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IMPACT OF GST ON SUPPLY CHAIN STRATEGY & DRIVERS OF GREEN SUPPLY CHAIN : A CASE STUDY FROM MANUFACTURING INDUSTRIES

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Abstract — *Goods and service tax has been implemented from 30/06/17 midnight. This has revolutionized Indian system. It has also impacted the supply chain. The supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, the transformation of these materials into intermediate and finished products and the distribution of this finished product to customers. The study about for measure drivers: green purchasing, green manufacturing, green distribution, and marketing. Our study will majorly focus on drivers combining effects of GST as well as green SCM on manufacturing industries in order to improve financial performance and environmental friendliness.*

Keywords- *GST; Green supply chain; Supply chain management; Drivers of supply chain managemen; manufacturing industry*

I. INTRODUCTION

The "supply chain management" arose in the late 1980s and came to widespread use in the 1990s. A supply chain integrates the key business processes of an organization from end user through original suppliers that provide products, services, and information that add value for customers and stakeholders. A supply chain strategy determines the nature of procurement of raw material, transportation of materials to and fro the company, manufacturer of the product or operation to provide the service and distribution of the product to the customers. Supply chain strategy includes a specification of the broad structure of the supply chain. GST is an indirect tax which was introduced in India on 1st July 2017 and was applicable throughout India which replaced multiple cascading taxes levied by the central and state government. Under GST, goods and services are taxed at the following rates, 5%, 12%, 18% and 28%. There is a special rate of 0.25% on rough precious and semi-precious stones and 3% on gold. In addition to 15% or other rates on top of 28% GST applies on few items like aerated drinks, luxury cars, and tobacco products.

II. LITERATURE REVIEW

Using a framework for research paradigms developed by Meredith et al.(1989), Dunn et al.(1994) classified logistics research papers of five journals for the years 1986-1990. Mentzer and Kahn (1995) reviewed all the papers published in the journal of business logistics (JBL) between 1978and 1993. They analyzed the research method, data analysis techniques and hypothesis testing in those published papers. Samuel (1997) compared dominating paradigms and method used in three logistics/SCM journals.The literature review done in the previous sections shows the concern researchers towards the discipline. Whether the suggestion is on quantitative research side (e.g. construct validity issues, scientific methods, etc.) or on the qualitative research side (action research or case studies). The idea behind all these suggestion is that research should represent reality and contribute towards building SCM and logistics theory. The main reason for this concern is as mentioned by Naslund (2002) that if logistics academicians want to lead rather than to follow practitioners then they must gain " extreme relevance" in our research.objectives of the paper is to examine the state of logistics and SCM research in last five years from the standpoint of methodologies to look for trends, and to determine implications for future research.Green supply chains are defined as the extension of a traditional supply chain with an aim to reduce environmental impacts of a product throughout its life cycle (Beamon, 1999b). By focusing on green design, resource saving, harmful material reduction, and product recycling or reuse, industries try to improve the environmental performance of their supply chains (Holt and Chobadian, 2009; Lau, 2011; Testa and Iraldo, 2010). In the literature, the term "green supply chain" has often been used interchangeably with closed loop supply chain (Van Hoek, 1999; Beamon, 1999b; Steven, 2004; Inderfurth, 2004; Spengler et al., 2004; Zhu and Sarkis, 2006), sustainable supply chain (Linton et al., 2007; Beamon, 2005), integrated supply chain (Press, 2001; Mezher and Ajam, 2006; Vachon and Klassen , 2006; Zhu and Sarkis, 2006) and reverse logistics (Carter and Ellram 1988) and (Fleischmann et al. 2007). Hence, we define a GSCM as " the sum of green purchasing, green manufacturing and material management, green distribution and marketing, and reverse logistics" (Hervani et al., 2005; Linton et al., 2007; Zhu and Sarkis, 2006). GSCM has emerged as an approach to enhance competitiveness and follow the environmental requirements of various regulatory bodies. It is "as an important new archetype for enterprises to achieve profit and market share objectives by lowering their environmental risks and impacts while raising their ecological efficiency" (Zhu et al, 2005, p.450).Emphasizing on the benefits of performance measurements, Zhu et al. (2008) stated that various forms of scales can be used t measure GSCM with an

aim for continuous improvements, implementation of GSCM, and benchmarking. For instance, Hervani et al. (2005) noted that the overall objectives of a green supply chain is to reduce the negative environmental impacts (air, water, and land pollution) and waste of resources (energy, materials, products) starting from the extraction of raw materials up to the final usage and delivery of products. Faruk et al. (2002) introduced a management tool known as ecological supply chain analysis (ECOSCAN) to examine the effect of environmental management across the supply chain. This tool is based on the life cycle analysis model which focuses on the connection between life cycle analysis and GSCM methods. In addition, AHP (analytical hierarchy process), initially developed by saaty (1980), was viewed as a decision support model by Hand field et al. (2002), Pineda- Henson et al. (2002) and Sarkis (1998, 2003). This model can assist the managers in comprehending the trade-offs between environmental dimensions.After Goods & Services Tax (GST) systems are imposed in India state boundaries wouldn't matter much. Distribution involves the steps taken to transport and stock product from the supplier's stage to the customer's stage in a supply chain. Distribution network design options must, therefore, be compared according to their impact on customer service and the cost to provide this level of service.

