"Green design" is also known as Eco-design, design for the environment, and life-cycle design in literature. Green design is the process of creating products and services that are environmentally friendly. To put it another way, creating a product or service that promotes environmental consciousness.

Its emphasis is that the entire product is without hazards. Designers should think about the product's overall lifespan as well as the end of its life cycle. Green design requires that producers design products which reduce the consumption of energy and materials, facilitate the recycling, reuse, and recovery of parts and materials, and meanwhile reduce or avoid the use of toxic and harmful materials used in manufacturing processes (Zhu, Sarkis, & Lai, 2008a). Designers, mostly concerned with product performance, must take into account also the effect of design details on energy/material requirements for manufacturing, use and secondary use (reparability, re-manufacturability, and recyclability) (Dube & Gawande, 2011).

Fiksel (1996) argues that organizations have definite potential to become eco-friendly towards product re-manufacturing. The advantages of reverse logistics should be considered by heavy businesses with complex supply chains (RL). Designers must consider the impact of design features on energy/material requirements for manufacture, use, and secondary use, in addition to product performance (reparability, remanufacturability, and recyclability). Only if redesigned items can give at least the same level of service as the products they replace will they be effective. Additional raw materials are not required to make new things when the usable life of the equipment is extended.

Green manufacturing involves manufacturing planning and control, minimizing energy consumption and material exploitation, and reducing waste during manufacturing processes (Liu, Tang, & Xue, 2012). The techniques for minimum energy and resource consumption for flow systems in order to reduce the use of virgin materials are based on three fields of study: pinch analysis, industrial energy and energy and life cycle analysis (Lee & Klassen, 2008). Green production should focus on producing the least amount of waste and reducing pollution. It should also place a focus on cleaner production and better capacity utilization.

According to Garen (2009), green manufacturing focuses on profitability by using environmentally friendly operations through Producing durable products from design to disposal by decreasing ecological damage. In addition, examine input costs in terms of regulations, energy consumption, and disposal; employ environmentally friendly materials, procedures, and processes to reduce emissions; and apply lean manufacturing to incorporate green aims into profitable outcomes.

Green manufacturing can be defined as reducing environmental pressure by using appropriate technology and materials (Nunes & Bennett, 2010). The main goal of green manufacturing is to save energy via new technologies or by supplying greener sources of energy and increasing production efficiency via new processes (Anoop & Kumar, 2013). Green production makes use of as much recycled and renewable energy as possible.

In the words of Phungrassami (2008), green manufacturing practices include material and resource selection, optimization of resources, process improvements, energy conservation, water conservation, assessments and audits, regulatory compliance, ISO 14001, environmental management system (EMS), and OHSAS 18001 (Occupational Health and Safety Management System). Green Manufacturing program improves environmental performance and increases the profitability of a firm by minimizing waste throughout transformation processes (Banerjee, 2003).

Leading private-sector companies have made tremendous progress in greening their production practices. Many private firms are working to improve the environmental performance of their operations and products and green manufacturing has been a logical extension of this work (Banerjee, 2003). Both public and private sector organizations have in the last two decades adopted green manufacturing practices such as environmentally-friendly raw materials; substitution of environmentally questionable materials; considering environmental criteria; environmental design considerations; optimization of process to reduce solid waste and emissions; use of cleaner technology processes to make savings in energy, water, and waste; internal recycling of materials within the production phase; and incorporating environmental total quality management principles such as worker empowerment (Banerjee, 2003).

Green packaging should mainly be concerned with returnable packaging, reused packaging, and recyclable packaging (Gonzalez, 2004). Though packaging makes it easier to transport and promote a product, it does not offer value to the consumer. Because packaging is such an important component of the operational life cycle, there are various approaches to make the supply chain greener by altering the packaging process. As a

result, the organization should put a lot of effort into reducing its environmental impact. As a result, the following packaging concepts may apply. Limit the size of the packaging to what is absolutely essential. Design packaging that can be refilled or recycled, and when possible, utilize standardized packaging.

Another part of the packaging is labelling, that's Eco labels. Eco-labels are seals of approval given to products that are deemed to have fewer impacts on the environment than functionally or competitively to similar products. This function is visible proof for others, saying which environmental requirements the products fulfil (Patil, Javalagi, Bhagavati, & Venkumar, 2018).

Reverse logistics activities differ from those of traditional logistics (Carter & Ellaram, 1998). The primary goal of the reverse logistics process is to ensure that products/materials are returned to the manufacturer to be recycled, reused, or reconditioned. The reverse logistic process covers the opposite flow of the regular logistic process. According to Islam et al. (2017), reverse logistics include recovery of the company's end-of-life items; resale or reuse of used parts or components; old/obsolete items being used or replaced recondition and refurbishing of used parts or components. The chain is covered in the opposite direction in reverse logistics. The reverse logistics process ensures that products/materials are returned from the user to the producer to be recycled, reused, or reconditioned. Environmentally-oriented Reverse Logistics or Green Reverse Logistics refers to the process of planning, implementing and efficiently controlling the flow of raw materials, in-process inventory, finished goods, wastes and related information from the point of consumption to the point of origin with the purpose of recovering the primary value or dispose of them properly to minimize environmental impact (Umeda, Tsukaguchi, & Li, 2003).

