ANALISIS KINERJA PERKUMPULAN PETANI PEMAKAI AIR (P3A) DENGAN MENGGUNAKAN *FUZZY SET THEORY*

INTISARI

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Perkumpulan Petani Pemakai Air (P3A) mempunyai peran sangat penting dalam sistem irigasi sehingga perlu diteliti kinerjanya apakah selama ini dalam kondisi baik. Terdapat 10 P3A di Daerah Irigasi (DI) Kaliomas, DI Kediri dan DI Pandakraden Kabupaten Banyumas yang dinilai meliputi 4 aspek yaitu ketersediaan air, sistem pengelolaan, institusi pengelola dan sumberdaya manusia. Penilaian kinerja dilakukan berbasis lima pilar irigasi dan analisis *Fuzzy Set Theory*. Analisis *Fuzzy Set Theory* dilakukan untuk mengetahui *ranking* dan pengelompokan dari P3A yang telah dinilai. Hasil analisis berbasis lima pilar irigasi menunjukkan semua P3A yang dikaji dalam kondisi cukup. Analisis berbasis lima pilar irigasi memberikan hasil nilai kinerja berturut-turut dari yang tertinggi yaitu P3A Rahayu sebesar 67,11, P3A Subur sebesar 66,38, P3A Mugi Lestari sebesar 65,5, P3A Langgeng sebesar 62,66, P3A Pelita Jaya sebesar 60,61, P3A Harapan Lancar sebesar 59,34, P3A Tirtapeni sebesar 58,79, P3A Srimartani sebesar 57,08, P3A Sukomaju sebsar 56,23 dan P3A Sri Rejeki sebesar 53,34. Hasil analisis dengan *Fuzzy Set Theory* menunjukkan hasil *rangking* sedikit berbeda dengan penilaian absolut berbasis lima pilar irigasi dengan nilai r_{ij} secara berturut turut dari yang tertinggi yaitu P3A Rahayu sebesar 25,5, P3A Subur sebesar 25, P3A Langgeng sebesar 23,5, P3A Mugi Lestari sebesar 21, P3A Pelita Jaya sebesar 20, P3A Harapan Lancar sebesar 18, P3A Tirtapeni sebesar 15,5, P3A Sri Rejeki sebesar 13, P3A Sukomaju sebesar 10, dan P3A Srimartani sebesar 9.

Kata kunci : P3A, pilar irigasi, *Fuzzy Set Theory*

PERFORMANCE ANALYSIS OF WATER USER ASSOCIATION USING FUZZY SET THEORY

ABSTRACT

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Water User Association has a very important role in the irrigation system hence its performance needs to be assessed whether it is in good condition. There are 10 P3A in the Kaliomas Irrigation Area, Kediri Irrigation Area and Pandakraden Irrigation Area of Banyumas Regency which are considered in 4 aspects, namely water availability, management system, management institution and human resource. Performance evaluation is based on five pillars of irrigation and Fuzzy Set Theory analysis. Fuzzy Set Theory analysis is used to determine the ranking and grouping of P3A that has been assessed. The results of the analysis based on the five pillars of irrigation showed that all P3A are in sufficient condition. Analysis based on five pillars of irrigation gave results of performance values in a row from the highest, namely P3A Rahayu at 67,11, P3A Subur at 66,38, P3A Mugi Lestari at 65,5, P3A Langgeng at 62,66, P3A Pelita Jaya at 60,61, P3A Harapan Lancar at 59,34, P3A Tirtapeni at 58,79, P3A Srimartani at 57,08, P3A Sukomaju at 56,23 and P3A Sri Rejeki at 53,34. The analysis using Fuzzy Set Theory showed that the ranking results are slightly different from the absolute assessment based on five pillars of irrigation with r_{ij} values in a row from the highest, namely P3A Rahayu at 25.5, P3A Subur at 25, P3A Langgeng at 23.5, P3A Mugi Lestari at 21, P3A Pelita Jaya at 20, P3A Harapan Lancar at 18, P3A Tirtapeni at 15.5, and P3A Sri Rejeki at 13, P3A Sukomaju at 10, and P3A Srimartani at 9.

Keywords: Water User Association, pillar of irrigation, Fuzzy Set Theory