

# The Study to Analyze the Impact of Green Supply Chain Management in India

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**Abstract**— Green supply chain management can be explained as a supply chain management system which is beneficial for the environment and which consists of designing of products, selection of raw material, manufacturing steps and delivery and preparation of final product through a stable and sustainable process. Sustainability is the major key to supply chain, which starts with the understanding through all the phases of production up to final distribution. This paper majorly focuses on the importance and need of term 'green' and concepts or activities which are related to greener activities in areas like manufacturing and remanufacturing of products having a green impact, controlling of travel costs and waste products, reverse logistics etc. The purpose is to understand the impact and also to make people aware about the major difficulties, problems and also the advantages and profits which are a part of such a great green concept if it is successfully implemented or installed during the process of supply chain management in various organizations.

**Keywords** —Production, customer, supply chain, green, sustainability, manufacturing, materials.

## 1. Introduction

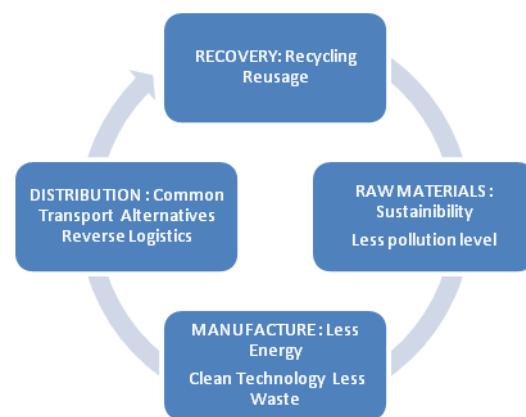
When we think about management and distribution then supply chain management can be considered as the flow of goods and services which consists the movement and storage of services and goods which

Consists of the warehouse storage of finished goods, raw materials and also the work in process from the beginning till the end. Therefore we can describe a supply chain as a network which is interlinked with each other by a large network of channels and combine all the services and products in a network to its end customers.

**1.1 The Green Supply Chain Management** :Supply chain management is majorly concerned with material details, information and various finances as they are moving from the vendor or one who supplies goods or services to the person who manufactures products and also to sell goods from wholesaler to retailer and finally it goes to the consumer or customer.

Green supply chain management majorly considers the

old and traditional methods and also the old practices of supply chain which when combines with the environmental processes and thus organizational purchase decisions to maintain a healthy and permanent association with their suppliers. Thus Supply chain management incorporates the main idea of environment in every step of production of green products and services in a supply chain process.



**Figure 1.** GREEN SUPPLY CHAIN MODEL

The main areas of green supply chains majorly include a support in the areas of costing and it is also beneficial for the life support of the people. It is improving on the effective utilization of assets and also reduction in waste materials by providing better services and recycling.

GSCM model is able to produce innovation in product and service, improvement in asset utilization and increase in the quality of service provided by a common focus on reduction in cost.

**Green SCM= Green purchasing of raw materials + Green manufacturing of materials /materials management + Green Distribution of materials / marketing + Reverse logistics + Recycling of products and services.**

## 2. Literature review

During the current time, due to the fast change in the current industrial era there is a negative impact on the environment and as a result there are green house gas

emissions, various pollutions having toxic gases, and chemicals in liquid and gaseous state is in water and air. In relation to the upcoming global awareness campaign in terms of environmental changes, the Green supply chain management (GSCM) has formed a new concept which has come out as a new sustainable element which is a combination of environmental thinking and firm management of upstream and downstream chain in areas of supply chain management. On the other side, supply chain manufacturers of developed countries are working on their manufacturing and production activities in emerging economies [12].

The idea of supply chain has started in middle and is widely accepted by various experts in a developing process. The Supply chain in a manufacturing organization has a better advantage over various areas. This also helps in reducing inventory, and providing correct information to its partners, and also the organization is growing inspite of various barriers which stop them from effective implementation of supply chain system [15].

Green supply chain management technique (GSCM) is a better way to compare an organization from its competitors as it can affect the success, by rapidly increasing the environmental changes, the trend of conserving the planet and protecting the earth. It is difficult, so with this change and in the conserving resources are putting much more pressure on these firms. Due to the change in various manufacturing industries, the environmental and all the social issues are of great importance to all. Thus, GSCM is a natural way to improve the performance of the end products as per the environment agencies [14].