Indeed, several scholars have considered environmentally oriented Reverse Logistics to be a practice within green supply chain management (Rao & Holt, 2005). Gradually, firms give more importance to this aspect, mainly due to three reasons (Srivastava & Srivastava, 2006). the first one is the growing importance of environmental issues and their impact on public opinion (Rao & Holt, 2005), the second reason is the benefits that the company gains by improving their return processes such as image enhancement, improved efficiency and effectiveness in management of returned materials, it allows getting new profits (Lambert & Burduroglu, 2000), the third one is new and growing environmental regulations (Stock, Speh, & Shear, 2002). RL is essential because of its potential to improve the organization's overall performance (Guth & Ginsberg, 2001).

3. Methodology

This research study takes a qualitative approach rather than a quantitative one. The study depends on primary data, collected through face-to-face, semi-structured interviews with seven small and medium enterprises in North Western Province, Sri Lanka. Further, Hijaz et al. (2015) found that inhomogeneous studies using purposeful sampling, like numerous qualitative studies seven interviews should be adequate to achieve data saturation. As a result, this research used qualitative methodology and involved expert interviews with seven industry professionals. Here Interviews were conducted with managers of a set of

SMEs in the Sri Lankan market in an attempt to meet the main objectives of this research. All the interviewees have been chosen for the same job description and selected from the top of the managerial structure or the owner of the selected SMEs. All of them have no less than 10 years in different business activities. All the targets are located in North Western Province, as a matter of determining the geographical coordinates of the target. Thirty-seven open and close-ended questions as listed in the Appendix are repeatedly asked and directed to the seven targets. This study follows a thematic analysis approach to analyze the data.

4. Results and Discussion

The data has been gathered to meet the research objectives by using seven semi-structured interviews. This study typically analyses the level of awareness towards Green Supply Chain Management practices within SMEs. Under that point, Researchers look at how far they follow Green Procurement, Green Design, Green Manufacturing, Green Packaging and Reverse Logistics. After the detailed analysis of data following reasons were identified as reasons for a lower level of awareness towards green supply chain management practices among Sri Lankan SMEs.

4.1. Lack of customer awareness towards green supply chain management and green products

Customers' lack of understanding of green supply chain management and green products were cited as important obstacles to green supply chain management implementation. This indicates that a lack of consumer awareness and expertise were significant barriers/challenges in implementing GSCM in the Sri Lankan SME sector. Customers are only interested in the product's explicit benefit.

One of the research projects conducted in relation to Bangladesh's apparel industry has identified that the customer or buyer awareness of green concepts is highly affected by the awareness of the supplier's green practices. There is a common belief that the external incentive to undertake environmental initiatives only comes from the market. Also, consumers lack awareness regarding green products (Lorec & Spangenberg, 2014). This makes the market demand for green products uncertain. This uncertainty inhibits practitioners from adopting GSCMP initiatives (Luthra, Garg, & Haleem, 2014). Although buyers from developed countries increasingly demanding green textile products, consumers in emerging economies such as Bangladesh neglect the detrimental efforts of the products on the environment rather, they focus on the price and quality of the garment products. In other words, producers' motivation to adopt GSCM processes is hampered by a lack of customer pressure.

4.2. Lack of knowledge, experience training to personals in green supply chain management

Lack of qualified/high-quality human resource specialists in sustainability and green supply chain management, as well as a lack of knowledge and experience training for personnel in this field. This shows that a present hurdle for Sri Lankan SMEs is a lack of

information since individuals do not grasp what GSCM practices are, how to implement them, or the benefits associated with them.

All the respondents who took part in the research again and again stated that they do not have enough human resources to execute green supply chain management practices within their organizations.

Even though the owners of the SMEs understood the importance of adopting green supply chain management practices, it was unsuccessful without having the proper support from the lower-level employees. It is more important to have a qualified workforce to implement green practices within the organization.

4.3. Lack of top-level management commitment in adopting green supply chain management

One of the main barriers to implementing green supply chain management practices in Sri Lanka is the lack of top management commitment towards the GSCM practices. The majority of Sri Lankan SMEs' top management level is represented by the owners. They always try to maximize their financial gains/profits instead of thinking about the environment.

One of the research projects conducted in the Indian manufacturing firm, it is proved that without the support from the top management, cannot execute green practices within the organization. Top management provides continuous support for GSCM in the strategic plans and action plans for successfully implementing them (Ravi & Shankar, 2005).

4.4. Suppliers or vendors are reluctant to adopt green supply chain management practices

The majority of suppliers and vendors operate on a regular basis and are reluctant to disrupt their routine in order to embrace GSCM processes. Moreover, suppliers are reluctant to change towards GSCMP due to their interests and traditional mindset (Mudgal, Shankar, Talib, & Raj, 2010). Because of that SMEs have great barriers to getting their support to implement GSCM practices.

