Sustainable Supply Chain System Design and Optimization

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Received: 19 February 2019; Accepted: 21 February 2019; Published: 23 February 2019

Abstract: Due to increasing concerns about the environment, potential economic benefits and legislation pressure; supply chain management has changed to focus on the environmental impacts of production and Earth resource preservation. Therefore, many managers are working hard on improving the sustainability of their supply chain systems. In this paper, we present the themes addressed, and the approaches used in this special issue to investigate the design and optimization of sustainable supply chain systems. Firstly, we introduce the topics under investigation, and then we present the published articles to discuss the benefits of sustainable supply chain systems in raising profits and improving ecology. This issue increases our knowledge of the sustainable supply chain systems design and sustainable strategies.

Keywords: manufacturing and remanufacturing supply chains; discrete flow model; returned-used products quality; optimization methods; carbon emissions

1. Contents of the Special Issue

Due to legislation constraints, potential economic benefits and environmental regulations, production firms are obliged to commit to the development of sustainable supply chains. Today, the attention of many academic researchers and company leaders is on the management and design of sustainable supply chains. As a result, company leaders are working hard to propose and establish new sustainable strategies, optimize designs and create innovative production practices, in order to curb carbon emissions and maximize profits. In the literature, a large number of research papers deal with sustainable supply chains. Indeed, most sustainable supply chains are formed by including information about remanufacturing activities with the manufacturing of a new product. The activity of remanufacturing products is vital to sustainable development, as it allows the product life cycle to be extended, and decreases the depletion of resources, therefore offering ecologic and economic benefits. That said, few published works in the literature deal with the design and the optimal decisions within sustainable supply chains. Therefore, to bridge this gap in the literature, the proposed thematic issue aims to contribute to the existing literature by investigating new sustainable strategies and optimal designs of sustainable supply chain systems. This special issue adds new knowledge to the existing body of literature on design and optimization of sustainable supply chain systems. The first group of papers focuses on the supply chain coordination. The second group develops the topic of recycling strategies and decisions. Eighteen articles are included in the special issue.

2. List of Contributions

1. Huang, Y.; Wang, Z. Dual-Recycling Channel Decision in a Closed-Loop Supply Chain with Cost Disruptions.
2. Huang, M.; Yi, P.; Shi, T. Triple Recycling Channel Strategies for Remanufacturing of Construction Machinery in a Retailer-Dominated Closed-Loop Supply Chain.
3. He, X.; Zhang, J. Supplier Selection Study under the Respective of Low-Carbon Supply Chain: A Hybrid Evaluation Model Based on FA-DEA-AHP.
7. Han, Q.; Wang, Y. Decision and Coordination in a Low-Carbon E-Supply Chain Considering the Manufacturer’s Carbon Emission Reduction Behavior.
8. Nadal-Roig, E.; Pagès-Bernaus, A.; Plà-Aragones, L. Bi-Objective Optimization Model Based on Profit and CO2 Emissions for Pig Deliveries to the Abattoir.
13. Wang, J.; Wu, Y. An Improved Voronoi-Diagram-Based Algorithm for Continuous Facility Location Problem under Disruptions.
16. Xue, K.; Xu, Y.; Feng, L. Managing Procurement for a Firm with Two Ordering Opportunities under Supply Disruption Risk.

Conflicts of Interest: The authors declare no conflict of interest.

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