

ABSTRACT

STUDY THE POTENTIAL OF WATER RESOURCES FOR MICROHYDRO POWER PLANT IN VILLAGE SUMBER AGUNG SUBDISTRICT SUOH WESTERN LAMPUNG REGENCY PROVINCE OF LAMPUNG

by

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To meet the electricity needs of rural areas far from the power grid, the local energy potential can be utilized to generate electricity. Local energy sources including the potential of hydropower that can be used for micro-hydro power plants (PLMTH). Technology of micro hydro power plant is the most mature technology to be developed in rural areas far from the power grid. Source of electrical energy with micro hydro relatively clean and environmentally friendly because it comes from the water that is in the upper river. Many of variety technology of micro hydro power plants can be integrated circuitry there, so it can be used optimally by the community with increase production of village so that can improve people's lives in rural areas.

The location of this research is on a tributary of the River Gunung Lanang Semaka Way, Village of Great Suoh District of West Lampung. The data used in this study is the hourly flow data at the outlet dam Way Besai for 11 (eleven) years, rainfall data for 2 (two) years, cross-sectional area of data streams and watersheds, as well as the data area of the watershed. Due to the limitations of the data in the study site, then used the data nearby watershed that has characteristics similar to the DAS Way Semaka using regionalization. The method used in calculating the design discharge is a method (Flow Duration Curve) FDC. Debit design was used to determine the design of micro hydro power plant (PLTMH).

From the analysis of regionalization method can be used to estimate discharge Semaka Way and Gunung Lanang, due to limited data on the hydrology and hydraulics of the basin. This is evidenced by the magnitude of the calculated discharge is not much different from the magnitude of the discharge measured in the field. Discharge calculation results using this FDC, its value approaching discharge Q93% measured in the field with the FDC method for River Gunung Lanang at 0.0135 (m³ / sec), while the discharge measured at 0.0137 (m³ / sec).

From the calculation of the electric power in the River Gunung Lanang obtained electric power with an efficiency of 60% - 90% with Q for the draft is Q50% at 0.0384 (m³ / sec), generates electric power of 1.81 to 2.71 kW. Therefore River Gunung Lanang enough potential to be a micro hydro power plant (PLTMH).

Keywords : Watershed, regionalization , FDC , MHP