

The Continuous Facility Location Problem and Transportation Mode Selection in the Supply Chain under Sustainability

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Abstract : The main focus of this research study is on the challenges faced in decision-making in a supply chain network regarding the facility location while considering carbon emissions. The study aims (i) to locate facilities (i.e., distribution centers) in a continuous space considering limitations of capacity and the costs associated with opening and (ii) to reduce the cost of carbon emissions by selecting the mode of transportation. The problem is formulated as mixed-integer linear programming. This study hybridised a greedy randomised adaptive search (GRASP) and variable neighborhood search (VNS) to deal with the problem. Well-known datasets from the literature (Brimberg et al. 2001) are used and adapted in order to assess the performance of the proposed method. The proposed hybrid method produces encouraging results based on computational analysis. The study also highlights some research avenues for future recommendations.

Keywords : supply chain, facility location, weber problem, sustainability

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