



DETERMINING THE OPTIMAL ROUTE OF VEHICLES DELIVERING RELIEF GOODS TO THE CALAMITY-PRONE AREAS IN REGION IV-A

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ABSTRACT - This paper presents an integer linear programming model that determines the optimal route of vehicles delivering relief goods to the calamity-prone areas in Region IV-A, Philippines. This optimization problem is categorized as a capacitated vehicle routing problem. Data for typhoon Gener from the Department of Social Welfare and Development (DSWD) were considered in this study. Clarke-Wright's Savings Algorithm was used to generate the specific routes of each vehicle from the warehouses to the affected areas. The algorithm gave the optimal routes to be covered and the minimum total travel time to be taken by the delivery vehicles. The solution to this problem can be used by DSWD in efficiently distributing the relief goods to different areas in Region IV-A and consequently optimizing the use of government's resources.

Keywords: integer linear programming, vehicle routing problem, Clarke- Wright's algorithm, relief distribution, disaster management



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