Developing a Decision Support System to Manage Solid Wastes of Local Authority

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The management of urban solid waste is intrinsically complex, because it involves various relative factors. The lack of consideration of transport system decisions carried leads to diminution of annual savings. This was a major drawback practiced by many solid waste managing authorities. This paper point-outs the use of appropriate algorithms to develop a Decision Support System (DSS) for Solid Waste Management to find the suitable garbage collection vehicle, to reduce working hours with minimum number of employees and shortest route between the waste generation site and the disposal points in an efficient manner. The combination of Greedy method, Knapsack problem and Dijkstra's algorithm is tested to provide an optimal solution to reduce local authority's costs for fuel, labour charges and efficient resource usage. NetBeans IDE 6.5 was used for developing interfaces and MySQL Server 5.0 was used for maintaining database. The results showed that the decision performed by the DSS was efficient when considering the complexity of factors involved in the system.

Keywords: Solid waste management, Decision support system, Collection system, Shortest path