RECYCLING SYSTEM BENEFITS FOR GREEN SUPPLY CHAIN MANAGEMENT

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ABSTRACT

Green supply chain management, as a new area for research in the field of management, that plays a vital role in the development of a manufacturing sector across the world in general and India in particular. Recycled economy is a generic term for the activities of reduction, recycle and utilization of resources in the processes of production, circulation and consumption, etc. It centers on the effective and efficient utilization of resources that is featured by low input, low consumption, and low emission with huge benefit.

A Green supply chain is the most embodiment of recycled economy in a supply chain. As green supply chain follows the principles of a recycled economy, it can enhance the environmental and economic performance inside a supply chain domain. It can help to take into a account for environmental factors in the whole process through their collaboration of upstream and downstream enterprises, including purchase of raw materials, manufacturing of intermediate products or finished products, and delivery of finished products to end users through sales network.

Keywords: - Green Supply Chain Management (GSCM), Supply Chain Management (SCM), Environment

I INTRODUCTION

Supply chain management has been traditionally viewed as a process where in raw materials are converted into finished products, and delivered them to the their end users[1]. It involves the extraction and exploitation of the natural resources. The waste and emissions caused by the supply chain have become one of the main sources of serious environmental problems including a global warming and acid rain, etc. Green supply chain policies are desirable since reactive regulatory, to proactive strategic leading to the competitive advantages. Green supply chain management (GSCM) gaining increased interest among the researchers and practioners of operations management. The growing importance of GSCM is driven mainly by the escalating deterioration of environment, for example diminishing raw material resources, overflowing waste sites and increasing level of pollution. However, it is not just about being environment friendly; it is about good business sense and higher profit. The supply chain "system" includes Purchasing and In-bound Logistics (materials management), Production, Outbound Logistics (physical distribution & Marketing), and Reverse Logistics [2].

GSCM integrates environmental thinking into supply chain management (SCM). For the purpose this includes introducing technical and innovative processes into materials sourcing and selection, delivery of the final product to consumers, and end-of-life product management. The intended result is to improve a business' environmental impact while increasing efficiency and growth within its own supply chain. GSCM practices that are being implemented in distribution activities include:

- Energy efficiency;
- Reduction of greenhouse gas (GHG) emissions;
- Water conservation or processing;
- Waste reduction.
- Product and packaging recycling/re-use; and
- Green procurement practices and reduce packaging

II BACKGROUND

Technology must continuously introduce new and innovative business processes to remain competitive. Many manufacturers are differentiating themselves by developing green supply chain management (GSCM) solutions within their organizations with their customers and/or suppliers.

Specific business improvements include greater differentiation in distribution services, successful compliance, increased sales, new access to foreign markets, better customer retention, decreased distribution cost, enhanced risk management, and Improved distribution efficiency.

III ROLE OF GSCM

Green Supply chain management has emerged as an important organizational philosophy to achieve corporate profit and market share objective by reducing environmental risks and impact by improving ecological efficiency of these organization and their partners. It can easily be seen from the given below figure that GSCM leverages the role of the environment in the supply chain value creation. GSCM acts as a value drivers for both tangible and non tangible things. GSCM practices also give full satisfaction to the stake holders by providing them employee's satisfaction, environmental sustainability and quality of life along with brand image and long lasting relations in industries.

IV ENVIRONMENTAL IMPACT AT EACH STAGE OF THE SUPPLY CHAIN

Environmental impacts should be considered cumulatively over the stages of the supply chain life cycle of a product or service to avoid shifting adverse environmental effects from one stage of the life cycle to another (Figure 1). It involves considering the impacts of extraction of raw materials, distribution, operation and disposal.

One of the key aspects to green supply chains is to improve both economic and environmental performance simultaneously throughout the chains by establishing long-term buyer–supplier relationships. Enterprises have developed a diverse set of initiatives for greening SCM, including screening suppliers for environmental performance, providing training to build supplier environmental management capacity, and developing reverse

logistics systems to recover products and packaging for re-use and remanufacture. Green SCM can not only generate environmental benefits, but also business benefits [4].

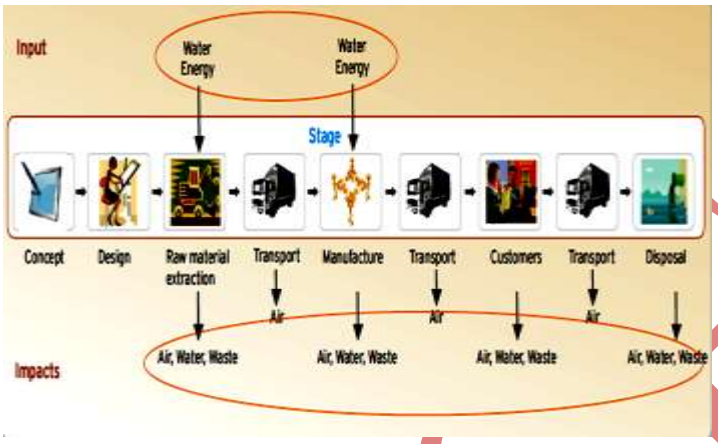

Figure1:- Environmental Impact at Each Stage of The Supply Chain[3]

V ENVIRONMENTAL BENEFITS OF GSCM PRACTICES

Goals in implementing GSCM practices are to gain both environmental and business benefits. The main environmental improvements across all main sectors stemming from GSCM practices are improvements in energy benefits include reduced packaging, increased use of biodegradable packaging, and decreased waste[5].

