

# USAHA PERBAIKAN TEBING PADA SISI BELOKAN SUNGAI TERHADAP LONGSOR STUDY KASUS SUNGAI PROGO MENGGUNAKAN TETRAPOD, BRONJONG DAN PENGARAH ARUS BAMBU DENGAN SKALA LABORATORIUM

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## ABSTRACT

*One of the structure to protect meanders erosion is the groyne. Groyne is setted across the river with aim of directing flow so as protecting the meanders from erosion. The purpose of the study is to know the influence of installing krib with various angle on meanders. This test was a hydraulic model test with 3 kinds of krib models there are bronjong, tetrapod and bamboo current rectifier.*

*The river model using a flume with length of meander was 5 m, width inside was 0,8 m, and high was 0,5 m.. A trapezoidal channel, with 90° meanders angle, there was 22 impermeable groynes at meanders with a distance between 20 cm, and the water was not sediment. The observations were carried out with flow rates on 6,35 liter/sec, three variation of impermeable groynes angle were 60°, 45°, and 30° to the flow direction for three hours for each angle variations.*

*The results of this study showed that the installing of the groyne at meanders seen gradiently that effectivity of the groyne at the early of meanders was the groyne angle 30°, then at the middle of meanders was the groyne angle 45°, and the end of meanders was the groyne angle 30°. The groyne angle 60° not effectively at meanders. The river model that has not undergone protection and soil improvement (bamboo current rectifier) (model 1) has scaled the cliffs by -5.4 cm; river model with compacted cliffs (model 2) got scouring of -1.8 cm; and the river model with cliffs protected by the groyne (model 3) did not get any scouring on the cliffs along the river. In conclusion, river model with cliffs protected by the groyne is more effective than the river model with improved soil compaction method.*

Kata Kunci: *meanders, scouring, groyne*