International Journal of Advanced Technology in Engineering and Science
Vol. No.4, Issue No. 06, June 2016
www.ijates.com
ijates
ISSN 2348 - 7550

IMPACT OF GREEN SUPPLY CHAIN MANAGEMENT ON THE OVERALL PERFORMANCE OF INDUSTRIES

Mohd Javaid [1], Mohd Shoeb[2]

[1, 2] *Department of Mechanical Engineering, Jamia Millia Islamia New Delhi, (India)*

ABSTRACT

Green Supply Chain Management (GSCM) has appeared as an environmental innovation in current scenario which integrates environmental concerns into supply chain management. Implementation of GSCM has gained popularity in manufacturing industries as a result increased the overall performance, Wasted has been prevented by applying some SCM technique which has therefore decreased overall time of product, saved worker time, reduced transportation cost by following shortest route for inventory and distribution of final product to the customer, Focused on recycling process. Green supply chain refers to the way in which innovations in supply chain management and industrial purchasing may be considered in the context of the environment. Overall performance should be increased by implementation of Green design, Green purchasing, Green Production, Green Warehousing, Green ware housing, Green recycling in proper manner.

Keywords: ***Green supply chain management, Supply Chain management (SCM); Green design, Green purchasing, Green Production, Green Warehousing, Green ware housing, Green recycling***

I. INTRODUCTION

The concept of environmental quality was almost non-existent in the business environment. However, the quality revolution of the 1980s and in 1990s supply chain revolution have made it evident that the business best practices call for integration of environmental management with ongoing operations [1]

Increasing environmental protection in India and world, the green supply chain management trend of conserving the Earth‘s resources, living being and protecting the environment, thereby exerting pressure on industries in India and worldwide. With the installation of various industries such as foundry industries manufacturing industries which produce lot of pollution and global warming, main focused is that with the help of some techniques or technology global warming has to control. In top ten countries India has gained its position and has become one of the largest manufacturing economies of the world. The main pressure and drive accompanying globalization has prompted industries to improve their environmental performance and become less polluted. Consequently, industries have shown growing concern for the environment over the last decade. Industrial environments have experienced drastic change and face competitive challenges. Recently supply chain management has directed its attention to the role of the supply chain in impacts to the natural environment.

Today, environmental pollution is the main problem which has the potential to lead to the extinction of mankind on Earth if not addressed at the moment. Global warming, an effect due to the Increase in amounts of the green house gases present in the air is the most severe problem.

The supply chain is an integrated manufacturing process that is it is from costomer to costomer service ie raw materials are converted into final and finished products, then delivered final product to consumers or end user. An increasing number of supply chains invest in recycling systems intended to retrieve waste or used product from consumers. Green supply chain management, also known as ESCM (environmental supply chain management).

II. GREEN SUPPLY CHAIN MANAGEMENT

GSCM is a concerted effort across the enterprise and is more than simply implementing some ecological practices, but rather a coherent approach for improving environmental and organizational performance of all levels of management (Zhu, et al., 2007)[2]

"Supply chain start from the customer and end at customer. It involve all parties directly or indirectly in fulfilling a customer request. It include the manufacturer and suppliers but also transporters, warehouses, retailers and customer themselves"

GSCM is an Integrating environmental thinking into a supply chain management, including design of product, material resourcing and selection, manufacturing processes, delivery of the final product to the consumer as well as end-of-life management of the product after its useful life [3]

GSCM is dependent on the supply chain with the product; however, adding the „Green" component to SCM involves addressing the influence and relationships between SCM and the natural environment [1].

III. MAIN ACTIVITIES/ELEMENTS IN GSCM

The following are the main activities/elements involved in Green supply Chain Management.

- **Green design**

✓ Design of products for reduced consumption of materials/ energy.
✓ Design of products for reuse, recycle, recovery of materials, component parts.
✓ Design of products to avoid or reduce the use of hazardous products and/or their manufacturing process.
✓ Design the products to be easily set up for the users in the most energy saving ways.
✓ Cooperation with customer for eco-design.

- **Green purchasing**

✓ Choice of suppliers by considering the environmental criteria.
✓ Buying environment-friendly raw materials.
✓ Pressuring supplier(s) to take environmental actions.
✓ Supplier environmental management system (EMSs).
✓ Environmental audit of suppliers' internal management

- **Green production**

✓ Re-manufacturing and lean production.
✓ Cleaner production.

- ✓ Decrease scrap rate and promote products' quality.
- ✓ Improved capacity utilization.
- ✓ Increase amount of goods delivered on time.
- ✓ Works together with customers to reduce environmental impact on operations.

- **Green warehousing**

- ✓ Environmentally friendly packaging (Eco-packaging).
- ✓ Decrease inventory levels.
- ✓ Investment recovery (IR) (sale) of excess inventories/ materials.
- ✓ Sale of scrap and used materials.
- ✓ Sale of excess capital equipment.

- **Green transportation**

- ✓ Environmentally friendly transportation.
- ✓ Environment-friendly distribution.
- ✓ Using a modern eco-efficient transportation fleet like energy efficient vessels and high Euro norms for trucks.
- ✓ Using green fuels such as low sulphur content and alternative fuels such as liquid natural gas.
- ✓ Encouraging eco-driving to decrease fuel consumption.

