

## **ABSTRACT**

### **THE COEFFICIENT CALIBRATION MODEL OF PARAMETER OF LIMANTARA SYNTHETIC UNIT HIDROGRAPH AT SUB WATERSHED IN BIONGA KAYUBULAN**

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*Watershed is an area of land that holds and stores water and than distributes it to the sen through the main river. Bionga watershed, a sub watershed located in Gorontalo Regency of Gorontalo Province, was chosen as the research location. Most of the outfall of watershed in Bionga Kayubulan flows to the Limboto lake, and this is the cause of flooding in that area based on that fact, then the researcher carried out a calibration foward observation of unit hidrograph in the watershed.*

*The purpose of calibration is to obtain the new parameters by using synthetic unit hidrograph method of Limantara. The separation of base flow that produces a direct runoff hirograph and effective rainfall applies the collins method which is reduced into an observation unit hidrograph. From the topographi map, it is obtained the phisical factor of watershed which is then used to analyze the HSS Limantara. The test shows a big difference, so that constant HSS Limantara adjustment was done through using the software microsof excel-solver.*

*The adjustment test result of HSS Limantara forward the observation of HS is coefficient of efficiency (CE)=0,92, the relative error value (EV) is 4,08%. Whith the parameter coefficient value of calibrated HSS Limantara is  $T_p=0,4036+0,13139 \cdot L^{1,01353}+0,80502$ ,  $Q_p=0,03468 \cdot A^{0,44970} \cdot L^{0,49602} \cdot Lc^{0,35512} \cdot S^{-0,12988} \cdot 0,56467$ ,  $Q_t=Q_p \cdot E^{0,231289(T_p-t)}$ , the result indicates that the value of HSS Limantara calibration result can be used in sub watershed in Bionga Kayubulan.*

**Key Words: The Calibration Coefficient, Limantara Synthetic Unit Hidrograph**