Fuzzy TOPSIS Based Facility Location Model for Emergency Cases

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This work presents the construction of a new model for the fuzzy facility location problem. A fuzzy TOPSIS approach for formation and representing of expert's knowledge on the parameters of emergency service facility location planning is developed. A new objective function is constructed, which is the maximization of centres' selection ranking index. This function together with second objective function - minimization of number of selected centres' creates the multi-objective facility location set covering problem. The approach is illustrated by the simulation example of emergency service facility location planning for a city in Georgia. More exactly, the example looks into the problem of planning fire stations locations in to serve emergency situations in specific demand points – critical infrastructure objects.