

366. SIMULATED ANNEALING FOR A MULTI-OBJECTIVE GREEN SUPPLY CHAIN NETWORK OF A MANUFACTURING INDUSTRY

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This paper considers environmental investment in industrial activities and majorly to analyze about the trade-off exists between the initial investment and its long-term benefit to the environment. With such a concern, the decisions on facility location and capacity allocation have to be integrated with the decision on environmental investment. The environmental investment decision is made through network design problem is one of the most comprehensive strategic decision problems that needs to be optimized for long-term efficient operations of the whole supply chain. A supply chain network with nodes and arcs are developed. Two multi-objective mathematical models for the supply chain network is considered. The first model takes the information of setup cost, environmental protection investment, transportation cost and handling cost. The second model takes the information of total toxic emission in all supply chain and they are total emission in all facilities and emission in the route for each kind of product. Then the objective models are subjected to Simulated Annealing, to find a set of evenly distributed Pareto optimal solutions. This is to analyze about the maximum total cost incurred with respect to the minimum total emission for particular industry with respect to their suppliers and customers.

Keywords: Green supply chain management, Multi-objective optimization, Simulated Annealing, Pareto Optimal, Network design.