

# SUSTANIABILITY SUPPLY CHAIN IN INDIAN SCENARIO

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## Abstract

Green supply chain management is an activity of utilizing environmentally safe inputs and transforming these inputs into outputs which can be recycled and reused fashioning a supply chain that is sustainable environmental friendly. These days, most businesses organizations are moving towards sustainability as a concern to environmental issues by going green in their business operations. Green supply chain management intends to reduce or get rid of, hazardous chemical waste, emissions and solid waste along supply chain at the product design level, resourcing of the material and manufacturing, delivery of the product. Green Supply Chain Management includes Green purchasing, Green Manufacturing, and Green Distribution and Reverse logistics. A hypothetical model linking the relationship between GSCM practices, environmental collaboration and sustainability performance is proposed. Present study outlines the need of GSCM and few ways have been recommended that will facilitating the pursuit of the GSCM. There is a demand to spread the GSCM knowledge among the Indian organisations, which will positively contribute to enhance the economic performance and on the other hand successfully curtail environmental pollution. According to the theoretical model as purposed in this study there is an important need to maintain deep rooted synergic alliances at inter and intra organisation level that aids the organisation in adoption GSCM. Although the purposed model is beneficial but further research and improvements are needed before being applied to the manufacturing companies

**Keywords:** *Supply chain, Green supply chain management, Green purchasing, Green manufacturing/materials management, Green Distribution, Green marketing, Reverse logistics.*

## INTRODUCTION

Soaring high temperatures ,melting glaciers, freezing winter and depletion of ozone all these environmental issues has pose a threat to human existence. Green supply chain management is a break with tradition which coalesced of environmental concerns into supply chain management. Business activities can give rise to major threat to the natural habitat .As economic growth increases giving rise to higher consumption of materials and level of energy which

results in resources depletion issues and increased carbon monoxide emissions, junk, scrap and road blocks .Green supply chain management is a revolutionary idea in supply chain management as it inculcates environmental concerns into supply chain management. These days, most businesses organizations are moving towards sustainability as a concern to environmental issues by going green in their business operations. Green supply chain management intends to reduce or get rid of, hazardous

chemical waste, emissions and solid waste along supply chain at the product design level, resourcing of the material and manufacturing, delivery of the product. Green supply chain management is an activity of utilizing environmentally safe inputs and transforming these inputs into outputs which can be recycled and reused fashioning a supply chain that is sustainable environmental friendly. Sustainable supply chain is another name given to green supply chain as it brings sustainability in traditional supply chain. It is the integration of key business processes from end user with original suppliers that provides products services and information that add value for customers and other stakeholders. By integrating sustainability in traditional supply chain green supply chain or sustainable supply chain is a contemporary approach which extensively deals with environmental issues and effective utilization of resources in the complete supply chain starting from acquiring of the basic material to the transit. For a business organization which strives to become environmentally sustainable Green supply chain has become an imperative approach. Green supply chain management (GSCM) is an effective way to segregate a company from its competitors and it greatly impacts the success of the business. Green supply chain management (GSCM) is becoming more and more significant for Indian manufacturing industry .As the awareness to corporate responsibility is increasing the requirement to meet the terms with environmental policy. Managing distribution in accordance with green supply chain standards many companies have profitably managed to enhance their environmental and business performance. This article aims to analyse the benefits and problems of implementing sustainable supply chain, to suggest the solution for the same.

Green supply chain cognates from traditional supply chain. Traditionally the supply chain has been defined as one-way, integrated manufacturing process wherein raw materials are converted into final goods and then delivered to customers. Supply chain only includes those activities which are associated with manufacturing, from raw material acquisition to final

product delivered. However, due to change in time the environmental requirements affected the manufacturing processes, and need arises to make strategies for the supply chain. [1].

Environmental issues are a serious concern for today's consumer and are deviated towards environmental friendly products or the products which are directly or indirectly contributing to environmental protection .it has become essential in today's time for organization to consider environmental improvement as a social mission and not just a matter of public image or cost .In order to produce environment friendly products manufacturers need to work in collaboration with their suppliers of raw materials and components. By using their purchasing power, the industries can set up environment criteria for their suppliers upstream in supply chain. Ultimately it can result in the greening of the supply chain. GSCM = Green purchasing + Green manufacturing/materials management + Green Distribution / marketing + Reverse logistics. [2].

