

# Green Supply Chain Management: A Survey Based Paper

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**Abstract:-** Green supply chain management has appeared to be an environmental and ecological concern that integrates supply chain concept into environment. This process includes product design, material sourcing and selection, manufacturing process, delivery of the final product to the consumers, and end-of-life management of the product after its useful life. The idea of GSCM is to eliminate or reduce waste (energy, emissions,, and chemical, solid wastes) along supply chain .As a systematic and integrated strategy GSCM has emerged as an important new innovation that helps organizations develop “win-win” strategies that achieve profit and market share objectives by lowering their environmental risks and impacts, while raising their ecological efficiency. Recent studies of GSCM can be separated into two ways: framework for GSCM, and performance measurement. This research paper gives existing literature by providing list of aspects and practices in GSCM. The ways of future scope are provided in the conclusion part.

**Keywords:-** Supply chain management, Green supply chain management, Reuse, Recycle, Eco-friendly

## INTRODUCTION-

The emergence of green supply chain management (GSCM) took place about a couple of decades ago, and now in its third decade for further discovery of knowledge in this field. When researchers started to integrate the environmental concerns into the supply chain, the concept of green supply chain emerged. The integration of<sup>(3)</sup> economic, environmental and social facets has been at the forethought of sustainability in today’s operations management due to the successful implementation of green supply chain which eventually has led to overall sustainability of firms. Therefore, the concept of green supply chain management received escalating attention in the last decade, and has uncovered sufficient opportunities for research in this area. Green supply chain management (GSCM) which is defined as “green procurement+ green manufacturing+ green distribution+ reverse logistics<sup>(2)</sup>. The increase of industrialization and globalization in developing countries creates more opportunities for manufacturing industries but concurrently increases environmental burden. The current changes in environmental requirements that influenced manufacturing activities have increased attention in developing Environmental Management (EM) strategies for the supply chain. Thus, the concept of GSCM arises as a new systematic approach and becoming an important factor for business activities today<sup>(1)</sup>. In most business and construction firms, the emphasis now is to raise environmental quality, reduce poverty and bring about economic growth with additional improvements in health, working conditions, and sustainability. The purpose of this paper is to review some of the green supply chain management practices, adaptation and implementation in developing countries<sup>(12)</sup>.

