ABSTRACT

Evaluation of Drainage Networks to Reduce Pluvial Flood Threats in Urban Basin Areas (Case Study: Seskoal, Cipulir)

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Flooding is a problem that often occurs in urban areas, including in Cipulir Kelurahan, which also includes the Seskoal area. To overcome the problem of flooding, this study aims to mitigate floods in Seskoal. The method used for this analysis uses the Nakayasu Synthetic Unit Hydrograph (HSS) with return periods of 2, 5, and 10 years. The maximum discharge for each return period of 2, 5, and 10 years before the retention pond at Seskoal was 50.95 m^3/sec, 117.64 m^3/sec, and 143.63 m^3/sec, respectively. After mitigating the floods with retention ponds, the discharge decreased to 23.12 m^3/sec for a 2-year return period, 52.2 m^3/sec for a 5-year return period, and 75.46 m^3/sec for a 10-year return period. Furthermore, the flood volume with a duration of 5 minutes is calculated at 22.638 m^3. Based on planning calculations for a retention pond with a land area of 15,0002 and a depth of 3 meters, a retention pond capacity of 36,000 m^3 is obtained. This shows that the planned retention pond has sufficient capacity to accommodate the flood volume in Seskoal. This study contributes to overcoming the problem of flooding in Seskoal, Cipulir Village, using the HSS Nakayasu discharge analysis method. A planned retention pond can help reduce flood volumes and control the flow of water entering the area. It is hoped that the results of this study can become the basis for developing flood management strategies in other urban areas.

Keywords: *Flood Control, Drainage, Retention Ponds, Hydrological Analysis.*

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