## **2. Theoretical background**

In 1995 green supply chain management great interest .Green supply chain management received highest interest in 2010[3] keeping these norms in mind environmental protection plans are formulated. With these practices in mind, firms develop environmental management strategies in response to the changes of environmental requirements and their impacts on supply chain operations [4]. A supply chain is a network consists of all parties involved(e.g. Supplier, manufacturer, distributor, wholesaler, retailer, customer, etc.), directly or indirectly, in producing and delivery products or services to ultimate customers – both in upstream and downstream sides through physical distribution, flow of information and finances [5].According to Chopra and Meindl [6], a typical supply chain includes the following five stages: component/raw material suppliers, manufacturers, wholesalers/distributors, retailers and customers. Through flows of products, information and money these five stages are connected. The

approach of green supply chain incorporates the green purchasing, green manufacturing, green packing, green distribution, and green marketing.

## **2.1. Theoretical model**

A hypothetical model linking the relationship between GSCM practices, environmental collaboration and sustainability performance is proposed. These GSCM practices involved green procurement, green manufacturing, green distribution, and green logistics. The performance is evaluated against economic, environmental, and social aspects. This relational view theory was first formulated by Dyer and Singh [7]. GSCM being a multifaceted approach can be analysed from distinct aspect. Zhu et al. [8] formulated a four dimensional green supply chain management practices, these includes internal environmental management, external GSCM, eco-design and investment recovery. [1]. Key GSCM practices as by Holt and Ghobadian are internal environmental management practices, green procurement, logistics and logistics policy, and evaluation of logistics, assessment of the supplier, educating and mentoring the supplier and other industrial networks [9]. In order to attain sustainability performance in manufacturing industry green procurement, green manufacturing, green distribution and green logistics are important practices of GSCM according to Thoo et al [10] and Ninlawan et al.[11]. On the basis of the literature review of GSCM practices, this paper suggest GSCM practices from four important aspects. These aspects are : green procurement, green manufacturing, green distribution and green logistics[11][1].

**Green purchasing/Green procurement:** Green procurement is the means of acquiring the tangible and intangible products in way that cause minimal damage to the environment. It incorporates all the activities of reduction, reuse and recycling of materials in the process of purchasing. It includes materials procuring from the partners who satisfy environmental quality standards and an audit process is carried out so that the rules and regulations of

environmental laws are followed. Paperless transactions are the focal point and endorsing recycling of the material. Environmentally preferable purchasing (EPP) or green purchasing is process of selection and acquisition of product and services which minimise negative impact over the life cycle of manufacturing, transportation, use and recycling [13]

**Green Purchasing in Indian Context:** Green Purchasing Network India is a developing network of professionals who are actively involved in the area of sustainable consumption and production such as green purchasing and public procurement. It is an internet based electronic forum of informal network of professionals. This network is primarily concerned with creating awareness amongst Indian industry and stakeholders about green purchasing and procurement (GPP) and to enhance the competitiveness of the Indian industries by reassuring and providing aid to implement green purchasing and procurement and greening supply chains [13]

**Green manufacturing:** Green manufacturing is a manufacturing procedures that utilises inputs which have relatively low impacts on environment, have higher efficiency, generating low or no waste and low pollution on the contrary the generic manufacturing process utilises excess amount of energy required from burning various non-renewable sources such as coal, coke and natural gas and combustion causing air pollution. Low costs of the raw material, gains in production efficiency, reduction in environmental and occupational safety expenses, ameliorated corporate image are some of the benefits of adopting Green manufacturing.

**Green marketing and distribution:** Green marketing is the marketing of environmentally safe products. Green distribution encompasses green packaging and green logistics. Characteristics of Packaging such as materials shape and size, impacts the distribution as they affects the product's transportation characteristics. Better packaging, as well as re arranging the patterns of loading, can increase space

utilization in the warehouse and also reduce the usage of materials.

Reverse Logistics or reverse distribution: is a level in the supply chain in which the product is returned from the point of sale to the manufacturer or distributor for recovery, repair, recycling, or disposal. It engulfs all the operations upward movement of the goods and material it is the process of moving products from their end stop for the purpose of capturing value or proper disposal it includes all the activities that is carried out after sales of the product to reclaim value and finish the product's life cycle.

