

# **KAJIAN ANGKUTAN SEDIMEN, PENAMBANGAN BAHAN GALIAN GOLONGAN C, DAN FENOMENA PERUBAHAN DASAR SUNGAI**

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## **ABSTRACT**

Downstream of Cimanuk River has potential sand mining, which has been benefited for many years as a material to fulfil the need of physical structure building. Along with the rapid development of physical structure, therefore the need of sand mining increases as well day by day, this causes of sand mining becomes more popular and uncontrolled. The descent of one pillar of Jatitujuh bridge, and many concrete groynes which caved in are the fact of real problems at downstream of Cimanuk River.

This study focuses on the volume level of sediment transport naturally using daily discharge in one year at several control points downstream of Cimanuk River, starting from CP64 up to CP126. The sediment transport analysis using MPM and Frijlink method, while for routing water surface elevation calculated by DAMBRK program. The discharge which used for input data DAMBRK program as upstream boundary is discharge 47 m<sup>3</sup>/sec, 182 m<sup>3</sup>/sec, 332 m<sup>3</sup>/sec, 506 m<sup>3</sup>/sec, and 716 m<sup>3</sup>/sec, and downstream boundary is critical flow rating.

Based on the result of sediment transport analysis by using MPM and Frijlink method, the maximum volume sediment transport per year occur at several control point CP106 with the volume of 139.759 m<sup>3</sup> and 161.618 m<sup>3</sup>. The result of sediment balance analysis on reach observed, it is noticed that the reach which undergo erosion are CP64 - CP77, CP87 - CP106, and CP116 - CP126, while reach which undergo sedimentation are CP77 - CP87 and CP106 - CP116. The maximum erosion per year occur on reach CP87 - CP106 with the volume of 33.951 m<sup>3</sup> and 42.057 m<sup>3</sup>, while the maximum sedimentation occur on reach CP106 - CP116 with the volume of 41.020 m<sup>3</sup> and 52.444 m<sup>3</sup>. Based on the result of sediment balance analysis and based on the average of river shape, it is obtained that the maximum degradation value of river bed is on reach CP64 - CP77 with the value of 12 cm/year and 14 cm/year, while the aggradation of river bed occur on reach CP106 - CP116 with the value of 28 cm/year and 35 cm/year.

Key words : Sediment transport, sand mining, sediment balance, and change of river bed.