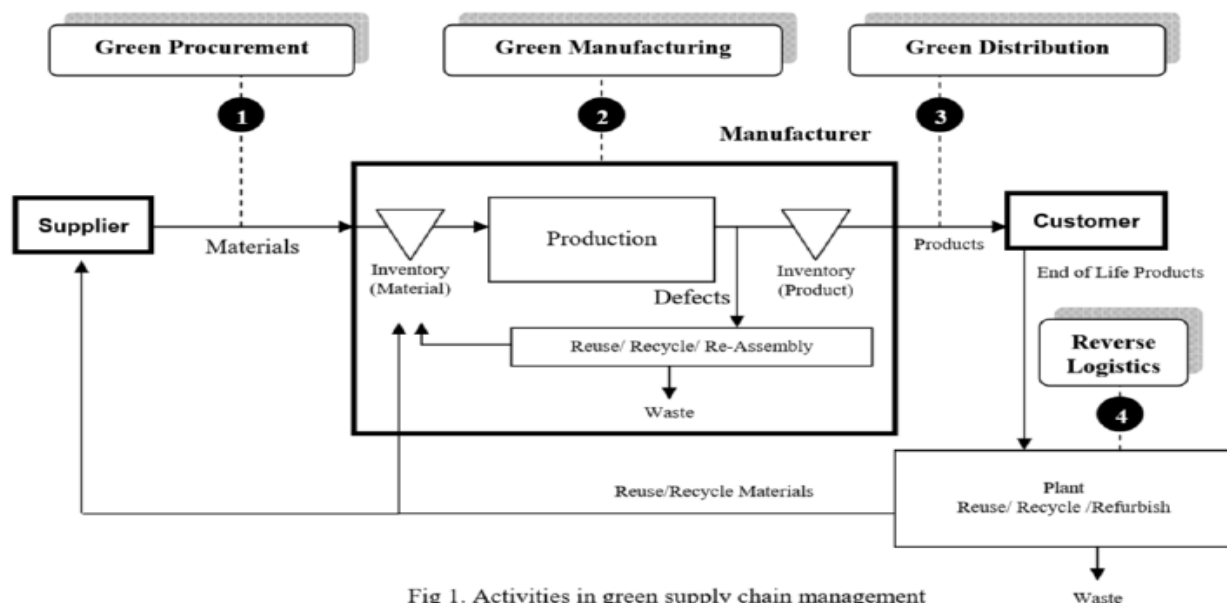


Fig 1. Activities in green supply chain management



Figure 2: 3 Rs

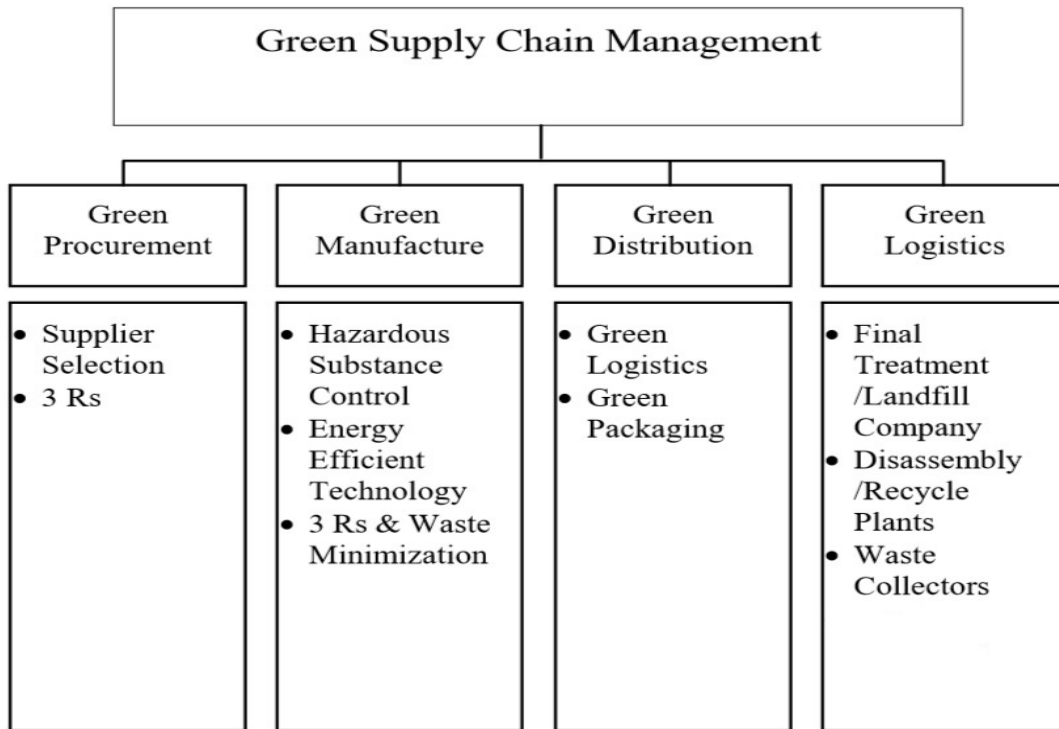


Fig 3.Green supply chain management practices

DIFFERENCE BETWEEN THE CONVENTIONAL AND GREEN SCM

Table 1: Difference- Conventional & Green SCM

Characteristics	SCM	Green SCM
<i>Values from the System</i>	Economic	Economic and ecological
<i>Ecological Impact</i>	High[negative] ecological impacts	Low[positive] ecological impacts
<i>Selection of Supplier</i>	Short-term relationships – Main focus is on cost	Long-term relationships- Main focus is on Ecological aspects
<i>Speed and flexibility</i>	High	Low

PAST RESEARCH ON GSCM-

YEAR	TITLE	AUTHOR	DESCRIPTION
2012	An Overview of Green Supply Chain Management in India	Nimawat Dheeraj & Namdev Vishal	The paper seeks out environmental performance index (EPI) of India and four activities of the green supply chain management; namely green purchasing, green manufacturing, green marketing and reverse logistics.
2012	Examining Green Production and its Role within the Competitive Strategy of Manufacturing	Tim Banies, Steve Brown, Ornella Benedettini, Peter Ball	It relates and summarizes the core knowledge on green production, aligns to production and operations management prospective.
2012	A Hierarchical Framework of Barriers to Green Supply Chain Management in the Construction Sector.	Sreejith Balasubramanian	In this paper barriers are identified and then they are classified as external and internal barriers to the organization which help policy makers to focus on specific barriers important to the adoption of GSCM in the UAE construction sector.
2012	Modeling the Knowledge Sharing Barriers using an ISM Approach	B. P. Sharma, M. D. Singh and Neha	Variables which resists knowledge sharing (KS) in the organizations are known as Knowledge Sharing barriers(KSBs) were identified and ISM model is proposed showing solutions
2011	Barriers to implement Green Supply Chain Management in automobile industry using Interpretive Structural Modeling (ISM) Technique – An Indian Perspective	Sunil Luthra, Vinod Kumar & Abid Haleem	An industry based approach was used to develop a structural model of the barriers to implement green supply chain management
2011	Research on the Performance Measurement of Green Supply Chain Management in China	Yan Li	The paper tries to improve the environmental performance by implementing a variety of GSCM practices in additionally top level manager’s commitment is necessary for development of any GSCM program.
2010	Evaluating Green Supply Chain Management among Chinese Manufacturers from the Ecological Modernization Perspective	Zhu, Q., Geng, Y., Sarkis, J., & Lai, K.H	The study includes a comparison between Chinese manufacturers and Japanese manufacturers which implies more significant improvements made in environmental and financial performance and additionally four other GSCM practices were implemented.

