A Review for Green Supply Chain Management

K. Hari Krishnan¹, Joseph Jeya Anand², Saju B³
¹,²,³VIT Business School, INDIA

ABSTRACT

Global warming is an issue to be addressed immediately, irrelevance of nationality, economic status it is the time to be together to act quickly to save our earth for future generation. Not only the government agencies and NGOs, the corporate citizens also have significant responsibility to be with the initiatives. Researches in the sustainable business are significantly important to motivating and educate the corporate citizens to participate in the initiatives.

Intension of this paper is to review existing research in this area and trying to explore what motivates the corporate to adopt GSCM, measures taken by the companies to control carbon footprint and what the companies are adopting to achieve their benchmark?

The outcome of the paper is the research about the Indian corporate are very less and many research were done in China and USA. The companies are achieving benefit through adopting such initiative. Customers, environmental regulations, reputation, innovation and efficiency are the drivers of green initiatives.

Keywords— Global warming, Green Supply Chain Management, Global warming and corporate responsibility, Green strategies and initiatives

I. INTRODUCTION

The technological development, demanding customers, rivals among the nations, competitive market, major change in life style, responsive corporate in volatile business environment, economic threat and war & security are the few areas where many government, governmental agencies, corporate and research organizations were focused on.

Alarming climate change issue turned the focus of the developed and developing nations to raise the issue along with some international organizations and NGOs to address the threat. In order to responding to the global warming issue, many corporate are taking various initiatives for sustainable development (GSCM). A sustainable development activity triggers the green supply chain management. Green supply chain management defined as the process of incorporating environmental criteria into organizational purchasing decision and long term relationships with suppliers (Yang and Jyh-Shing, 2005).

Green supply chain management focuses on adopting techniques and methods to reduce carbon footprint through various measures like proper packaging, transportation, recycling and using new reusable materials and design for the products. Technology helps the companies to maintain the details about each and every part in their product and the information includes the carbon footprint. These initiatives help the companies to control the carbon footprint in their product. Also companies are doing research to reduce the carbon footprint in each and every product. There are many strategies adopted by the companies to control the carbon footprint for example reusable packaging, reusable parts and proper recycling.

However, evidence shows that majority of the initiatives are taken by the very large scale companies and significant numbers of large to small scale companies are neither interested nor aware about the present issue and its importance. Intension of this paper is to review existing research in this area and trying to explore what motivates the corporate to adopt GSCM, measures taken by the companies to control carbon footprint and what the companies are adopting to achieve their benchmark?

II. METHODOLOGY

This research review the research article published in reputed journals and other reputed authentic sources. Research articles, business magazines, corporate reports, government reports and online materials collected for the study.
The overall objective of the study is to identify the determinants of GSCM, drivers, metrics and strategies for achieving Green Supply Chain Management for SMEs in India.

Methodology
This research review the research article published in reputed journals and other reputed authentic sources. Research articles, business magazines, corporate reports, government reports and online materials collected for the study.

III.  GREEN SUPPLY CHAIN MANAGEMENT

The word ‘Green’ has received more attention in the recent years due environmental awareness. Industries, government and organizations like ISO (ISO 14000 – Environmental management) are setting up standards for environmental management and wanted to create Green environment. Thus, the Green supply chain management (GSCM) has received more attention by various institutions and professionals.

GSCM involves, supply chain design and execution including managing upstream & downstream logistics, waste removal and hazardous management. Srivastara (2007) defined GSCM as integrating environment thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers, and end-of-life management of the product after its useful life.

According to (Boks & Stevels, 2007), they categorized “green” into three types depended on the different perceptions of the environment among different stakeholders involved: scientific green, government green, and customer green. In scientific green, life cycle assessment (LCA) was used to determine the environmental impact of products, processes, and systems. However, it concerned only the emissions, not other aspects. In government green, several factors were involved such as population density, geographical position, and the availability of energy sources. These factors affected the government agenda to maintain or improve quality of life. For customer green, the perceptions of green were strongly linked to emotions that were directly impacted to people, especially health and safety, than resources or emissions.

Many GSCM research were involved in sustainability, environment management, closed-loop supply chain and reverse logistics. Sarkis (2003) identified a few alternatives available to the organizations for improving the environmental performance of their supply chain. The alternatives are including technological, process, or organizational characteristics.

IV.  DETERMINANTS OF GSCM

The determinants of adoption at firm level can be broadly divided into external factors, holders pressure and internal factors. The supply chain oriented environmental management is developed by companies not just as an ad hoc operational response to external pressure, but as a key-element of a business strategic vision aimed at pursuing better environmental and commercial results. Reputation, innovation and efficiency are the three main approaches to achieve GSCM (Francesco Testa and Fabio Iraldo, 2010). The environmental management system and statutory regulations influence the companies to such practices.

In October 2005, Lee Scott, President Wal-Mart introduced their sustainable strategy to become most competitive and innovative company in the world.

Research shows that the major influencing forces for the companies are their customers. To build reputation among the customers, to improve the business performance and maintain global presence the companies are adopting GSCM (Changuang et al, 2010, Qinghua et al, 2006, Ming-Lang and Chiu, 2010).

