

عنوان مقاله:

A humanitarian logistics model to minimize earthquake losses in large-scale situations

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خلاصه مقاله:

Logistics is the core operation of every relief operation. Because of this matter, humanitarian logistics has attracted lots of attention in recent years. There are some differences between humanitarian and commercial logistics. To decrease humanitarian losses, a perfect relief logistics operation should prepare sufficient amount of relief supplies immediately aftermath of the catastrophe. One of the most significant problems which will occur aftermath of an earthquake is failure of transportation infrastructures. To model this issue and evaluate its corresponding results, we destroy percentage of network's link each time. In this paper, we propose a non linear mixed integer multi-depot location-routing model to minimize losses in a humanitarian logistics operation by considering transportation network failure and penalty cost of unsatisfied demands. We have proposed an efficient variable neighborhood search (VNS) method to solve the model. An imaginary network as a large scale example is used to implement the model and proposed VNS method. The numerical analysis shows the capabilities of the model to handle the large scale relief operations by considering the special characteristics of a relief operation

کلمات کلیدی:

component; humanitarian logistics, transportation network failure, non-linear mixed integer multi-depot location-routing, variable neighborhood search, large scale example

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