2009	Opportunities in Green Supply Chain Management	Jonny C. Ho, Maurice K. Shalishali, Tzu-Liang Tseng and David S. Ang	A comparison is performed between traditional and green supply chain. It includes several important opportunities in green supply chain management, including those in manufacturing, bio-waste, construction, and packaging
2009	An Empirical Study of Green SupplyChain Management Practices Amongst UK Manufacturers	Daine Holt and Abby Ghobadian	The paper identifies various operational activities within a supply chain
2008	Knowledge management barriers: An interpretive structural modeling approach	M. D. Singh and R. Kant	The paper identified KM barriers to the organization and a relationship among them is mad

PROPOSED CONCEPTUAL MODEL-

Based on the literature review from various studies the paper came with a conceptual model below to describe various components of green supply chain practice and supply chain performance. This is a representation of the conceptual relationship between variables. Green supply chain practice is an independent variable while supply chain management is a dependent variable.

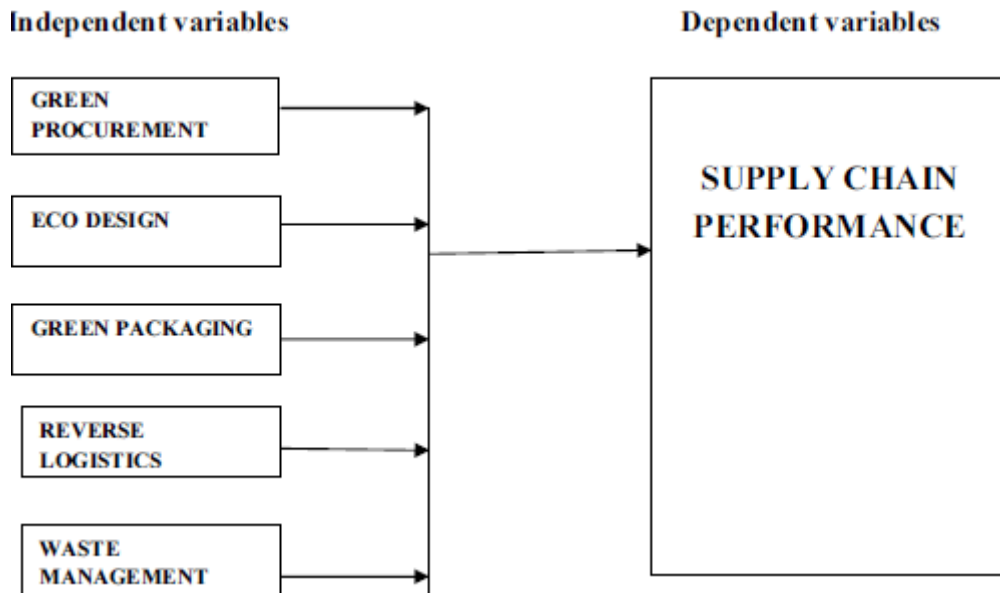


Fig 4. Conceptual Model - Green Supply Chain Management Practices

SUGGESTIONS-

- (1) Designed to extend lifetime of product, it can be improved, repair, and re-use of products such as modular design.
- (2) Designed for recycling / design for disassembly, after end of life products that can be more recovered
- (3) Propagate GSCM knowledge and encourage using environmentally friendly goods and services.
- (4) Set a direct responsible unit to take in charge of automobile waste only which will increase reverse logistics Efficiently.
- (5) Promote refurbishing and recycling through campaigns/ activities to raise reuse/recycle awareness in electronics Consumption.
- (6) Set a database unit to collect and record information about production, import/export data, and waste management .

CONCLUSION-

It was found that GSCM is mostly practiced in manufacturing industries and few in the construction industries. GSCM has been tested in some developing countries like Singapore, India, China, Hong Kong, Malaysia and South Africa. GSCM is a process of using environmentally friendly inputs and transforming these inputs into outputs that can be reclaimed and re-used at the end of life cycle thus creating a sustainable supply chain. As a well-known fact, materials are made from nature, thus needs to be 'environmentally friendly'. Hence, there is a need for campaign awareness in the construction industry, which is a major issue the authors are addressing in their current research study.

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