

ABSTRAK

Kali Pulo yang berhulu di Situ Babakan, Jagakarsa merupakan salah satu aliran kali yang berada di perkotaan DKI Jakarta. Khususnya pada aliran di wilayah Kampung Air Jati Padang, Pasar Minggu, Jakarta Selatan ditemui permasalahan yaitu meluapnya air dan mengakibatkan banjir di wilayah tersebut. Permasalahan tersebut terjadi diakibatkan oleh intensitas hujan yang tinggi, derasnya aliran air, serta penyempitan saluran akibat pemukiman warga setempat. Penelitian ini bertujuan untuk mengetahui kondisi dan kinerja dari kapasitas serta mengetahui upaya yang dapat dilakukan untuk memaksimalkan normalisasi Kali Pulo khususnya di aliran Kampung Air, Jati Padang, Pasar Minggu, Jakarta Selatan dengan panjang aliran 916,7 m menggunakan metode kuantitatif dengan bantuan Microsoft Excel. Dengan daerah tangkapan air (DTA) Kali Pulo yang ditinjau seluas 426 Ha dan berada didaerah perkotaan maka debit banjir rencana dengan analisa menggunakan Metode Rasional didapat nilai Q_{10th} sebesar 28,526 m^3 /detik. Kemudian dilakukan analisa kapasitas dengan membandingkan debit banjir rencana dengan debit maksimum yang dapat ditampung oleh saluran eksisting didapati mayoritas bagian Kali Pulo yang ditinjau mengalami overflow yaitu pada section potongan melintang 25-23 dan 21-0 diakibatkan oleh penyempitan dimensi Kali. Berikutnya memaksimalkan pembuatan sumur resapan dari bahan beton porous berdiameter 0,8 m' dengan kedalaman 2 m' disepanjang daerah aliran Kali Pulo dari hulu (Situ Babakan) hingga ke hilir (Kampung Air, Jati Padang) dengan jumlah ploting pada prasarana publik sebanyak 35 titik sumur resapan yang memiliki debit andil sebesar 0,428 m^3 /detik dengan presentase pengaruh terhadap pengurangan debit rencana Q_{10th} sebesar 1,48%. Kemudian diperlukan perbaikan saluran drainase primer yang berada di Kampung Air, Jati Padang berdasarkan debit banjir rencana Q_{10th} sebesar 5,267 m^3 /detik dari catchement area lokal seluas 27,951 Ha, dengan melakukan pelebaran dimensi saluran menjadi ukuran tinggi 1,5 m' dan lebar 2,5 m' pada section potongan melintang 1-3, perbaikan konstruksi saluran drainase menggunakan pasangan batu kali disemen pada section potongan melintang 1-3 dan 5-7 serta dilakukan penambahan tinggi jagaan 0,3 m' disepanjang saluran sesuai dengan perhitungan analisis kapasitas saluran, sehingga tidak memperparah kondisi banjir di Kampung Air, Jati Padang, Jakarta Selatan.

Kata kunci : *analisis kapasitas, debit banjir rencana*

ABSTRACT

The Pulo river well known Kali Pulo which originates from Situ Babakan, Jagakarsa is one of the river streams that is located in DKI Jakarta. Particularly in the flow in the area of Kampung Air Jati Padang, Pasar Minggu, South Jakarta, problems were encountered, namely the water overflow and flood in the area. These problems occur due to high rainfall intensity, heavy water flow, and narrowing of the channel due to local residents. This study aims to determine the condition and performance of capacity and determine the efforts that can be made to maximize the normalization of Kali Pulo especially in the flow of Kampung Air, Jati Padang, Pasar Minggu, South Jakarta with 916.7 m' flow length of using quantitative methods with Microsoft Excel. Based on, Kali Pulo catchment area being observed covering 426 Ha and located in an urban area, the flood discharge plan with analysis using the Rational Method obtained a Q10th value of 28.526 m³/s. Then a capacity analysis is carried out by comparing the planned flood discharge with the maximum discharge that can be accommodated by the existing channel found that the majority of Kali Pulo sections are reviewed experiencing overflow, namely in the cross section 25-23 and 21-0 due to the narrowing of the channel dimension. From this basis, efforts are made to maximize flow normalization so that the overflow does not occur by cross normalization by reference to the flood discharge Q10th plan in the form of adjustment and widening of the cross-sectional dimensions, leveling the longitudinal slope along the cross section 26-0 with S value 0.006, and changing the channel construction cemented pair of Rubble stone in plaster and acian Finishing, and using gravel on the bottom of the channel. Maximize the production of wells from porous concrete worth 0.8 m' diameter to a depth of 2 m along the stream area of Kali Pulo from upstream (Situ Babakan) to downstream (Kampung Air, Jati Padang) with the amount of plotting in public infrastructure as many as 35 infiltration well points that have a share of 0.428 m³/s with a percentage related to decreased Q10 plan about 1.48%. Then, repairing the primary drainage canal in Kampung Air, Jati Padang based on flood discharge Q10th plan of 5.267 m³/s from the 27,951 Ha of local catchment area, by widening the dimensions of the channel to 1.5 m Height and 2.5 m wide in the cross section of 1-3, repair drainage channel construction using cemented stone pairs in the cross section of 1-3 and 5-7 and adding additional Wall of 0.3 m height is carried out along the channel in accordance with the calculation of channel capacity analysis, so that flooding in Kampung Air, Jati Padang, South Jakarta did not getting worse.

Keywords: capacity analysis, flood plan discharge