

# **District Model with Multiple Types of Vehicles for Transporting Sugarcane**

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## **Abstract**

The goal of sugar mill management is to decrease total cost of supply chain while provided high percent of service level to customers. The transportation cost is an important effect to the total cost of the supply chain. The number of cane fields are rapidly grown in the Thailand which resulting in increasing the transportation cost. This paper introduces a policy which allocating the vehicles and cane fields to each district for managing transportation system of raw material to sugar mill. The decision of which unit of cane fields and unit of vehicles to allocate to each district is complicated. We develop the previous districting problem when the transportation system considers multiple types of vehicles; six-wheel trucks and ten-wheel trucks. We determine the optimal policy for allocating cane fields and vehicles to district as minimize the total cost of transportation cost. Randomly samples of small real world problems to be used as an input data for verifying our mathematical model and used a heuristic approach to near-optimal in reason of a computer running time. The results of this paper show that the heuristic answer provides more efficiency than traditional policy for managing transportation system of sugar mill.

## **Keywords**

District, Transportation, Heuristic