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# ABSTRACT

Globalization, increased environmental awareness and reduced product life cycle has completely transformed the role of supply chain management in manufacturing organisations. Companies are under pressure to involve environmental concern in their supply chains, right from the material sourcing to the design and production, followed by marketing and end of life of the product. Over the last two decades, green supply chain has emerged as an important concept for industry to mitigate the environmental impact of its products and processes. Numbers of global firms in different sectors have either set up their manufacturing facilities in India or have outsourced from here. These organisations have prior experience of following green practices due to existence of strict environmental legislations in their parent countries. Some of them are proactively using green supply chain practices, resulting in increased economic and environmental competitiveness for Indian organisations.

This research investigated the green supply chain practices in India to gain a deeper understanding of various related issues. Initially, the literature review reported in this work identified various green supply chain practices, the factors that motivate or hinder the adoption of green supply chain practices and various performance measures. Various frameworks and approaches were also reviewed. It is found that these practices are integrative in nature and need a comprehensive framework for evaluating them. Therefore, a conceptual framework was developed to evaluate the green supply chain practices among Indian manufacturing industry and to examine its relationship with drivers and firm performance. Variables were identified for each element of the framework. Due to exploratory nature of study, survey methodology was used to collect quantitative

data. For this a structured questionnaire was developed and administered to manufacturing industry from national capital region (India).

Due to large number of variables, exploratory factor analysis is used, that also help in refinement of initial framework. Based on this framework, numbers of hypotheses were made and examined using multiple regression analysis. To validate the framework and survey results, two case studies were done. Further the developed framework is used for comparative evaluation of firms green supply chain through fuzzy multi criteria decision making model based on TOPSIS.

Survey results found the growing importance of environmental issue in India and green supply chain initiatives adopted by Indian manufacturing industry. The pressure from environmental regulations, suppliers, consumers and community stakeholders has prompted the manufacturing industry in India to implement green supply chain practices. Regulations are found as the most dominating factor for adoption of these practices. Barriers like lack of management commitment, lack of suppliers' commitment, lack of training etc. are identified as significant barriers to green supply chain implementation. Majority of organisations are reactive in their approach due to high upfront cost of green initiatives and lack of resources.

Further hypotheses results indicate positive relationship between drivers, green supply chain practices and firm performance. These results were validated through case studies. Using the framework, developed in this research, case study results indicate that different drivers led to adoption of different practices. It was also found that performance measure can not be related to specific practices due to lack of proper monitoring and measurement system of performance.

This research highlight the growing importance of environmental issue in Indian manufacturing industry and the initiatives taken to green their supply chain. This study will help the industry practitioners to understand the importance of various drivers and barriers in greening the supply chain. The results will motivate them to adopt these practices. Proposed multi criteria decision making model will help the industry in benchmarking their green supply chain.