V.  THE DRIVER AND OR PRESSURE FOR GSCM

There are some explanations as to why firms should engage in GSCM activities. In addition to overall environmental improvement there may be congruent results in tangible positive economic performance. Hall (2000) also argued that large customer firms meet stakeholder pressure that goes beyond legal environmental responsibilities while many suppliers are often under considerable pressures from their customers. Henrique and Sadorsky (1996) identified four critical environmental stakeholder groups: (1) regulatory stakeholders, which either set regulations or have the ability to convince governments to set standards; (2) organizational stakeholders that are directly related to an organization and that can have a direct financial impact on the company; (3) community groups, environmental organizations and other potential lobbies who can mobilize public opinion in favor of or against a firm’s environmental policies; and (4) the media, which have the ability to influence society’s perception of a firm. These types of pressures are incurred in a wide variety of international locals, for example, research in Spanish industries confirmed that some of the external pressures could become sources of opportunity for those companies with the intention to improve their environmental control. It is similar for many Chinese companies (Del BrI, 2003). For example, many Chinese companies acquired ISO14001 certification to meet environmental requirements from their foreign customers, which also helps them to market their products to other customers (Zhu et al, 2001).
VI. STRATEGIES FOR ADOPTING GSCM

The environment friendly supply chain is not only determined by a single firm, it is determined by the chain of firms linked together for a common purpose. GSCM needs good cooperation with suppliers. Many suppliers from China have realized the importance of improving their environmental image (Zhu and Zhao, 2004). As a developing country, China has started to emphasize its economic development, while at the same time increasing its awareness and actions on environmental protection. As a result, GSCM has been increasingly implemented by many leading companies in China (Zhu et al, 2007).

Significant amount of research have done by various researchers in China about their corporate initiatives for GSCM. Researches about Indian industries’ initiatives are very less in numbers. However there are some research initiatives taken by various government and academic institutions about environment friendly manufacturing and product development. The research about GSCM is in infant stage in India.

Zhu et al, (2007) argues that GSCM initiatives improves performance, thus the companies adopts such initiatives. The literature in this area is expanding in a number of directions, internal environmental management (IEM), green purchasing (GP), customer cooperation (CC), investment recovery (IR), and eco-design (ECO).

Wal-Mart have adopted various strategies for sustainable supply chain management such as logistics, ethical team and compliance team, operational changes, suppliers, Electronics – material innovation, e-waste management, green engineering, new metrics and benchmarking, training and education, textile – organic cotton, and communication with public.

“when Lee [Scott] defined the company’s sustainability goals, we quickly formalized our fuel efficiency processes and rolled them into the business sustainability strategy of the company.”

- Tim (2007)

VII. GREEN PROJECT PARTNERSHIP

Practices that foster green project partnership include direct involvement of the suppliers or customers in the implementation of a new production process or in product modifications (Bowen, 2001, Rao, 2004). The result can be achieved, only if the partners are willing to adopt such initiatives. These partnership programs creates win-win situation in the supply chain. The partnership will enable the companies to have better cooperation with their supplier, customers and other stakeholders, which will help them to improve the GSCM initiatives. For example, the larger company gives training and support to their supplier or stakeholders for green initiative.

VIII. MEASURES FOR GSCM

Although a number of performance measures appropriate for traditional supply chains have been developed, these existing measures are inadequate for use in the extended chain. The existing measures are inadequate in capturing the dual extended supply chain objectives of economic efficiency and environmental protection. This identifies a need to develop new, more inclusive, measures to describe supply chain performance. ISO 14000 identifies the need for these measures implicitly in its certification requirements. In fact, these certification requirements (as previously identified), refer directly to requiring environmental impact analysis and assessment, continuous measurement, targets, and monitoring procedures. The types of performance measure(s) used by an organization will largely depend on their evolutionary stage in Environmental Management.

In order to achieve the green supply chain, manufacturing organizations must follow the basic principles established by ISO 14000. In particular, organizations must develop procedures that focus on operations analysis, continuous improvement, measurement, and objectives. Beamon (1999) identified implementation procedure for extending the supply chain includes the following tasks:

Identify processes. For each product within the supply chain, identify all inputs, outputs, by-products, and resources.

Develop a performance measurement system. Given the complexity of most supply chains, a single performance measure will likely be inadequate in assessing the true performance of the supply chain.

Measure the supply chain system. Calculate the actual composite performance at each step in the supply chain process for each product. The composite performance, as calculated at each supply chain process step, will be a function of the performance measures developed above. The composite performance, therefore, may be a single numerical value, or (more likely) a vector of numerical values.

Prioritize. After all processes for all products have been measured, prioritize the process steps in order of increasing composite performance.

The performance measurement needs to be a continuous one and corporate have to give priority for GSCM measures. Thus the initiative will become continuous one and KPIs can be used to access the performance of the initiatives. The KPIs will help the companies to improve the process further and the continuous improvement will be on.
IX. CONCLUSION

The society as whole is responsible for the future wellness of the generation and earth. The awareness should be created among the entrepreneurs, Industrialists, consumers and other stakeholders to make them to adopt green initiatives. The research assistance and support should be provided for Indian SMEs. The society also part of the initiative, they should raise their voice against the companies to provide eco-friendly products. Customer recognition is the major driver for corporate green initiatives. So there is need for creating awareness among all the citizens in this world. Finally the research is the important tool to explore various sustainable ways to meet the global warming challenge. So there is significant number of research is required in India to address the issue.

REFERENCES