The Title   Mathematical Model Analysis for the Optimal Location

of Solid Waste Transfer Station in Nonthaburi Municipali

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ABSTRACT

The objective of this study is to apply the Location-Allocation Techniques of the Operation Research to analyze the solid waste collection system. Model and Technique is applied for the optimal location of the Transfer Station in Nonthaburi Municipality.

To obtain the result of the study, the Mathematical Model has been utilized. At first, 3 different places which will be built as transfer stations are the place located near Phranangkhlo Bridge (35 km. from disposal site), the place located nearby Prachanivech 3 (43.70 km from disposal site) and the place at the Bangrak Noi district (32.30 km from disposal site) respectively. Those stations are selected according to the suitable geographical locations and environments, then the important indicator " capacity " categorized into 4 alternatives as 55%, 70%, 80% and 100% has been calculated before analysing by the model and technique in order to select the optimal transfer station.

The result of the study indicates that the fourth alternative with 100% capacity of transfer station located near Phránangkhalo Bridge offering the lowest collection system cost of 11,347,367 baht annually (183.44 baht per ton). The proposed transfer station could save the collection system cost about 723,725 baht annually comparing to the present system (the present collection system is 12,071,092 baht annually or 195.14 baht per ton). Besides, the system will improve the efficiency of the current collection system of the Nonthaburi Municipality