

عنوان مقاله:

A fuzzy capacitated facility location-network design model: A hybrid firefly and invasive weed optimization (FIWO) solution

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نویسندگان:

A. A. Sadat Asl - *Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran*

M. H. Fazel Zarandi - *Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran*

S. Sotudian - *Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran*

A. Amini - *Department of Industrial Engineering, Amirkabir University of Technology, Tehran, Iran*

خلاصه مقاله:

Facility location-network design (FLND) problem, which determines the location of facilities and also communication links between the demand and facility nodes, is arisen from the combination of the facility location and network design problems. This paper deals with fuzzy capacitated facility location-network design model which aims to select the facilities and candidate links in a way that yield to minimize the total costs, containing: costs of opening facilities, link construction and transportation costs. In this study, several types of links have been considered for connecting two nodes in which their capacity, transportation and construction costs are distinct. Besides, the possibility of multiple link selection between two nodes and also the necessity of the existence of a facility in some nodes are considered. There are also several types of facilities which the budget for each type is unique. Moreover, to open the facilities and to construct the links, limited budgets are considered. As a result of the uncertainty in customers' demand, an interactive fuzzy solution approach is applied. Because this problem is classified as an NP-hard class, a hybrid meta-heuristic algorithm based on Firefly and Invasive Weed Optimization (FIWO) is developed. Finally, the behavior of the model is tested, and the proposed algorithm's performance is compared with some other solving methods.

کلمات کلیدی:

Facility location, network design, interactive fuzzy resolution, firefly and invasive weed optimization

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