According to the recommendation of the Researcher's [17] [18] [19] [20] economic performance, environmental performance and social performance as important performance indicators. In the present paper, the proposed model may not constitute an entire set of measurement scale due to the restraint of encircling the entire practices of GSCM and sustainability performance in practices in a single piece of study. On the basis of the study following hypothesis are developed:

H1: Environmental collaboration acts as a stabilizer between GSCM practice and sustainability performance

H2: Green supply chain management or sustainability supply chain management pertains to sustainability performance. The GSCM literature clearly outlines the advantages incurred by integrating environmental norms with business operations. The relationship between sustainability supply chain management practices and business performance has been prioritised by the researchers. Paulraj [16] described a relation between sustainability performance and sustainable supply management. Holt and Ghobadian [14] utilises external GSCM to study the effect of incorporating environmental norms in business operations on firm's performance [15]. In light of these studies, environmental collaboration is viewed as a pacifier of the connection between the GSCM practices and sustainability.

### **2.3. Importance of green supply chain management:**

Environmental degradation is an alarming situation for humans .there is an urgent need to address those activities that are causing the deterioration of the environment and so. The Companies those are adopting green as their strategies in their operations and supply chain not only generate higher lucre in the long term but will also help in preserving the ecology and reducing the adverse effect on environment. Adopting green initiative program also enables the businesses to reconcile with the current and future environmental rules and regulations set by the government. Green Supply Chain Management is thus gaining interest as environmental deterioration; the raw materials are diminishing, waste lands and increasing levels of pollution. Although Green SCM cannot provide immediate benefits but it can provide competitive edge in long run for firms. Companies can improve customer loyalty, reinforce brand image, and satisfy stakeholder demands, by accomplishing energy efficiency, renewable energy and green building projects. Practicing eco-friendly norms, organisation can protect the natural assets and also reduce considerable waste.

### **2.4. Challenges in adopting the green supply chain:**

Organizations have Lack of knowledge on the rules and regulations on environmental protection and a limited knowledge on best practices of green supply chain so it become difficult to implement these practices . There isn't any scarcity of means for supporting green supply chain initiatives but the problem lies in selecting the appropriate tool. One of the major challenges for many firms is recycling and reuse of the waste. Unawareness of consumers about the Green products and GSCM the companies are sceptical in adopting GSCM practice. There is a paucity of architects, developers, consultants, contractors, entrepreneurs with greener perspective in the business world

### **2.5. Recommendations to counter the problems faced in adopting GSCM**

As humans we share the same habitant so it is our collective responsibility to save our natural resources and contribute towards maintaining the ecological balance of our mother planet. Laws must be framed by the government to make green practices obligatory and at the same time must announce some fringe benefits for the organisation following these practices .an audit must be carried out by the companies of their suppliers and suppliers must do the same for the their suppliers and retailers .emphasis must be given on reuse /recycle even in electronic consumption. Special care must be taken regarding the disposal of outmoded computers, cartridges, batteries; peripherals etc. For this they must be returned to the suppliers who are authorized to dispose them suitably. Strong attention must be given on recycling of the products. Some ground rules should be planned regarding Green Supply Chain management so that all the stakeholders adhere to it .In order to collect and record information about manufacturing processes, waste management. And other business operations a database unit must be set up. For create awareness about green and reverse logistics management Regular training programs must be organised. At the same time educating the consumer is equally important for this welfare programs and campaigns must be organised, in this era of technology social media can also be utilise for creating the awareness about green practices and benefits of adopting these green practices.

### **3. Conclusion and Discussion**

Green Supply Chain management embodies environmental and sustainable concerns beginning

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3. An Overview of Green Supply Chain Management in India Nimawat Dheerajl and Namdev Vishal2 ,

from the procurement finishes at the customer. Cost reduction and pollution prevention are the cynosure of the green supply chain practices, as a result of organisations are developing and accumulating strategies that are more and more focused on sustainable measures as a mundane. At the same time organisations must also keep in mind elements of corporate social responsibility into their strategies to gain faith about the organisation in the terms of customers, stakeholders, shareholders and employees. It can be concluded from this paper that GSCM is a contemporary means of traditional supply chain management. Present study outlines the need of GSCM and few ways have been recommended that will facilitating the pursuit of the GSCM. There is a demand to spread the GSCM knowledge among the Indian organisations, which will positively contribute to enhance the economic performance and on the other hand successfully curtail environmental pollution. GSCM not only provides competitive edge but also boost up the economic status of an organization. Minimizing the costs, optimum utilization of resources, cutting down waste, reducing environmental pollution are the major benefits of successful adoption of sustainable supply chain in organisation. According to the theoretical model as purposed in this study there is an important need to maintain deep rooted synergic alliances at inter and intra organisation level that aids the organisation in adoption GSCM. Although the purposed model is beneficial but further research and improvements are needed before being applied to the manufacturing companies.

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