- **Green recycling/Reverse logistics**

- ✓ Helping suppliers to establish their own EMS.
- ✓ Recovery of the company's end-of-life products.
- ✓ Use of alternative sources of energy.
- ✓ Use of waste of other companies.

IV. LITERATURE REVIEW

An environmentally conscious supply chain, also called a green supply chain, is a new concept appearing in recent literatures. Although this environmental issue has been realized very important for business, its introduction to supply chain management has only been developed recently.

Qinghua Zhu in 2006[4] studied the Green supply chain management: In Chinese automobile industry has increase air pollution; Pressure has also increased for manager for implementation of GSCM in automobile industry. After implementation of green supply chain management (GSCM) practices to improve both their economic and environmental performance. Expanding on some earlier work investigating of general GSCM practices in China, authors explores the GSCM pressures/drivers, initiatives and performance of the automotive supply chain using an empirical analysis of 89 automotive enterprises within China

Fengfei Zhou in 2009[5] study on the Implementation of Green Supply Chain Management in Textile Enterprises in which the green supply chain management is a sort of modern management mode which could comprehensively consider the environmental influence and resource utilization efficiency in the whole supply chain and how to implement the green supply chain management in special industrial operation in current scenario which has become into one of hotspot problems

Nidhi Shah (2005)[6] concluded that Green purchasing is responsible purchasing going beyond price and volume. The most uniformly suitable way to promote, improved environmental performance is through the supply chain. The numbers of companies that have demonstrated that buyer – supplier collaboration on environmental issues results in better economic as well as environmental performance for both parties. Multinational companies and government have a no of opportunities to promote green purchasing and to take benefits of the trends in globalization to improve the environmental performance.

Hee Kyung An, et al.(2008)[7] 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.

Chun-Jan-Chung, Hui Ming Wee (2008)[8] concentrated on green product design due to increased pressure, environmental consciousness and ecology protection. Green product design has observed more suitable recently because product design significantly influence the cost of assembly, component inspection and repair, remanufacturing and recycling. The author developed an integrated inventory model with green component life cycle value design and remanufacturing.

Jospech Sarkis et al. (2011)[9] realized that attention of GSCM has gained increasing within both industry and academia. As the literature grows, new directions are found by critically evaluating the research and identifying future direction in this area which becomes more important in advancing knowledge for this field.

V. IMPACT OF GSCM ON THE OVERALL PERFORMANCE OF INDUSTRIES:-

Design of products for reduced consumption of materials/ energy.Design should be made according to GSCM in which product should reuse, recycle, recovery of materials, component parts. Design the products to be easily set up for the users in the most energy saving ways. After deign we procure environmentally raw material, also vendor follows the condition of environmental actions. During production unwanted material should be removed, we try to minimize the waste, cleaned product, proper maintenance of machine, when our production completed we test the product whether some defect has find we have to tried our best to recycle it rather than waste. During packaging it should be environmentally friendly and deliver the product to customer in which best and shortest route we have to follow as a result to decreased transportation cost, all decreased overall cost of product.

This study and its application in industry will result in increasing the profit and reducing the wastes, reduced inventories for manufacturers, decreased lead times for customers, improved knowledge management, reduction of defects and reworks. This Process is more effecient and has implemented suitably

VI. CONCLUSION

Green Supply Chain Management (GSCM) has appeared as great innovation in current scenario by integrating environmental concerns into supply chain management. It is better concepts to protect the environment form pollution and reduce consumption of the earth's depleting resources in protecting the environment for future. Implementation of GSCM has gained popularity in manufacturing industries as a result increased the overall

performance. Wasted has been prevented by applying some SCM technique which has therefore decreased overall time of product saved worker time, reduced transportation cost by following shortest route for inventory and distribution of final product to the customer, Focused on recycling processes. Overall performance should be increased by implementation of Green design, Green purchasing, Green Production, Green Warehousing, Green ware housing, Green recycling in proper manner. Green supply chain refers to the way in which innovations in supply chain management and industrial purchasing may be considered in the context of the environment.

REFERENCES

[1]. S. K. Srivastava, International Journal of Management Reviews,vol. 9,pp. 53-80, 2007.

[2]. Zhu, Q., Sarkis, J. & Lai, K., 2007. Green supply chain management: pressures, practices and performance within the Chinese automobile industry. Journal of Cleaner Production, 15(11-12), pp. 1041-1052.

[3]. Srivastava S.K.2007."Green supply chain management: A state of the art literature review",International journal of management reviews,9(1):53-80.

[4]. Qinghua Zhu, Joseph Sarkis & Kee-hung Lai , "Green supply chain management: pressures, practices and performance within the Chinese automobile industry ," (2006)

[5]. Fengfei Zhou, "Study on the Implementation of Green Supply Chain Management in Textile Enterprises," (2009)

[6]. Nidhi Shah-2005, Green purchasing: The issue of responsible supply chain management for improving the environmental performance-Press article.

[7]. Hee Kyung An, Teruwoshi Amano, Hideki Utsumi and Saburo Matsui, (2008), A framework for green supply chain management complying with ROHS directive, Queens University Belfast's report, 1-14

[8]. Chun-Jan-Chung, Hui Ming Wee, (2008), Green component life cycle values on designed and reverse manufacturing in semi-closed supply chain. International journal of production economics, 113, 528-545.

[9]. Jospech Sarkis, Qinghua Zhu, Kee-Hung, Lai, (2011), an Organizational theoretic review of GSCM literature, Int. J. production economics, 1-15.