

RAPID RESPONSE CENTERS FOR DISASTERS IN MEXICO: FACILITY LOCATION WITH RISK MANAGEMENT

Eduardo Arturo Garzón Garnica, Diana Sánchez Partida, José Luis Martínez Flores

Posgrado en Logística y Dirección de la Cadena de Suministro, Universidad
Popular Autónoma del Estado de Puebla

eduardoarturo.garzon@upaep.edu.mx, diana.sanchez@upaep.mx, joseluis.martinez01@upaep.mx

Abstract

Hydrometeorological events impact the southeastern region of Mexico each year, causing flooding and breaking the supply chains in different parts. A network of Rapid Response Centers aimed to help the humanitarian response act in a quicker way has been proposed. A previous facility location solution was provided, without considering the risk factor of those locations. A new model, including the risk factor, was set up to seek a solution that includes those factors. A Multi source Weber Model, including a variable repulsion measurement, and forbidden areas, has been developed and tested. The model was validated through small sample instances. A new solution was obtained and compared to the one not including the risk factors.

Keywords: Facility Location, Risk Management, Humanitarian Logistics, Weber Problem