According to this study, out of seven respondents, five of them have the same issue of supplier and vendor reluctance. Preuss (2002) argues that, often in supply chain management relationships, an arm's length approach was adopted by the manufacturer who would lay down certain criteria but meeting those criteria would be left to the supplier's discretion. However, GSCM methods cannot be carried out in this manner, as they necessitate not only the establishment of supplier criteria but also the continuous monitoring and evaluation of how supplies are procured. The successful application of GSCM processes would necessitate extensive supplier evaluation and monitoring criteria. In addition, rather than continuing with the old arm's length method, businesses would have to put time, energy, and effort into developing more collaborative and strategic relationships with their suppliers.

4.5. Cost of implementation for green supply chain management

Perceived costs related to the deployment of GSCM processes are seen as a major roadblock to their complete implementation. The majority of the time, SMEs aim to maximize earnings by lowering costs. SMEs, in this opinion, should not practice GSCM because it is unnecessary and incurs additional costs. Adopting GSCM processes entails significant upfront investments for businesses. High investment costs are connected with deploying adequate technology infrastructure for environmental management, associated IT enablement, and hiring staff who can run such systems. These high start-up costs could prove to be a substantial impediment.

All the respondents in this study highly emphasize the cost associated with adopting green practices within their organization. A survey carried out in relation to the construction industry, they also highlighted the same barrier as an additional cost for implementing green practices within their industry. Generally compared to conventional SCM, GSCM has a higher cost (Ho, Shalishali, Tseng, & Ang, 2009). Therefore, the construction sector needs additional resources to implement GSCM. Sometimes, in spite of known savings over the life cycle, firms are not able to afford the upfront cost and end up buying cheaper and less environment-friendly products and services (Arif, Egbu, Haleem, Kulonda, & Khalfan, 2009).

4.6. Lack of support and guidance from regulatory authorities

This implies that in the absence of support from regulatory agencies like government and non-government organizations. When the government and other governing bodies take necessary actions to implement green practices in that country, it is more supportive for Small and Medium sector organizations to execute their green policies. Not only that governing bodies should provide necessary advices and basic infrastructures to the organizations. But in the Sri Lankan context, governing bodies have missed most of those responsibilities. Because of that SMEs are facing difficulties in implementing green practices. All the respondents of this study are bothered about this lacking area.

5. Conclusion and Implications

Recommendations have been made to address the issues that have been identified and meet the requirements for achieving the final specific objective of the research. In order to improve the adoption of Green Supply Chain Management practices among Sri Lankan SMEs, it is necessary to make some practical recommendations.

5.1. Create trend among customers on green products

Today, the majority of the customers are not concerned about their environment. They just think about their benefit. Because of that environmental pollution is increasing day by day. Business organizations always try to satisfy customer requirements. If customers do not request eco-friendly products, business organizations will not supply those products. The same theory functions behind the SMEs. Because the customers are not concerned the green products, SMEs do not adopt green practices.

To overcome this issue, business organizations can create green trends. So that customers try to purchase products which are manufactured under the green practices. It facilitates SMEs to follow Green Supply Chain Management practices.

Most of the SMEs complain that the following green practices create additional costs for them. Because of that, they have to charge higher prices to the customers. When there is no green trend, customers are reluctant to buy high-cost products. But when there is a trend among customers regarding green products, they will buy high-cost products.

5.2. Government should appoint separate committee to promote and facilitate green practices among business organizations

The government of each country has a considerable role in promoting the importance of following green practices among business firms. In particular, owners of SMEs do not have such an understanding of green practices. So that the government can focus on SMEs to promote this concept as an initial stage.

Most of the SMEs complain that there is no governing body to facilitate them to follow green supply chain management practices. Because of that, they cannot execute those practices successfully. Hence the government can join with other NGOs and get their support to promote this green concept.

Not only that government can promote this concept among other parties like suppliers and intermediaries. So that they also can participate in the successful implementation of the green concepts.

5.3. Give knowledge about green supply chain management to all the management undergraduates

Though the owners have ideas about implementing green practices within the organization, it should have a talented workforce. Most of the people who represent managerial positions in the organizations come from universities. So educational authorities should make necessary arrangements to provide a proper understanding of how to implement green supply chain management practices within the organization to all the management undergraduates.

Furthermore, Universities should provide a better understanding of the benefits of applying green practices within the organization will add additional benefits to the organizations.

This study does not come without limitations. First, this study follows a qualitative approach where only seven SMEs participated in the interviews. Hence, future studies are encouraged to cover a wider sample and to consider firms other than SMEs. Second, the current study covers only the North Western province in Sri Lanka and thus future research should provide evidence from other provinces. Future research can also advance supplementary measurement for rehearses of internal supply chains, such as TQM, cross-functional coordination, and internal integration.

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