VI LITERATURE REVIEW

In this section, the literature pertaining to GSCM has been presented in order to understand it importance in the current scenario. However, some of the important papers are presented below.

S. Burke et al. (2007)[6] focuses on sustainability issues in manufacturing and production. The focus is to develop appropriate tools and strategies to satisfy the ISO 14001 standard. The frame work consist of two levels, with the first focusing on ISO 14001 and second aimed to word managing all social, environmental and economical aspects within an Engineering SME. Key results from the regional study of ISO 14001 certified Engineering SMEs highlight the importance of environmental and sustainability awareness program for top management, eliciting and obtaining their full support and commitment.

William F. Ganghran, et al. (2007)[7] Concluded that is meeting the need of present generation without compromising the ability of the future generation to meet their own needs and the manufacturing are closely related as design and engineering involves evaluating whether a product or system has the greatest environmental impact and then prioritizing strategies which reduce that impact. Implementing ISO 14001 is the foundation for sustainable manufacturing.

Ferretti, et al. (2007) [8] demonstrated the potential of the introduction of a green practice in supply chain management. The company adopted the method of receiving the aluminum alloy from the supplier in liquid state instead of solid state hence savings energy and reducing the impact of transportation emission to the environment.

The company introduced the model capable of balancing the economic benefits as well as environmental requirements.

Hee Kyung An, et al.(2008)[9)] Realized as the ROHS (Restriction on the use of Hazardous substances) directive motivates a Japanese EEE manufacturer to implement GSCM, the manufacturer has recognized collaborative relationships with its parts supplier to essential conditions for effectively implementing the GSCM. The collaborative relations are advanced by sharing GSCM policies, information sharing, joint actions etc.

Nicole-Darnall, et al. (2008)[10] Studied that organizations that adopt EMSs more frequently implement GSCM practices, regardless of how long the EMS has been in place. These results suggest that EMS and GSCM may complement each other and that EMS adopters have a stronger probability of improving the environment not just within their boundaries but throughout their network of buyers and suppliers. The net effect may be an overall increase in environmental sustainability, since mechanisms are in place to enhance net work wide environmental performance.

Qinghua Zhu, et al. (2008)[11] investigated the correlation of major factors i.e. organizational learning and management support for adopting GSCM. It also tells that GSCM can easily be implemented in the organization who has already adopted ISO 9000 and ISO 14001.

Stephan Vachon, Robert D.K Lassen. (2008)[12] focused on the impact of the environmental collaboration in the supply chain manufacturing and environmental performance. Environmental collaboration was defined as the interaction between organizations in the supply chain pertaining to joint environmental planning and shared environmental knowledge.

VII GREEN SUPPLY CHAIN MANAGEMENT ISSUES IN LIFE CYCLE ASSESSMENT (LCA) OF PRODUCT

The life cycle assessment approach is widely accepted in the area of food supply chains as a method to evaluate the environmental impact of processes. A food product passes through several stages during its life from design, sourcing, processing, transportation, sale and use and finally disposal or recycling. For each stage opportunities to reduce the environmental impact can be identified and measures can be taken. Therefore LCA will create more transparency with respect to environmental effects in food supply chain. By using LCA approach various pollution e.g. air, water, and soil can be controlled and requirements regarding total energy used, noise, use of hazardous material, emission, levels etc can be fulfilled.

VIII IMPLEMENTATION OF GSCM

Green supply chain management system benefits are manifold to an organization but some of the major benefits of GSCM for Indian industries are quantified in descending order, i.e. enhanced brand image, increased market share, reduced energy cost, enhanced public relations and improved quality. By using GSCM we observe that recycling is less, reduced pollution, reduced unwanted material in industry which produced pollution. Recycling is the main concept which reduced pollution and is beneficial for manufacturing industry.

In addition, it can help managers/supervisors improve their understanding of Green Supply Chain Management practices and enables decision makers to assess the perception of GSCM in their organization. It is hoped that it can serve as a base for further work on exploring the implications of GSCM for different industry sectors and regions.

IX CONCLUSION

Recycled economy is a generic term for the activities of reduction, recycle and utilization in the processes of production, circulation and consumption, etc. It centers on the efficient and cyclic utilization of resources, it follows the principles of reduction, recycle and utilization, and is featured by low input, low consumption, low emission and high benefit.

It is a typical economic model reflecting the theory of sustainable development in an integrated manner, and also an energy-efficient and environment-friendly economic pattern.

Green supply chain is a modern management mode that comprehensively considers environmental impacts and resource efficiency within a whole supply chain. It depends on the theory of green manufacturing and the technology of supply chain management. It involves suppliers, manufacturers, dealers and users, and aims to realize the lowest environmental impacts (negative) and the highest resource efficiency of products in the whole process of material purchase; processing, packaging, storage, transport, application and disposal treatment.

This paper proposes that green supply chain management can be used to eliminate the issues in the development of manufacturing industry. Based on the theory of recycled economy, this paper explores the relationship between green supply chain management.

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