ABSTRACT

Irrigation is an effort to provide and regulate water to support agriculture which includes surface irrigation, swamp irrigation and underground water irrigation [1]. However, the availability of water in each place is different, so it is necessary to manage water sources in order to fill the lack of water for water-limited areas, especially in the agricultural aspect [2]. The location that is the focus of this research is the Purwodadi Irrigation Area located in Lima Puluh District, Batu Bara Regency, North Sumatra Province. The purpose of this research is to analyze the discharge of water demand on the primary channel in the Purwodadi Irrigation Area. The data collection methods used are direct interviews with water users, field surveys / searches to obtain discharge data, and documentation. Data analysis was carried out in this study using manual calculations using the Microsoft Excel 2013 program. The Research results After analyzing the water discharge needs in the Purwodadi primary channel, there was a shortage of water discharge such as in the second 2 weeks in this case period II in April from the calculation results of the table above, only 0.83 liters/second was available so that a rotation system was carried out in the distribution of Purwodadi irrigation water, the first and second 2 weeks or in periods I and II in December only 0.99 liters/second and 0.94 liters/second were available and a rotation system was needed in the distribution of water in the Purwodadi irrigation area in the period January-December 2024 to January - December 2025. In this case, it is recommended that water distribution rotation be carried out in the Secondary and Tertiary channels so that they can serve the needs of the rice fields in the Purwodadi Irrigation Area

Keywords*: Irrigation Water Management, Water Distribution Requirement Discharge*