

ABSTRAK

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Judul : **UJI OPTIMALITAS MODIFIKASI METODE *INCESSANT ALLOCATION* MENGGUNAKAN METODE *MODIFIED DISTRIBUTION* PADA MASALAH TRANSPORTASI**

Masalah Transportasi merupakan bagian dari topik program linier yang khusus membahas alokasi dari asal ke tujuan dengan meminimalkan alokasi penggunaan biaya pada proses pengalokasian dari asal ke tujuan. Terdapat banyak metode yang dapat digunakan dalam proses penyelesaian masalah transportasi, seperti *North West Corner*, *Least Cost Method*, *Incessant Allocation Method*, dan masih banyak lagi dalam penentuan solusi layak awalnya. Dalam menyelesaikan masalah transportasi, setelah didapatkan solusi layak awal dapat dilakukan pencarian solusi optimal yang dapat menggunakan metode *Stepping Stone*, dan *Modified Distribution method*. Dalam penentuan solusi optimal terkadang tidak dapat ditemukan karena terdapat beberapa masalah yang muncul seperti degenerasi, redundansi, dan siklus berulang. Dari hasil analisis tiga data real dan 50 data random terdapat 24 data dengan masalah degenerasi yang muncul dan 5 data dengan masalah siklus berulang yang muncul. Selain itu modifikasi dari metode *Incessant Allocation Method* dengan nama *Incessant Allocation Method – Priority Maximum Demand* (IAM-PMaD) memiliki nilai solusi layak awal yang lebih mendekati solusi optimal dibandingkan dengan metode aslinya.

Kata Kunci : Masalah Transportasi, *Incessant Allocation Method* (IAM), *Incessant Allocation Method – Priority Maximum Demand* (IAM-PMaD), *Modified Distribution (MODI) Method*, Solusi Layak Awal, Solusi Optimal, Masalah Degenerasi, dan Masalah Siklus Berulang

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Transportation problem is a part of linear program topic that specifically discusses the allocation from origin to destination by minimizing the allocation of the use of costs in the process of allocating from origin to destination. There are many methods that can be used in the process of solving transportation problems, such as North West Corner, Least Cost Method, Incessant Allocation Method, and many more in determining the initial feasible solution. In solving transportation problems, after obtaining the initial feasible solution, an optimal solution search can be carried out using the Stepping Stone method, and the Modified Distribution method. In determining the optimal solution, sometimes it cannot be found because there are several problems that arise such as degeneration, redundancy, and repeated cycles. From the analysis of three real data and 50 random data, there are 24 data with degeneration problems that arise and 5 data with repeated cycle problems that arise. In addition, the modification of the Incessant Allocation Method with the name Incessant Allocation Method - Priority Maximum Demand (IAM-PMaD) has an initial feasible solution value that is closer to the optimal solution than the original method.

Keywords : *Transportation Problem, Incessant Allocation Method (IAM), Incessant Allocation Method - Priority Maximum Demand (IAM-PMaD), Modified Distribution (MODI) Method, Initial Feasible Solution, Optimal Solution, Degeneration Problem, and Recurrent Cycle Problem.*