

**OPTIMALISASI BIAYA PENDISTRIBUSIAN AIR MENGGUNAKAN
METODE *IMPROVED ZERO POINT* DAN METODE VAM – *STEPPING
STONE* (STUDI KASUS PDAM KABUPATEN LAMONGAN)**

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ABSTRAK

Metode transportasi merupakan suatu metode yang digunakan untuk mengatur distribusi dari beberapa sumber ke beberapa tujuan dengan meminimumkan total biaya distribusi. Tujuan dari penelitian ini adalah untuk melakukan perbandingan biaya minimum pendistribusian air PDAM Lamongan menggunakan metode *Improved Zero Point* dan Metode VAM – *Stepping Stone*. Metode *Improved Zero Point* adalah metode yang ditingkatkan dari metode *Zero Point* yang sangat berguna untuk menyelesaikan segala jenis permasalahan transportasi. Metode ini memberikan solusi optimal tanpa bantuan metode modifikasi lainnya. Metode *Stepping Stone* adalah metode analitik yang menyesuaikan alokasi barang. Metode ini menghasilkan solusi optimal menggunakan solusi basis awal pada rute dengan sel kosong. Penelitian menunjukkan bahwa, sebelum optimasi biaya pendistribusian air PDAM Lamongan menggunakan metode *Improved Zero Point* dan metode VAM – *Stepping Stone* diperoleh biaya sebesar Rp 13.108.834-. Sedangkan biaya distribusi air PDAM Lamongan setelah dilakukan optimasi menggunakan metode *Improved Zero Point* dan metode VAM– *Stepping Stone* diperoleh biaya yang sama sebesar Rp 12.185.284, -. Biaya distribusi air mengalami penurunan sebesar 18 %. Metode *Improved Zero Point* memiliki waktu komputasi lebih cepat daripada metode VAM – *Stepping Stone*. Dapat disimpulkan bahwa metode *Improved Zero Point* memiliki hasil yang lebih baik dibandingkan dengan metode VAM – *Stepping Stone*.

Kata kunci: biaya distribusi minimal, metode *Improved Zero Point*, metode *Stepping Stone*.

**OPTIMIZING WATER DISTRIBUTION COSTS USING THE IMPROVED
ZERO POINT METHOD AND VAM – STEPPING STONE METHOD
(CASE STUDY OF PDAM KABUPATEN LAMONGAN)**

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ABSTRACT

Transportation method is a method used to organize distribution from several sources to several destinations by calculating the total distribution costs. The purpose of this study is to do comparative of the minimum costs of distributing PDAM Lamongan water using the Improved Zero Point Method and VAM – Stepping Stone Method. The Improved Zero Point Method is an improved method of the Zero Point Method which is very useful for solve all types of transportation problems. This method provides optimal solution without the help of other modification methods. VAM – Stepping Stone Method is an analytical method that adjusts the allocation of goods. This method produced the optimal solution using the initial base solution on the route with empty cell. Based the results of research, it was shown that before optimizing the cost of distributing water from PDAM Lamongan using the Improved Zero Point Method and VAM – Stepping Stone Method obtained a cost of Rp 13.108.834. While the while the comparative distribution costs of the PDAM Lamongan water after optimization using the Improved Zero Point Method and VAM – Stepping Stone Method were obtained a cost same of Rp 12.185.284. Water distribution costs have decreased by 18%. Improved Zero Point method has a faster computing time than VAM – Stepping Stone method. It can be concluded that the Improved Zero Point has better results than the VAM – Stepping Stone method.

Keywords: *minimum distribution cost, Improved Zero Point method, Stepping Stone method.*