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ABSTRACT

The consumption-based economy has created enormous ecological footprint of product and service life cycles. Therefore, the environmental sustainability has become one of the major concerns of today's society and sparked tremendous amount of research. According to the related literature analysis, there is no specific study to design the green supply chain network based on consumers' green expectations. This study aims to contribute to the fulfillment of this research gap by proposing a goal-programming model considering three consumer segments, i.e., green, inconsistent and red consumers. A hypothetical real-life-like example problem is solved to demonstrate clearly the value and applicability of the proposed model. A set of scenarios is also studied to offer an insight on how the consumer determination level of greenness affects the green supply network. The findings of the study present a way to measure the relations between green supply chains and consumer behavior.

Keywords: Customer Segmentation; Consumer Behavior; Green Supply Chain Network; Goal Programming

1. INTRODUCTION

The concern on environmental sustainability has lead to "green" practices related to entire cradle to grave life cycles of products. Designing products based on green initiatives, generating environmentally benign production environments and processes, warehouse management and designing forward and backward distribution networks based on green principles are very important decision domains related to environmental sustainability (Gungor and Gupta, 1999; Ilgin and Gupta, 2010; Sarkis, 2003).

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