

## ABSTRACT

### **ANALYSIS OF GROGOL RIVER FLOOD REDUCTION ANALYSIS ON THE DEVELOPMENT OF LEBAK BULUS RESERVOIR (Case Study of Lebak Bulus Reservoir Development)**

Okta Apriyanti<sup>1)</sup>, Rizka Arbaningrum<sup>2)</sup>, Frederik Josep Putuhena<sup>2)</sup>

1) Student of Civil Engineering, Pembangunan Jaya University

2) Lecturer of Civil Engineering, Pembangunan Jaya University

Flooding is a phenomenon that cannot be avoided but can be controlled. One of the flood phenomena that occurred was in the residential area of Kampung Duku behind the Gandararia City Mall as high as one meter. The flood was caused by the overflow of the Grogol River. In this regard, the DKI Jakarta Provincial Government has made a program for the construction of the Lebak Bulus dam in the context of flood control in the DKI Jakarta area, especially in the Grogol River System. This reservoir will later be used as a reservoir for overflowing water discharge in Grogol River when rainfall increases. The purpose of this study is to analyze how much reduction is produced by the construction of the Lebak Bulus Reservoir in reducing flood discharge due to the overflow of the Grogol River with SWMM 5.2 application modeling. In this stage, a hydrological analysis was found to find the maximum annual rainfall of 266,4684 mm with a return period of 100 years to obtain a hyetograph diagram as rainfall data in the SWMM 5.2 application. In the SWMM modeling, it was found that flooding or hydrograph without reservoir was 2863.22 cfs at minute 45. Meanwhile, flooding or hydrograph with reservoir was 2253.09 cfs at minute 45. So, from these data, the results of flood discharge reduction were 21.3%. The percentage result of this flood discharge reduction can be used for further research, especially for other flood control buildings.

**Keywords:** Floods, Reduction of Flood Discharge, Lebak Bulus Reservoir, SWMM 5.2, Kali Grogol River.

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