

***ANALYSIS OF THE POTENTIAL OF THE MICROHYDRO POWER PLANT (MHPP)
IN SUMBERPOH VILLAGE, MARON DISTRICT, PROBOLINGGO REGENCY***

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ABSTRACT

A Micro-hydro Power Plant (PLTMH) is a renewable energy source that utilizes the potential energy of water to generate electricity. Sumberpoh Village, located in Maron District, Probolinggo Regency, possesses relatively stable water resources, making it a suitable candidate for PLTMH development. This study aims to analyze hydropower potential based on flow discharge and hydraulic head, calculate potential power output, and examine the influence of rainfall on water discharge availability. A mixed-methods approach was employed, involving data collection through flow discharge measurements using a current meter and hydraulic head measurements using water level indicators, supplemented by rainfall data from 2016 to 2025. The results indicate an average intake discharge of 0.2079 m³/s, a hydraulic head of 5.78 m, and a theoretical power potential of 4.97 kW. While discharge variations are influenced by rainfall and irrigation demands, water availability remains generally stable. Based on these findings, Sumberpoh Village holds viable potential for the development of a Micro-hydro Power Plant (PLTMH) to support the provision of sustainable renewable energy.

Keywords: water discharge, renewable energy, head, PLTMH, power potential.