

Effectiveness of Infrastructure Flood Control Due to Development Upstream Land Use: Case Study of Ciliwung Watershed

Authors : Siti Murniningsih, Evi Anggraheni

Abstract : Various infrastructures such as dams, flood control dams and reservoirs have been developed in the 19th century until the 20th century. These infrastructures are very effective in controlling the river flows and in preventing inundation in the urban area prone to flooding. Flooding in the urban area often brings large impact, affecting every aspect of life and also environment. Ciliwung is one of the rivers allegedly contributes to the flooding problems in Jakarta; various engineering work has been done in Ciliwung river to help controlling the flooding. One of the engineering work is to build Ciawi Dam and Sukamahi Dam. In this research, author is doing the flood calculation with Nakayasu Method, while the previous flooding in that case study is computed using Level Pool Routine. The effectiveness of these dams can be identified by using flood simulation of existing condition and compare it to the flood simulation after the dam construction. The final goal of this study is to determine the effectiveness of flood mitigation infrastructure located at upstream area in reducing the volume of flooding in Jakarta.

Keywords : effectiveness, flood simulation, infrastructure flooding, level pool routine

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