

## **The response of the watershed morphometry toward Cipandak fault and their implications for the micro hydro energy resources in South Cianjur West Java Indonesia**

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**Key words:** Spatial planning, watershed morphometry, fault, micro hydro

### **SUMMARY**

The research background are quantity of natural hazardous prone area in Indonesia, global warming, available of alternative energy for energy crisis anticipation, and low accessibility of natural hazardous prone area. A part of landforms with many tributary rivers have narrow valley and rapids. In those areas, the mini-micro hydro energy usually is abundance. The research problem is how connection between morph-tectonic and quantity of mini-micro hydro energy that used by community in the prone hazardous areas. Purpose of this research knows relation between morph-tectonic characteristics and mini-micro hydro quantity that can used by community of natural hazardous prone area. The research objectives are studies of morph-tectonic, quantity of electrical energy potency in natural hazardous prone area, and look for correlation between both. Research result prospects for community and local government in handling energy crisis of those areas. Another hand, that is can become study matter for students of undergraduate and postgraduate, especially in geology discipline.

Research designe based on mind pattern that previously geological event in a line its development results a typical landform. Variously reference connected with morph-tectonic can used for indicator of mini-micro energy potency. The available of this one very connected with certain morphological characteristic. Accordingly, collection and mapping activity of the geomorphological characteristic are important. The water available constitute major source of micro-mini hydro energy development. Its stability very controlled by climate and land use. Probabilistic approach used in data analysis.

The research result show geomorphological characteristic of research area controlled by tectonic. A part areas have potency of micro-mini hydro energy is abundance. Based on data analysis know there are significance correlation between morph-tectonic characteristic and available of micro-mini hydro energy potency. The outflow resources which discharge and head are supported by morph-tectonic, climate, and good land use. The river basin controlled by tectonic shows narrow shape. The major river and its tributary show trellis pattern. The low river order, i.e. 1<sup>st</sup> to 2<sup>nd</sup>, dominates in that river basin. They cause high discharge and head. The potency of naturally landform is a benefit of micro-mini hydro installation design. Generally, the southern Cianjur-Garut regions are vulnerable to natural hazardous, especially high earthquake intensity. Those areas have limited accessibility. In connection with above, please avoid developing complicated installation that requires expensive cost. Those above matter head for decrease financial loss caused by disaster threat happen every time and destroy available construction.

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potential for micro hydro energy resources abound. The results of data analysis showed a significant relationship between the characteristics of the watershed with the availability of hydroelectric energy potential. Surface water resources with the discharge and the optimum altitude will abound when supported by a landscape that is controlled by tectonic and climatic and land use are adequate. Watershed which is controlled by tectonics has a sine form. The rivers show trellis drainage pattern. Low-order streams, usually order 1 and order 2, dominates the watershed. This allows the discharge of surface water is relatively large with dropping elevation (head) is high. The potential of the natural landscape is an advantage in the design of micro-hydro installations. South Cianjur area prone to natural hazards, especially seismic intensity is relatively high, have limited accessibility. Therefore should be avoided to make the installation of complex and require great expense, because the threat of disasters can happen at any time and destroy the existing infrastructure.

Comments: The paper is part of CISS/IC-Geoh research in 2010. I hope this paper can accepted for presentation in FIG 2012.

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