This study tells us that the impact in GSCM is very high in large and medium organisations in comparison to small size organisations. It is due to the reason that large and medium size organisations are having a very high impact on informative pressures and small enterprises have comparatively less impact. As a result the pressure is high on small enterprises and they can't implement GSCM. Thus by the effective implementation on GSCM results the development of environmental and economic aspects can change [2].

Green Supply Chain Management (GSCM) is a platform for using pollution free activities; reduce wastage of various resources majorly in the conventional supply chain management. The area of GSCM has been showing a growth in the current scenario. Other authors are also giving their inputs in this area by their recent contributions. The concept of sustainability is an important aspect which includes all Multinational organizations. It can be measured through ecological footprint. Ecological footprint of anything is the amount of resources which our planet can reproduce through its resources [8].

Sustainable environment is of high importance in the world and all organizations are working on it due to changes in global warming. As a result, many nations have strict regulations. All the industries in such places have a full –fledged system to adopt all the recent environment friendly changes. In the current scenario customers are also working on the eco-friendly manufacturing solution for developing countries as well. All the multi-national firms in India and China are under the concepts to adopt the green supply chain operations to compete and satisfy the market to the increasing customer needs [16].

The current research on GSCM includes a literature review, interviews and survey. The results say that the performance of Green supply chain management, has introduced various concepts like eco procurement, eco product design, eco manufacturing, eco accounting, eco performance practices in response to the current era of various national and international issues and also various environmental performances [13].

Due to the major changes in global warming there is high pressure on all the stakeholders and manufacturers on their clean agenda in making everything green and encouraging Indian products by launching Make in India. This is a new area in research which is telling us an extensive effect on practice and literature review related to this area [1].

As per the nations which are actively encouraging in products related to change in climate, stakeholders, and businesses are totally in tune with these products as well. It is seen that the customer loyalty is shifting from normal products to environment friendly products; business is trying to make green sustainable by adopting various strategies throughout their organizations and relations with suppliers [11].

GSCM is a well known and important concept which incorporates all ethical values, all the environmental policies and customers to hit and restricts hazards. It will reduce the inventory and motives the people for various adopting policies [6].

The study is focused on development strategies which includes that all the researchers are focusing on the environmental and social sustainability in order to understand the supply chain management. The key objectives are Green material, green design, green marketing and distribution and reverse logistics. The purpose of this article is to review the GSCM of over 15 years and also to give a better understanding to academicians and researchers about this new concept [3].

In the current scenario, sustainability has been considered as a thought provoking and integrated production and operations management which is discussing the concept of supply chain. Green principles have attracted the managers by selecting new practices

for suppliers, customers and companies [7]. Corporate images are important resources that create, sustain and also forming a strong bond in order to sustain a competitive benefit. All these have been identified including product quality and services, consumer inputs and distribution networks. It is also a part of corporate GSCM. This study tells the relationship between the GSCM and their corporate status and also discusses the main aspects of Green supply chain management [5].

The top companies of developed nations are more focused on the environmental practices and they will take measures on prior basis to save the environment. On the other hand all the developing countries like India, Bangladesh are suffering from environmental pollution, and by following GSCM poisonous gases can be reduced due to some problems in its implementation [9].

In order to sustain the business in today’s market, various strategies are changing the market critical issues. Due to change in demand for environment the green manufacturing is an issue. The modern philosophy in companies in order to have competitive economy by improving the efficiency and environmental impact in a negative way. The research is having more attention by the growing green policies, green business, media, green institutions etc. [10]. Supply chain management is a major aspect in any industry in areas of operation management and is a most important factor for the success and survival of various automakers. In order to check there are two types of capacities which are relevant for managing various, supply chains, both technical and relational [4].

**3. Research Methodology**

**3.1 Type of research**

The focus of this research paper is to understand and explore the linkage and Improving Performance Analysis of “The study to analyze the impact of Green Supply Chain Management in India” through sustainable management. To conduct the study descriptive research was done.

**3.2 Objectives of Study**

1. To analyze the trends in the growth and profitability of Green Supply chain management during the last five years through sustainable management.
2. To appraise the business position of Green Supply chain management during the last five years through sustainable management.
3. To study the significance relationship between the concept of Sustainable Management through GSCM.

