

ABSTRAK

Judul: Analisis Hidrograf Satuan Sintetik Nakayasu Dan Snyder Pada Daerah Aliran Sungai Cikandang, Jawa Barat. Nama: Siska Juliana. NIM: 41115120211. Dosen Pembimbing: Acep Hidayat, ST, MT. Tahun 2020.

Sungai Cikandang sebagai lokasi studi, merupakan salah satu sungai yang terletak di Desa Jati Wangi, Kecamatan Pakenjeng, Kabupaten Garut, Jawa Barat. keberadaan debit air disana sangat menentukan kebermanfaatannya untuk kehidupan masyarakat sekitar. Dengan adanya penggunaan tata lahan yang sangat besar, jumlah debit air pada sungai Cikandang juga mengalami fluktuatif khususnya debit banjir dan bangunan pengendali banjir.

Tujuan dari penelitian ini untuk memperoleh besaran debit banjir rencana Sungai Cikandang, Kabupaten Garut.

Untuk memberikan informasi terkait perhitungan debit banjir dengan menggunakan Rating Curve dengan membandingkan nilainya dengan perhitungan manual, hasilnya dapat digunakan sebagai acuan untuk mitigasi banjir. Analisa, Q_{2th} , Q_{5th} , Q_{10th} , Q_{20th} , Q_{25th} , Q_{50th} , Q_{100th} , dihitung menggunakan metode Hidrograf Satuan Sintetis Nakayasu, Hidrograf Satuan Sintetis Snyder dan Lengkung Aliran (Rating Curve) terhadap analisis curah hujan rencana. Nilai dari Rating Curve didapatkan debit tertinggi sebesar 360,612 $m^3/detik$. Nilai dari perhitungan HSS Nakayasu Q_{2th} sebesar 540,104 $m^3/detik$. Q_{5th} sebesar 873,136 $m^3/detik$, Q_{10th} sebesar 1019,222 /detik. Q_{20th} sebesar 1138,736 $m^3/detik$, Q_{25th} sebesar 1161,311 $m^3/detik$, Q_{50th} sebesar 1274,849 $m^3/detik$, Q_{100th} sebesar 1367,803 $m^3/detik$. Nilai dari perhitungan HSS Snyder Q_{2th} sebesar 206,681

$m^3/detik$, $Q5th$ sebesar $303,371\ m^3/detik$, $Q10th$ sebesar $354,025\ m^3/detik$, $Q20th$ sebesar $395,465\ m^3/detik$, $Q25th$ sebesar $403,293\ m^3/detik$, $Q50th$ sebesar $442,661\ m^3/detik$, $Q100th$ sebesar $474,893\ m^3/detik$.

Data yang digunakan dalam penelitian ini adalah data sekunder dari instansi Badan Koordinasi Survey dan Balai Besar Wilayah Sungai Ciberang & data pengukuran lapangan.

Kata kunci: Analisa debit banjir, Sungai Cikandang, HSS Nakayasu, HSS Snyder, Rating Curve.



ABSTRACT

Title: Nakayasu and Snyder Synthetic Unit Hydrograph Analysis in the Cikandang River Basin, West Java. Name: Siska Juliana. NIM: 41115120211. Supervisor: Acep Hidayat, ST, MT. 2020.

Cikandang River as a study location, is one of the rivers located in Jati Wangi Village, Pakenjeng District, Garut Regency, West Java. the existence of water discharge there will determine its usefulness for the lives of the surrounding community. With the use of a very large land use plan, the amount of water discharge in the Cikandang river has also fluctuated, especially flood discharges and flood control structures.

The purpose of this study was to obtain the magnitude of the river plan flood discharge Cikandang, Garut Regency.

To provide information related to flood discharge calculations using the Rating Curve by comparing their values with manual calculations, the results can be used as a reference for flood mitigation. Analysis, Q2th, Q5th, Q10th, Q20th, Q25th, Q50th, Q100th, were calculated using the Nakayasu Synthetic Unit Hydrograph, Snyder Synthetic and Flow Curve Hydrographs for Rating Rainfall Analysis. The value of the Rating Curve obtained the highest discharge of $23.2 \text{ m}^3/\text{sec}$. The value of the Nakayasu Q2th HSS calculation is $540,104 \text{ m}^3/\text{sec}$, Q5th is $873,136 \text{ m}^3/\text{sec}$, Q10th is $1019,222 \text{ m}^3/\text{sec}$, Q20th is $1138,736 \text{ m}^3/\text{sec}$, Q25th is $1161,311 \text{ m}^3/\text{sec}$, Q50th is $1274,849 \text{ m}^3/\text{sec}$, Q100th is $1367,803 \text{ m}^3/\text{sec}$. The value of HSS Snyder Q2th calculation is $206,681 \text{ m}^3/\text{sec}$, Q5th is $303,371 \text{ m}^3/\text{sec}$, Q10th is $354,025 \text{ m}^3/\text{sec}$, Q20th is $395,465 \text{ m}^3/\text{sec}$, Q25th is $403,293 \text{ m}^3/\text{sec}$, Q50th is $442,661 \text{ m}^3/\text{sec}$, Q100th is $474,893 \text{ m}^3/\text{sec}$.

The data used in this study are secondary data from agency agencies.

Coordination of Survey and Ciberang River Basin & Measurement data field.

Keywords: Flood discharge analysis, Cikandang River, HSS Nakayasu, HSS Snyder, Rating Curve.

