

ABSTRACT

THE STUDY OF POTENTIAL WATER RESOURCES FOR MICRO HYDRO ELECTRIC POWER IN PEKON GUNUNG RATU SUOH SUBDISTRICT WEST LAMPUNG REGENCY LAMPUNG PROVINCE

By

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Suoh subdistrict which is located in West Lampung regency, have many rivers that have the potential to used as renewable energy. Suoh residents especially who live in Pekon Gunung Ratu, have no electricity power network distributed by PLN because to reach that place is so far. But this place has a river called Way Hantatai, which is sub watershed of Way Semaka river and the water flows throughout the year and can be used as renewable energy with construction micro hydro electric power.

This research aims to overcome the electricity crisis for Suoh residents especially in Pekon Gunung Ratu. By way of investigating the accuracy of regionalisation method for discharge calculation of Way Hantatai river, for calculate the dependable discharge of water by using FDC (Flow duration curve), than calibrated the result discharge of water calculation with the calculation result in the field, and calculate the electric power that can be raised from the river flow of Way Hantatai Pekon Gunung Ratu.

Using FDC analysis of Way Besai, FDC for Semaka watershed and Way Hantatai watershed can be calculated using ratio of watershed areas. It is obtained that dependable discharge ($Q_{80\%}$) for Way Hantatai is $0,1301 \text{ m}^3/\text{s}$. Meanwhile, obtained dependable discharge ($Q_{86\%}$) is $0,1253 \text{ m}^3/\text{s}$ from the calculate result in the field. To know that discharge of water have potential to used as micro hydro electric power, Then using the formula calculate with standard method planning $Q_{50\%}$ for electricity : $P = \rho \cdot g \cdot Q_{50\%} \cdot h \cdot \eta$ totally. Be knowed: $\rho = 1$, $Q_{50\%} = 0,2471 \text{ m}^3/\text{s}$, $h = 7\text{m}$, η totally = 80%. It is obtained $P = 13,5608 \text{ KW} < 100 \text{ KW}$ that means Way Hantatai river have potential for micro hydro electric power.

Keyword: the watershed, regionalisasi method, FDC, generator electrical power hydrous micro, discharge of water, the river, electrical power