ABSTRAK

Pembangkit Listrik Tenaga Mikro Hidro (PLTMH) merupakan alternatif sumber energi listrik bagi masyarakat. Di saat sumber energi lain mulai menipis dan memberikan dampak negatif, maka air menjadi sumber energi yang sangat penting karena dapat dijadikan sumber energi pembangkit listrik yang murah dan tidak menimbulkan polusi. Maka dari itu tujuan analisis ini adalah untuk menentukan atau mengetahui seberapa besar daya yang di hasilkan dari air terhadap PLTMH. Untuk mengetahui daya tersebut diperlukannya uji coba dan perbandingan data dari tiap titik aliran air yang akan diletakkan PLTMH. Dari hasil perhitungan mencari kecepatan aliran tiap titik, didapat nilai kecepatan aliran rata-rata di titik pertama sebesa 0,83 m/s, kecepatan aliran rata-rata di titik kedua sebesar 0,48 m/s dan kecepatan aliran rata-rata di titik ketiga sebesar 0,79 m/s. Setelah didapatkan rata-rata kecepatan aliran air maka didapat pula debit air pada tiap titik aliran sungai cigirang. Pada titik pertama diperoleh debit air sebesar 130 l/s, debit air di titik kedua sebesar 120 l/s dan debit air di titik ketiga sebesar 420 l/s. Setelah mengetahui debit air tiap titik aliran maka dapat diperoleh daya air yang dihasilkan tiap titiknya. Pada titik aliran pertama daya air yang dihasilkan sebesar 3,185 kW, titik kedua menghasilkan daya air sebesar 0,42 kW dan titik ketiga menghasilkan daya air sebesar 2,6 kW.

Kata Kunci : Pembangkit Listrik, Mikro Hidro, Kecepatan Aliran, Debit Air, Daya Air.

Analysis Potential Water Energy in Micro Hydro Power Plant in Cigirang River, Cilangkap, Sumedang

ABSTRACT

Micro Hydro Power Plant (PLTMH) is an alternative source of electrical energy for the community. PLTMH provides many benefits, especially for rural communities throughout Indonesia. When other energy sources begin to thin out and have a negative impact, water becomes a very important source of energy because it can be used as a source of energy for generating electricity that is cheap and does not cause pollution. Therefore the purpose of this analysis is to determine or find out how much power is generated from water to the MHP. To find out about this power, a trial and comparison of data from each point of water flow is needed. After knowing the data from each of these flow points, the results obtained from the average speed of each point of flow, the water debit that is owned by each flow point and the water power produced by each flow point. From the results of calculations looking for flow velocity per point, the average flow velocity value at the first point is 0.83 m / s, the average flow velocity at the second point is 0.48 m / s and the average flow velocity at the point third is 0.79 m / s. After obtaining an average velocity of water flow, it was also obtained the water discharge at each point of river flow. At the first point, a water discharge of 130 l / s was obtained, the water discharge at the second point was 120 l / s and the water discharge at the third point was 420 l / s. After knowing the water discharge of each flow point, it can be obtained the water power generated at each point. At the first flow point the resulting water power is 3,185 kW, the second point produces water power of 0,42 kW and the third point produces water power of 2,6 kW.

Keywords*: Power Plant, Micro Hydro, Flow Speed, Water Discharge, Water Power.*