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## **Barriers to Implement Green Supply Chain Management Practices in Sri Lankan Manufacturing Industry: An Interpretive Structural Modeling (ISM) Approach**

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Confronted with global resource prodigality and increasing environmental deterioration, enterprises cannot ignore environmental issues in today's business. Economic globalization and pressure from the public, laws, and environmental standards are forcing and driving enterprises to improve their environmental performance. GSCM is getting more attention as a sustainable development mode for modern enterprises and is becoming increasingly a part of corporate social responsibility initiatives. In today's competitive world, it is not only about being environment friendly but also about better business sense and profits are pursued. GSCM realizes them because it manages environmental impacts where they occur and ideally before they occur. Also, it recognizes the disproportionate environmental impacts of supply chain processes in an organization and balances the issues arising from both sides: customer to supplier and supplier to customer. The industries may understand the importance of GSCM but most of the time it may not be possible to put into practice. There may be various barriers like, lack of infrastructure, government legislations, organizational factors, high cost etc. and they obstruct the successful implementation of GSCM practices. Hence, the main objective of the study is to develop a structural model of the barriers to implement GSCM in Sri Lankan Manufacturing Industry. Here, the study aimed to identify various barriers to implement GSCM in Sri Lankan manufacturing industry, to identify the most dominant barriers among the selected barriers and investigate the imperative and mutual relationship of the selected barriers, to classify these barriers depending upon their driving and dependence power and finally to develop an ISM based model of these barriers. ISM is a well-established technique for identifying relationship among specific elements which defines problem or an issue. Also, ISM provides means to impose order on the complexity of the issues concerned. Here, literature was reviewed to identify barriers to implement GSCM concept in Sri Lankan manufacturing industry and a questionnaire survey among 50 experts on GSCM was conducted to identify twelve key barriers out of the barrier list which was found through the reviewing the literature. Then structured interviews were conducted with 25 experts from academia and industry, to identify the relationships among these twelve variables. Then classification of barriers was carried out based upon dependence and driving power with the help of MICMAC analysis. Out of which, no barrier was identified as dependent variables; two number of barriers were identified as the driver variables and ten number of barriers were identified as the linkage variables and no barrier was identified as autonomous variable. Here, the driving variables were:



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high cost & pressure for lower price with competition and the linkage variables were: lack of top management commitment in adopting GSCM practices, resistance of employees to advance technology adoption related to GSCM, less awareness of customers about GSCM, less demand of customers for GSCM, lack of technical expertise on GSCM, lack of legal enforcement by the government, lack of sustainable aspirations in the organization's vision and mission, supplier reluctance to change towards GSCM, non-availability of bank loans to encourage green products, and lack of training courses about implementing GSCM. Finally, a hypothetical model of these barriers was developed based upon experts' opinions. The study will contribute to identify the barriers to implement GSCM in Sri Lankan manufacturing industry and to prioritize them. Then, the structured model developed will help to understand the interdependence of these barriers. But this model has not been statistically validated. Structural equation modeling has the capability of testing the validity of such hypothetical models. Thus, this approach can be applied in future research to test the validity of the proposed ISM model.

**Keywords:** Barriers to Implement GSCM, Green Supply Chain Management, Interpretive Structural Modelling (ISM)