

INTISARI

Kondisi saluran sekunder di Daerah Irigasi (DI) Pijenan menghadapi berbagai permasalahan, termasuk kerusakan struktural pada saluran sekunder Buyutan, sekunder Klagaran, dan sekunder Bibis. Selain itu, saluran sekunder Bibis mengalami kekurangan air, terutama di musim kemarau, yang mengakibatkan keterlambatan penyiraman tanaman dan potensi penurunan hasil panen. Masalah lain meliputi penggunaan saluran pracetak yang lebih rentan terhadap kerusakan dibandingkan saluran pasangan batu, serta sedimentasi dan pertumbuhan tumbuhan yang menghambat aliran air. Penelitian ini bertujuan untuk mengetahui nilai dari kinerja saluran irigasi DI Pijenan bagian hilir kanan sesuai Peraturan Menteri PUPR No. 12/PRT/M/2015 dan menentukan prioritas rehabilitasi saluran irigasi sesuai Peraturan Menteri PUPR No. 39/PRT/M/2006.

Penelitian ini menggunakan metode *Multi Criteria Decision Making* (MCDM) merupakan pendekatan untuk pengambilan keputusan dengan mempertimbangkan berbagai kriteria, *Multiple Attribute Decision Making* (MADM) yang digunakan dalam penelitian ini, cocok untuk masalah dengan alternatif terbatas dan melibatkan penilaian subjektif. Dalam penelitian ini, MADM diterapkan untuk memprioritaskan rehabilitasi saluran sekunder di DI Pijenan, menggunakan metode *Simple Additive Weighting* (SAW), *Weighted Product* (WP), dan *Technique for Order of Preference by Similarity to Ideal Solution* (TOPSIS) untuk mengatasi sejumlah alternatif spesifik dan berbagai kriteria penilaian.

Hasil penelitian dari analisis kinerja saluran irigasi didapatkan nilai saluran Sekunder Buyutan sebesar 84,63%, Sekunder Klagaran sebesar 81,53% dan Sekunder Bibis sebesar 81,09%. Hasil analisis prioritas rehabilitasi menunjukkan bahwa saluran Sekunder Bibis memerlukan prioritas rehabilitasi tertinggi karena tingkat kerusakan yang paling parah dan kekurangan air yang signifikan. Saluran Sekunder Klagaran dan Buyutan juga membutuhkan perhatian, meskipun dengan tingkat urgensi yang berbeda. Penelitian ini menekankan pentingnya rehabilitasi yang terstruktur dan berkelanjutan untuk mengembalikan fungsi optimal saluran irigasi di DI Pijenan. Metode TOPSIS merupakan metode yang sesuai untuk pengambilan keputusan prioritas rehabilitasi, dipilih karena kemampuannya menilai seberapa dekat setiap alternatif dengan kondisi ideal dan seberapa jauh dari kondisi terburuk. Hasilnya memberikan pemahaman yang jelas tentang preferensi terhadap setiap alternatif, mendukung pengambilan keputusan prioritas rehabilitasi yang lebih akurat.

Kata kunci: Kinerja Irigasi, Prioritas Rehabilitasi, SAW, WP, TOPSIS.

ABSTRACT

The condition of secondary canals in the Pijenan Irrigation Area (DI) faces various problems, including structural damage to the Buyutan secondary, Klagaran secondary and Bibis secondary canals. In addition, the Bibis secondary canal experiences water shortages, especially in the dry season, resulting in delays in crop watering and a potential reduction in crop yields. Other issues include the use of precast channels that are more susceptible to damage than masonry channels, as well as sedimentation and plant growth that impede water flow. This study aims to determine the value of the performance of irrigation canals in Pijenan downstream right according to the Regulation of the Minister of PUPR No. 12/PRT/M/2015 and determine the priority of irrigation canal rehabilitation according to the Regulation of the Minister of PUPR No. 39/PRT/M/2006.

This research uses the Multi Criteria Decision Making (MCDM) method which is an approach to decision making by considering various criteria, Multiple Attribute Decision Making (MADM) used in this research, suitable for problems with limited alternatives and involving subjective judgments. In this research, MADM is applied to prioritize the rehabilitation of secondary channels in DI Pijenan, using the Simple Additive Weighting (SAW), Weighted Product (WP), and Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) methods to address a number of specific alternatives and various assessment criteria.

The results of the research from the performance analysis of irrigation channels obtained the value of Buyutan Secondary channel of 84.63%, Klagaran Secondary of 81.53% and Bibis Secondary of 81.09%. The results of the rehabilitation priority analysis show that the Bibis Secondary canal requires the highest rehabilitation priority due to the most severe level of damage and significant water shortages. Klagaran and Buyutan Secondary channels also require attention, albeit with different levels of urgency. This research emphasizes the importance of structured and sustainable rehabilitation to restore the optimal function of irrigation canals in DI Pijenan. The TOPSIS method is a suitable method for rehabilitation prioritization decision making, chosen for its ability to assess how close each alternative is to the ideal condition and how far it is from the worst condition. The results provide a clear understanding of the preference for each alternative, supporting more accurate rehabilitation prioritization decision making.

Keywords: Irrigation Performance, Rehabilitation Prioritization, SAW, WP, TOPSIS.