**3.3 Data collection tool**

To conduct the study on the secondary data has been used. Data has been analyzed by the help of various techniques of Green Supply Chain management.

**3.4 Area of the Study**

To conduct the study we are using content from journals and magazines, and analysis of processing of all the divisions of Green Supply chain management.

**4. Discussion**

**4.1 Major points of difference between Green SCM and the Conventional SCM:**

**Table 1:** Supply Chain Management Vs Green Supply Chain Management

Main Features	Supply Chain Management (SCM)	Green Supply chain Management (GSCM)
Value of any organization	Affordable as per the economic requirements	Affordable as per economic and ecological Requirements
Impact of ecological factors	Negative Ecological factors	Positive ecological factors
Supplier selection	Cost is the major area of SCM	Positive ecological aspects are the major area of GSCM.
Speed and Flexibility	High speed and Flexibility	Low speed and flexibility

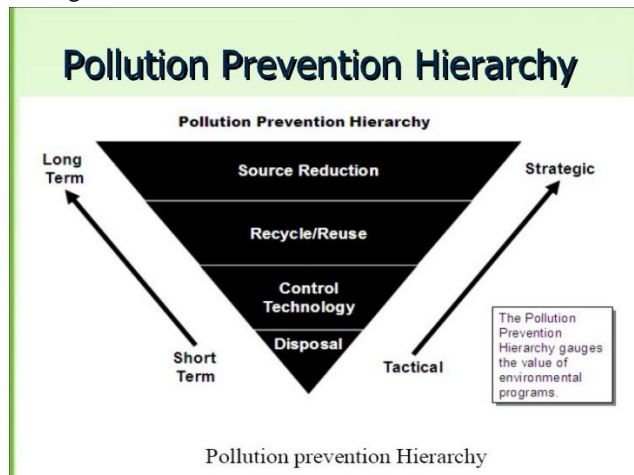
**4.2 Benefits of going green: Tangible and Intangible products-**

Various organizations which are adopting the Go Green policy are having various positive reasons and authentic results which are both products and services in nature. Early change of GO GREEN strategies and techniques has various benefits to the organizations in terms of:

- Hedging the business risks
- Different from the competitors and new market approach
- Chances to become industry leaders
- Attracting customers and building credibility with stakeholders
- Motivating better performing suppliers and segregating the premium segment.
- Creating brand distinction and brand recognition

- Effective for the planet, as it reduces carbon footprint and is a positive effort in making this planet a positive place to live.
- Various companies are also producing products which are environment friendly in order to sustain in the market and preserve themselves.

Companies are majorly focusing on strategies in Pollution Prevention and also working on remedies to rectify these problems as nowadays pollution is causing major problems related to health and hygiene issues amongst individuals.



**Figure 2.** POLLUTION PREVENTION HIERARCHY MODEL

The above model is majorly working on Recycling and Reusing of products and services in the context of garbage reduction and control which can automatically lead to pollution control.

**4.3 Various areas for Green Supply Chain development:** In order to have Green SCM following steps should be taken into consideration:

**4.3.1 Product Identification :** In order to design a product in a way that it is safe and nonhazardous to use and it creates less pollution and also consumes less amount of energy requires lot of market study and research. The product thus selected should also not at all be dangerous while transportation, and also during storing and keeping safely till the end till the time it is closed and the entire process of production stops. DFE or Design for Environment is a method or a process which tells about the usage of developing and also there is no negative effect of the same on human body and environment and is also available in an affordable cost and beneficial for the environment which will not harm anyone. It is implemented at the first stage.

**4.3.2 Process and production:** Process or step wise activities have to be designed so that it reduces environmental negative impact .Effective and efficient strategies have to reduce energy consumption all by reduction in waste material, air and water by the process of lean manufacturing and the scrap material should be

recycled and it is checked and confirmed by the concerned department.

**4.3.3 Selection of Business partners :** Business partners over here are suppliers who are responsible for lean manufacturing and have a proven track record in practicing in this area using eco friendly raw material to begin with any process. These suppliers should find out good vendors which have hands on experience on product understanding and designing in order to make sure that the experience, knowledge and skill to adhere with the major requirements of consumers on making them understand about going green in the fields of supply chain management which is ultimately going to delight the customers.

