INTISARI

Kekeringan agronomis pada lahan pertanian Nawungan sudah diantisipasi dengan penerapan embung-embung pada lahan. Akan tetapi, manfaat embung tersebut dirasa belum optimal dikarenakan permasalahan rembesan yang dihadapi oleh petani. Rembesan diasumsikan memberikan dampak yang signifikan karena berpengaruh terhadap berkurangnya air pada embung secara cepat. Evaluasi kinerja embung pertanian merupakan kunci dalam efektivitas pengoperasian dan pemanfaatan embung. Rembesan yang terjadi pada dinding embung berdampak pada penurunan kinerja embung. Penelitian ini bertujuan untuk mengkaji indikasi rembesan yang terdapat pada dinding setiap sisi embung dengan menganalisis karakteristik tanah pada setiap sisi embung. Metode penelitian yang digunakan adalah metode pengukuran parameter sifat tanah di laboratorium, yang dilengkapi dengan survei lapangan dan wawancara. Penelitian diawali dengan penentuan titik sampel embung melalui intepretasi foto udara. Terdapat 6 embung yang diamati yang terbagi pada posisi lereng yang berbeda, 2 embung pada lereng atas, 2 embung pada lereng tengah, dan 2 embung pada lereng bawah. Keenam embung ini, berdasarkan hasil wawancaa dengan petani, termasuk embung yang diasumsikan mengalami rembesan. Pada masing-masing embung dilakukan karakterisasi wilayah dan karakterisasi embung. Karakterisasi wilayah meliputi karakterisasi iklim, tanah, dan pengolahan lahan sekitar embung. Karakterisasi embung meliputi karakterisasi morfologi dan morfometri embung, termasuk karakterisasi sifat-sifat tanah pada setiap sisi embung yang diamati pada 3 kedalaman, yaitu 0-20 cm, 20-40 cm, 40-60 cm. Hasil karakterisasi tersebut kemudian diperkuat dengan hasil wawancara petani pemilik embung yang menginfokan terkait jumlah air pengisian, frekuensi pengisian embung, serta durasi penyimpanan air pada embung. Hasil penelitian menunjukkan bahwa kinerja embung dalam menahan air masih belum optimal. Hal ini dikarenakan adanya indikasi rembesan pada sebagian sisi di beberapa embung, serta dominasi tekstur geluh lempung pasiran yang mengakibatkan porositas berkisar 60%, dan akhirnya berdampak pada kemampuan tanah dalam menahan air agak rendah. Selain itu, keterdapatan rekahan pada sisi embung juga disinyalir mempercepat hilangnya air dari sisi-sisi embung. Keterdapatan indikasi rembesan ditemui pada embung yang berada pada posisi lereng atas 1, lereng tengah 1 dan 2, dan lereng bawah 1. Parameter tanah yang mencerminkan indikasi rembesan adalah kadar lengas dan persentase air pori. Rekomendasi yang dihasilkan untuk mengoptimalkan kinerja embung yaitu dengan memberikan lapisan kedap air pada embung dan melakukan pemeliharaan embung secara teratur.

Kata kunci: kinerja embung, lahan pertanian, rembesan, sifat tanah, Nawungan

ABSTRACT

Agronomic on Nawungan agricultural land has been anticipated by implementing small reservoirs on the land. However, it seems like the benefits of these small reservoirs have not been optimized due to the seepage problems faced by farmers. Seepage is assumed to have a significant impact because it causes the rapid decreasing of small reservoirs water volume. Evaluation of the performance of agricultural small reservoirs is a key to the effectiveness of the operation and utilization of small reservoirs. Seepage that occurs on the walls of the small reservoirs has an impact on reducing the performance of small reservoirs. This research aims at examining the indications of seepage on the walls of each side of the small reservoirs by analyzing the characteristics of the soil on each side of the small reservoirs. The research method used was the measuring soil properties in the laboratory, which was complemented by field surveys and interviews. The research was started with determining the selective small reservoirs through aerial photo interpretation. There were 6 small reservoirs observed which were divided into different slope positions, 2 reservoirs on the upper slope, 2 reservoirs on the middle slope, and 2 reservoirs on the lower slope. These six reservoirs, based on interviews with farmers, were the reservoirs that were assumed to be experiencing seepage. At each small reservoirs, regional characterization and small reservoirs characterization were carried out. Regional characterization included characterization of climate, soil and land management surround the small reservoirs. Characterization of the small reservoirs included morphology and morphometry characterization, as well as the characterization of the soil properties on each side of the small reservoirs which are observed at 3 depths, namely 0-20 cm, 20-40 cm, 40-60 cm. The results of this characterization were then strengthened by the results of interviews with farmers who owned the reservoirs who provided information regarding the amount of water filled, the frequency of filling the reservoirs, and the duration of water storage in the reservoirs. The results showed that the performance of small reservoirs in retaining water was still not optimal. This is due to indications of seepage on some sides of several small reservoirs, as well as the dominance of a sandy loam texture which results in a porosity of around 60%, and ultimately has an impact on the soil's ability to hold water that was rather low. Apart from that, the presence of cracks on the sides of the reservoir is also thought to accelerate the loss of water from the sides of the reservoir. Indications of seepage were found in reservoirs located on upper slope 1, middle slopes 1 and 2, and lower slope 1. Soil parameters that reflected indications of seepage were moisture content and pore water percentage. The recommendation to optimize the performance of the small reservoirs is to provide a waterproof layer on and carry out regular maintenance of the small reservoirs.

Keywords: reservoir performance, agriculture land, seepage, soil properties, Nawungan