

**STUDI ANALISIS BANJIR SUNGAI CILIWUNG MENGGUNAKAN  
METODE HSS SCS DAN HSS SNYDER  
RAJA ABIGAIL ZACHARY**

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**INTISARI**

DKI Jakarta merupakan salah satu kota yang dilewati oleh sungai berpengaruh di Jakarta, yaitu Sungai Ciliwung. Sungai Ciliwung tidak jarang menjadi penyebab banjir di beberapa wilayah Jakarta, terbentang dari hulu yang terletak di daerah Bogor yang meliputi kawasan Gunung Gede, Gunung Pangrango dan Cisarua hingga kawasan hilir di pantai utara Jakarta. Upaya pemerintah dinilai masih kurang efektif mengurangi jumlah titik banjir di wilayah Jakarta, serta curah hujan yang tinggi juga menjadi penyebab utama banjir Jakarta. Tujuan dari penelitian ini yaitu untuk mengetahui debit banjir rencana kala ulang 100 tahun yang terjadi serta kapasitas tampung Sungai Ciliwung.

Curah hujan kala ulang 100 tahun adalah 190,270 mm dan debit banjir dengan kala ulang 100 tahun adalah 204,514 m<sup>3</sup>/s. Kondisi eksisting Sungai Ciliwung mulai dari STA 9+300 sampai STA 15+800 tidak dapat menampung debit banjir dengan kala ulang 100 tahun. Luapan air di Sungai Ciliwung terjadi karena adanya debit banjir yang besar dari hulu tanpa disertai upaya pengendalian. Berdasarkan analisis hidrolika, diketahui bahwa kapasitas Sungai Ciliwung pada kondisi eksisting tidak mampu mengalirkan debit banjir rencana, sehingga diperlukan upaya pengendalian banjir. Setelah dilakukan normalisasi sungai dan peninggian tanggul penurunan muka air terjadi penurunan elevasi MAB dengan rata-rata 4,485 m dan kapasitas tampung dari penampang sungai juga mengalami peningkatan sehingga dapat menampung debit rata-rata sebesar 180,878 m<sup>3</sup>/s, sehingga dapat disimpulkan bahwa Sungai Ciliwung mampu menampung debit banjir dengan kala ulang 100 tahun.

**Kata Kunci:** Debit Banjir, HEC-RAS 5.0.7, Metode HSS SCS, Metode HSS Snyder

## *Study Of Flood Analysis In Ciliwung River*

### *Using HSS SCS and HSS Snyder Methods*

RAJA ABIGAIL ZACHARY

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#### **ABSTRACT**

*DKI Jakarta is one of the cities that is crossed by an influential river in Jakarta, namely the Ciliwung River. The Ciliwung River is often the cause of flooding in several areas of Jakarta, stretching from upstream which is located in the Bogor area which includes the areas of Mount Gede, Mount Pangrango and Cisarua to downstream areas on the north coast of Jakarta. The government's efforts are still considered ineffective in reducing the number of flood points in the Jakarta area, and high rainfall is also the main cause of Jakarta floods. The purpose of this study was to determine the planned flood discharge of the 100 years return period that occurred and the capacity of the Ciliwung River.*

*The rainfall for the 100 years returns period is 190,270 mm and the flood discharge with the 100 years return period is 204,514 m<sup>3</sup>/s. The existing condition of the Ciliwung River from STA 9+300 to STA 15+800 cannot accommodate flood discharges with a return period of 100 years. The overflow of water in the Ciliwung River occurs due to a large flood discharge from upstream without any control efforts. Based on the hydraulics analysis, it is known that the capacity of the Ciliwung River in the existing condition is not able to drain the planned flood discharge, so that flood control efforts are needed. After normalizing the river and raising the embankment, there was a decrease in the MAB elevation with an average of 4.485 m and the tamping capacity of the cross section of the river also increased so that it could accommodate an average discharge of 180.878 m<sup>3</sup>/s, so it can be concluded that the Ciliwung River is able to accommodate flood discharge with a return period of 100 years.*

**Keywords:** *Flood Discharge, HEC-RAS 5.0.7, HSS SCS Method, Snyder HSS Method*