Bi-Objective Allocation Models for Flood Relief Centers

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ABSTRACT

Locational analysis is a technique used for discovering, assessing, and specifying the optimal placement of an organization, information, activities, and materials. Locational analysis can include developing models, techniques, and tools to help provide solution to location-based problems. In this study, locational analysis is referred as the process of analyzing the variables such as topography or terrain, elevation, rainfall amount and its distribution, population density, and locations of prone areas, in order to arrange the placement of relief centres during flood events. This is a crucial concern for the preparation of an evacuation process in order to determine the necessary number of relief centres that should be set up for flood victims. Geng et al (2020) conducted their study on the basis of different needs of disaster victims, whereby shelters are divided into two types which are basic life and psychological medical service guarantee. They mentioned that at present, the location model of refugee facilities often ignores the diversion of shelter from the perspective of humanitarian logistics and the need of victims. They conclude that in this study they considered the full coverage of needs of victims and determine the location of shelter and the allocation of affected people to use certain facilities in large-scale emergencies for distributing suppliers.

Keywords: Location Allocation model, Flood Victims, Relief Centre