III. PROBLEM DEFINITION

A.Importance of manufacturing industries

3.1.Automobile industries

The Indian automobile sector is one of its most vibrant industries. The industry accounts for 22 per cent of the country's manufacturing gross domestic product (GDP).It comprises passenger cars, two-wheelers, three-wheelers and commercial vehicles and is currently the seventh-largest in the world with an average annual production of 17.5 million vehicles, of which 2.3 million are exported.

3.2.Capital goods

A capital good is a durable good that is used in the production of goods or services. Capital goods are one of the three types of producer goods, the other two being land and labor, which are also known collectively as primary factors of production.This classification originated during the classicaleconomic period and has remained the dominated method for classification.

3.3.FMCG

The fast-moving consumer goods (FMCG) segment is the fourth largest sector of the Indian economy.The market size of FMCG in India is estimated to grow from US$ 30 billion in 2011 to US$ 74 billion in 2018.

3.4.METAL

Industries in the fabricated metal product manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture, or treat metals and metal formed products fabricated elsewhere.Important fabricated metal processes are forging, stamping, bending, forming and machining, used to join separate parts together.The sector is classified under the 2007 North American Industry Classification system (NAICS) as 332.

B.Importance of green supply chain

The manufacturing industries cause the environmental problems by the use of the toxic chemicals, some manufacturing processes, radioactive materials, use carbon monoxide and other gases.Green supply chain management is considered as an environmental innovation. The concept of GSCM is to integrate environmental thinking into supply chain management.As competition intensified in the 1990s, the increased awareness of green practices has triggered firms to act in an ethically and socially responsible manner in their supply chains. In the beginning of 1995, GSCM has attracted considerable scholarly interest; GSCM received the highest attention in 2010. Aims of GSCM are minimized or eliminate wastages including hazardous chemical, emissions, energy, and solid waste along supply chains such as product design, material resourcing and selection manufacturing process, delivery of final product and end-of-life management of the product. Four important of GSCM perspectives are green procurement, green manufacturing, green distribution and green logistics. Green supply chain mainly refers Reduce, Recycle, and Reuse.

C. Benefits of supply Green chain

Sustainability of Resources, Lowered Costs/Increased Efficiency, Product Differentiation and Competitive Advantage, Adapting to Regulation and Reducing Risk, Improved quality, and products, Effective management of Suppliers, Dissemination of technology, advanced techniques, capital and knowledge among the chain partners, Transparency of the supply chain, Large investments and risks are shared among partners in the chain, Better control of product safety and quality, Increased sales and revenue, Beneficial uses for waste

D. Drivers of green supply chain

Following Drivers were identified after the survey of existing literature: Cut throat competition, Rewards due to environmental sustainability, Green and Clean image of a company, Global Recognition, Environmental collaboration

between suppliers and clients, Supplier's Pressure, Government rules and regulations, Standard quality certification like ISO 14000, Corporate Social Responsibility, 3 R: Reduce, Reuse and Recycle, Green product design, Public Pressure, Support From Top Management

E. Resistors of green supply chain
Following Resistors were identified from literature survey: Lack of General Support and Pressure on Environmental Policy, Lack of Performance Measurement attributes in Environmental Practices, Lack of knowledge, Lack of Technology, Fear of Failure, Complexity in the design of Recycling, Reusing and Redesigning, Lack of Awareness of Reverse Logistics, Financial Constraints and Higher Costing, Nonavailability in Bank Loans, Lack of Corporate Social Responsibility, Lack of Top Management Commitment.

Thus looking towards importance of manufacturing industries, Green supply chain and GST researchers identifies a problem to study an impact of all above on manufacturing sectors with various drivers and resistors.

IV. PILOT STUDY

For solving above problem we with the help of faculty member conducted a Pilot study in a manufacturing company located at Vadodara, Gujarat
Here we framed a Questionnaire & conducted an interview with the owner of the company. The Questionnaire consist of a 21 Questions. Ten Questions were pertaining to the basic information regarding company. Rest of the Questioners were framed regarding green supply chain, GST & its impact. A thorough discussion between us and employs took place and we came on several conclusions.

V. CONCLUSION

green supply chain management is the mandatory for the manufacturing industries to minimize or eliminate wastages including hazardous chemical, emissions, energy, and solid waste along supply chains such as product design, material resourcing and selection manufacturing process, delivery of final product and end-of-life management of the product. We can see here identified the enablers and resistors of the GSCM. By the literature review, Some resistors are less affect the green supply chain or they are overcome by the proper application of the enablers.like lack of knowledge is overcome by creating awareness among the public or in an industry by the employment training. GSTimplicationseffect on the supply chain is good.Supply chain most depend on the transport system, manufacturing location, warehouse location. In transport system, service tax rate is low therefore supply chain become less costly than the before implications of GST.

VI. FUTURE PROSPECTS

We also work on Post customer validation/input/feedback related to supply chain strategy in manufacturing industries.Other prospects like Total Productive Maintenance (TPM), Total Quality Management (TQM), cost of quality, kaizen, Kanban, Lean Manufacturing are Japanese techniques which are used for improving the productivity in manufacturing industries. Evaluate the framework for the Reduce, Reuse, Recycle(3R). Doing more with less (e.g., six sigma, lean management) Six Sigma programs were originally developed within manufacturing as a way to improve product quality through fewer errors. Lean management was intended to reduce the cost of manufacturing while maintaining product quality and customer service levels. These approaches have received widespread acceptance and adoption, but within SCM, their application has been limited (Goldsby et al. 2006; Schroeder et al. 2008; Zu et al. 2008). Improving operational efficiency of supply chains offers great promise for organizations and would be a fertile area of SCM research.

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