

## ABSTRACT

### SEDIMENTATION ANALYSIS FOR FEASIBILITY STUDY ON WAY SEMAKA AND WAY SEMUNG HYDRO POWER PLANT

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Water is an absolute necessity for living things, especially to humans, animals and plants. In addition, water can also be used for irrigation, power plants, industry, agriculture, fisheries and raw drinking water sources. In the context of watershed management, sedimentation is a very important issue, because of losses caused by the sedimentation process is much greater than the benefits derived. Due to the impact of sedimentation is so vast, it is necessary to study the sedimentation that occurs in the branch of Way Semaka and Way Semung which will be utilized as hydro power plant.

Location of the study was conducted in watersheds of Way Semaka and Way Semung on Wonosobo, Tanggamus. The data required for this study is a data of suspended load and bedload were taken from sediment sample on watersheds of Way Semaka and Way Semung. The methods that will be used in this study is the the parametric model predictions with approaches to the Universal Soil Loss Equation (USLE) and Measurable Sediment Analysis.

From the analysis of sedimentation with USLE method can be known that the amount of the sedimentation on Way Semaka watershed is 129,161.29 tons / yr and for Way Semung watershed is 11323.76 tons / yr. The amount of the measured sedimentation sampling and the test results in the laboratory on Way Semaka watershed is 139,941.10 tons / yr in July 2012, 32,927.32 tons / yr in August 2012, 212,612.19 tons / yr, in November 2012, and 2,071,276.09 tons / yr in January 2013, while the obtained values on Way Semung watershed 7,294.22 tons / yr in July 2012, 10,228.51 tons / yr in August 2012, 16,015.41 tons / yr in November 2012, and 16,015.41 tons / yr in January 2013. From the study and observations of sediment types, it is known to control the sedimentation in the watersheds of Way Semaka and Way Semung can be use the sandtrap and the trashrack.

*Key words : watershed, sedimentation, Way Semaka, Way Semung, USLE method*