**4.3.4 Logistics Design:** To find out the major reason to prove the basic benefit of Supply chain, majorly the main efforts should be done in order to reduce the consumption of fuel. Thus we can set up by the suppliers who are known or almost close to the main manufactures of equipment and their famous hubs. In this process there is scarcity of air freight charges and majorly excess use of transportation by rail and also by sea. Many people are involved in logistics and are included in order to increase varieties, improving the cubic area and also efficient group management. In order to do this a concept of black hauling should be considered within which an empty vehicle should be hired and that vehicle is responsible to collect various different goods and products from many other sources even after the final delivery of finished goods.

**4.3.5 Packaging material:** All packaging materials are environment friendly and can be replaced from ordinary material .In case of international shipments fumigation certificates should be obtained especially for wooden boxes and plates. All the material used for packing purposes should be designed in a way that it can be reused and recycled in any form.

The material should also be strong enough so that any material which is hazardous in nature does not spill over which can create environmental hazard.

**4.3.6 Reverse logistics design:** Raw material after consumption should be efficiently effectively and efficiently taken care for repairing, recycling, remanufacturing, and redistribution channels. The changes are taken for reusing the containers and pallets, and also redesigning, recycling of all the packaged materials .Reduction in pollution rates during transportation are majorly important practices of reverse logistics. Actual design of reverse logistics majorly contributes towards Green supply chain management.

**4.3.7 Information Technology:** The approach to information technology is achieved by various automatic processes by reduction in carbon foot prints. The usage is reduced to almost zero through automatic payment

majorly using e-commerce for any business transactions.

**4.3.8 Green Building:** This approach is majorly affected by deploying greener practices in finalizing the design and construction and maintenance of various buildings. Efforts are done by using more effective energy bulbs, natural lightning outlets which are helpful in saving considerable amount of energy. Water another important tool also needs to be recycled for daily purposes.

Various certifications need to obtain for environmental designs. Also major investment in solar energy, wind energy is also needed for sustainable green practice.

#### 4.4 Green Purchasing

Green Purchasing can majorly be defined as collection or procurement of raw materials and finished products and services that have a very little hazardous effect on the individual health and the environment. These products are when compared with the competing products of the same type these products are better and also fulfilling the same purpose. The comparison majorly includes acquisition of various areas of the entire process which includes raw material allocation, manufacturing of the product, production or work in process, packaging of products, distribution network, reutilization, maintenance of assets, disposal and operations of the product and service.

Green purchasing is also considered as environmentally preferred purchasing (EPP) or environmentally responsible purchasing (ERP).

A green product can be understood as one which is fulfilling all the consumers' needs and desires without disturbing the environment and bringing a more sustainable world. By this process various people are going to understand a new network system as per the demand and requirements of the suppliers which are responsible for a more effective management system. By regular continuous efforts companies can upgrade a new system with their existing procedures. It is also very effective for the society and economy as a whole.

### 5. Conclusion

Green Supply chain management is majorly about effective usage of all the resources. In case, we organize various business activities without understanding and considering the area of business is manufacturing, services, transportation, agriculture and mining activities etc.

The basic idea of this approach is to increase eco-effective environment. Various precautions and measures were taken during the research to make sure that all the people are able to understand about their work and are trained accordingly. The questions asked during the research are salient and appropriate, but in spite of these precautions there are still certain limitations in the work. These limitations include that we are not able to get the

correct participant base in the major areas of research, or there can be weakness associated with the cross sectional surveys and also various problems in gathering an in-depth knowledge provided in a survey research.

Also in future this area of research is very promising in every field, not only for academics but in other areas as well. It is a new exploring area also for practitioners in order to seek and find new avenues in the market in order to compete with the existing products in supply chain management. In case if people are looking to expand its business globally, it is also a very challenging and a very competitive market.

This GSCM will increase the external reliability and also in general a practical implication of research for growing firms and for developed firms as well.

This GSCM will increase the external reliability and also in general and applicability of this research from both developed and developing firms and countries.

Also this research can apply a structural equation which is effectively associated with major technical areas and also a new area open for research.

Thus, GSCM is a wider field in the areas of management and allied sciences which can improve organizations, and the economy as a whole.

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