

ABSTRAK

ANALISIS DEGRADASI FUNGSI SALURAN AKIBAT PENYUMBATAN PADA ANAK SUNGAI SEKANAK (STUDI KASUS: KELURAHAN 27 ILIR)

Hana Rafifahdina, Naila Amanda Syahda

Program Studi D-III, Jurusan Teknik Sipil, Politeknik Negeri Sriwijaya

Permasalahan genangan dan banjir di kawasan perkotaan umumnya disebabkan oleh menurunnya kapasitas saluran drainase akibat sedimentasi, penyumbatan sampah, serta perubahan dimensi penampang saluran. Kondisi tersebut menyebabkan penurunan fungsi saluran sehingga aliran air tidak dapat mengalir secara optimal. Salah satu lokasi yang mengalami permasalahan tersebut adalah Anak Sungai Sekanak di Kelurahan 27 Ilir, Kota Palembang. Penelitian ini bertujuan untuk menganalisis kapasitas saluran eksisting terhadap debit rencana, menentukan tingkat degradasi fungsi saluran akibat penyumbatan, serta merumuskan rekomendasi teknis untuk meningkatkan kinerja saluran. Metode penelitian dilakukan melalui pengumpulan data primer berupa pengukuran dimensi saluran, kemiringan dasar, dan kondisi eksisting di lapangan, serta data sekunder berupa data curah hujan dan data kependudukan. Analisis meliputi penentuan curah hujan rencana, intensitas hujan, waktu konsentrasi, debit limpasan dengan Metode Rasional, debit limbah domestik, debit kumulatif, serta evaluasi kapasitas saluran menggunakan Persamaan Manning. Selanjutnya dilakukan perbandingan antara kondisi eksisting dan kondisi desain berdasarkan parameter luas penampang, debit, kecepatan aliran, dan kemiringan dasar saluran untuk menentukan tingkat degradasi fungsi saluran. Hasil penelitian menunjukkan bahwa **56%** titik tinjau mengalami kegagalan fungsi akibat kapasitas saluran yang tidak mampu mengalirkan debit rencana, dengan kinerja debit tertinggi mencapai **247,23%** pada saluran T3–T5. Tingkat degradasi terbesar terjadi pada parameter kemiringan dasar dan kecepatan aliran sebesar **69%**, diikuti degradasi luas penampang sebesar **37%** akibat sedimentasi dan penyumbatan yang menyebabkan penyempitan penampang saluran. Kondisi tersebut mengakibatkan penurunan kapasitas pengaliran dan meningkatkan potensi genangan di kawasan penelitian. Oleh karena itu, upaya penanganan difokuskan pada pemeliharaan intensif melalui pengerukan sedimen secara berkala, pembersihan sampah dan vegetasi, perbaikan lokal pada bagian saluran yang rusak, serta penerapan upaya nonstruktural berupa edukasi masyarakat dan pembangunan sumur resapan untuk mengurangi limpasan permukaan. Penerapan rekomendasi tersebut diharapkan mampu meningkatkan fungsi saluran dan mengurangi risiko genangan secara berkelanjutan.

Kata Kunci: degradasi fungsi saluran, drainase, hidrologi, debit limpasan, kapasitas saluran, Anak Sungai Sekanak.

ABSTRACT

ANALYSIS OF CHANNEL FUNCTION DEGRADATION CAUSED BY BLOCKAGE IN THE SEKANAK TRIBUTARY (CASE STUDY: 27 ILIR SUBDISTRICT)

Hana Rafifahdina, Naila Amanda Syahda

Diploma Degree, Civil Engineering Department, State Polytechnic of Sriwijaya

*Urban inundation and flooding are generally caused by the reduced capacity of drainage channels due to sedimentation, waste accumulation, and changes in channel cross-sectional dimensions. These conditions reduce channel performance, preventing water from flowing efficiently. One of the areas experiencing these problems is the Sekanak Tributary in 27 Ilir Subdistrict, Palembang City. This study aims to analyze the capacity of the existing channel compared with the design discharge, determine the level of channel function degradation caused by blockages, and formulate technical recommendations to improve channel performance. The research method involved collecting primary data through field measurements of channel dimensions, bed slope, and existing channel conditions, as well as secondary data consisting of rainfall and population data. The analysis included the determination of design rainfall, rainfall intensity, time of concentration, runoff discharge using the Rational Method, domestic wastewater discharge, cumulative discharge, and channel capacity evaluation using Manning's equation. The existing and design conditions were then compared based on cross-sectional area, discharge, flow velocity, and channel bed slope to determine the level of channel function degradation. The results indicate that **56%** of the observed channel sections experienced functional failure because the existing channels were unable to convey the required design discharge, with the highest discharge performance reaching **247.23%** at channel section T3–T5. The highest level of degradation occurred in the bed slope and flow velocity parameters, each reaching **69%**, followed by **37%** degradation in the cross-sectional area due to sedimentation and blockages that significantly reduced the effective flow area. These conditions decreased the flow capacity and increased the risk of inundation within the study area. Therefore, the recommended mitigation measures focus on intensive maintenance through periodic sediment dredging, routine removal of waste and vegetation, localized repair of damaged channel sections, and non-structural measures such as public awareness programs and the construction of infiltration wells to reduce surface runoff. The implementation of these recommendations is expected to improve channel performance, reduce flood risk, and support sustainable urban drainage management.*

Keywords: *channel function degradation, drainage, hydrology, runoff discharge, channel capacity, Sekanak Tributary.*