PENERAPAN METODE *ECONOMIC COMMISION FOR LATIN AMERICA AND CARIBBEAN* (ECLAC) UNTUK MENGANALISIS KERUGIAN AKIBAT GENANGAN BANJIR DI SUNGAI CILAMAJANG

Riffan Yusuf Efendi[1], Novia Komala Sari[2], Asep Kurnia Hidayat[3]
Jurusan Teknik Sipil, Fakultas Teknik, Universitas Siliwangi
Jalan Siliwangi No.24 Tasikmalaya, Jawa Barat, Indonesia
E-mail : riffan.yusuf31@gmail.com

ABSTRAK

Sungai Cilamajang merupakan salah satu sungai yang berada di Kota Tasikmalaya. Wilayah bantaran sungai sering kali digunakan sebagai lahan hunian bahkan pertanian oleh warga, begitu juga bantaran Sungai Cilamajang. Kondisi ini akan mengakibatkan kerugian karena penampang sungai tidak mampu menampung debit banjir. Analisis genangan banjir Sungai Cilamajang dilakukan dengan bantuan program HEC-RAS 2D. Geometri sungai dihasilkan dari DEMNAS. Analisis yang digunakan adalah *unsteady flow* dengan debit kala ulang 2, 5, 10, 25, 50, dan 100 tahun. Analisis kerugian ekonomi akibat banjir menggunakan metode *Economic Commision For Latin America And Caribbean* (ECLAC). Hasil penelitian menunjukan luas genangan banjir kala ulang 2, 5, 10, 25, 50, dan 100 tahun berturut-turut adalah 14.43 ha, 14.97 ha, 15.29 ha, 15.60 ha, 15.82 ha, dan 16.01 ha. Hasil analisis kerugian ekonomi akibat banjir kala ulang 2, 5, 10, 25, 50, dan 100 tahun berturut-turut adalah Rp 1,568,288,303, Rp 1,577,664,115, Rp 1,586,321,069, Rp 1,620,474,255, Rp 1,649,623,001, dan Rp 1,684,132,145. Pemodelan penampang sungai menggunakan HEC-RAS 2D dapat memberikan bentuk penampang pada tiap titik dan memberikan kondisi aliran pada tiap penampang meliputi kedalaman aliran, kecepatan, dan elevasi muka air.

Kata Kunci: Banjir, ECLAC, HEC-RAS 2D

---

[1]Mahasiswa Jurusan Teknik Sipil, FT UNSIL

[2]Dosen Pembimbing Tugas Akhir 1, Dosen Teknik Sipil, UNSIL

[3]Dosen Pembimbing Tugas Akhir 2, Dosen Teknik Sipil, UNSIL

APPLICATION OF THE ECONOMIC COMMISSION FOR LATIN AMERICA AND CARIBBEAN (ECLAC) METHOD TO ANALYZE LOSSES DUE TO FLOOD INUNDATION IN CILAMAJANG RIVER

Riffan Yusuf Efendi[1], Novia Komala Sari[2], Asep Kurnia Hidayat[3]
Department of Civil Engineering, Faculty of Engineering, Siliwangi University
Jalan Siliwangi No.24 Tasikmalaya, West Java, Indonesia
E-mail: riffan.yusuf31@gmail.com

ABSTRACT

The Cilamajang River is one of the rivers located in Tasikmalaya City. Riverbank areas are often used as residential and even agricultural land by residents, as well as the banks of the Cilamajang River. This condition will result in losses because the river cross-section is unable to accommodate flood discharge. Flood inundation analysis of the Cilamajang River was conducted with the help of the HEC-RAS 2D program. River geometry generated from DEMNAS. The analysis used is unsteady flow with discharge times of 2, 5, 10, 25, 50, and 100 years of analysis of economic losses due to flooding using the Economic Commision For Latin America And Caribbean method (ECLAC). The results showed that the flood inundation area at the return period of 2, 5, 10, 25, 50, and 100 years was 14,43 ha, 14,97 ha, 15,29 ha, 15,60 ha, 15,82 ha, and 16,01 ha, respectively. The results of the analysis of economic losses due to floods with a return period of 2, 5, 10, 25, 50, and 100 years are Rp 1,568,288,303, Rp 1,577,664,115, Rp 1,586,321,069, Rp 1,620,474,255, Rp 1,649,623,001, ann Rp 1,684,132,145, respectively. River cross section modeling using HEC-RAS 2D can provide cross-sectional shape at each point and provide flow conditions at each cross section including flow depth, velocity, and water surface elevation.

Keywords: Flood, ECLAC, HEC-RAS 2D

---

[1]*Student of Civil Engineering Department, Faculty of Engineering Siliwangi University*

[2]*Supervisor of Final Project 1, Civil Engineering Lecturer, Siliwangi University*

[3]*Supervisor of Final Project 2, Civil Engineering Lecturer, Siliwangi University*