Rekayasa Pengendalian Banjir Pada Ruas Bekas Sungai Di Sebagian Kecamatan Tawangsari Dan Kecamatan Sukoharjo, Kabupaten Sukoharjo, Provinsi Jawa Tengah

Oleh :
Agra Kurnia Saputra
114150042

INTISARI

Kecamatan Tawangsari dan Kecamatan Sukoharjo, Kabupaten Sukoharjo, Provinsi Jawa Tengah merupakan wilayah yang dilalui proyek pelurusan Sungai Bengawan Solo. Setelah dilakukan pelurusan Sungai Bengawan Solo timbul masalah baru, yaitu munculnya beberapa ruas bekas sungai. Pada awal tahun 2006 terjadi bencana banjir di sekitar ruas bekas sungai akibat masuknya aliran dari Sungai Bengawan Solo melalui ruas bekas sungai sehingga menggenangi permukiman dan lahan pertanian. Berdasarkan hal tersebut, ruas bekas sungai belum dikelola dengan baik sehingga menimbulkan masalah lingkungan. Penelitian ini bertujuan untuk mengetahui kerawanan banjir dan pemanfaatan ruas bekas sungai sebagai rekayasa pengendalian bencana banjir di lokasi penelitian.

Metode yang digunakan dalam pengumpulan data adalah metode survei dan pemetaan lapangan. Pemetaan dilakukan terhadap beberapa parameter kerawanan yaitu kemiringan lereng, bentuklahan, jenis tanah, satuan batuan, kapasitas infiltrasi, dan penggunaan lahan. Parameter lain yang digunakan diantaranya curah hujan dan jarak wilayah dengan sungai (*buffer*). Zonasi kerawanan banjir didapatkan dengan metode skoring dan pembobotan berdasarkan parameter tersebut. Penentuan rekayasa banjir dilakukan dengan analisis hidrologi menggunakan Metode Gumbel, Metode Mononobe, dan Metode Rasional. Analisis lain yang digunakan untuk menentukan skenario banjir dalam penelitian ini adalah analisis berdasarkan ketinggian banjir tertinggi (*High Water Level*). Metode wawancara dilakukan untuk mengetahui informasi sejarah banjir.

Hasil penelitian menunjukkan di daerah penelitian terdiri dari 3 zona kerawanan banjir yaitu kerawanan rendah sebesar 66,7%, kerawanan sedang sebesar 27,75%, dan kerawanan tinggi sebesar 5,55% dari total luas daerah penelitian. Arahan pengelolaan dilakukan pada daerah dengan tingkat kerawanan tinggi melalui pendekatan teknologi berupa pembuatan embung di bagian utara dan kolam detensi di bagian selatan yang saling terhubung dengan saluran drainase dengan dilengkapi pintu air. Arahan pengelolaan tersebut disesuaikan dengan analisis hidrologi dalam kondisi *existing* dan debit rencana periode 25 tahun. Pendekatan sosial ekonomi budaya berupa pemberdayaan masyarakat, dan pendekatan institusi berupa pengadaan pengelolaan ruas bekas sungai.

Kata Kunci: Kerawanan Banjir, Analisis Hidrologi, Embung, Kolam Detensi

Flood Control Engineering in the Former River Section in Part of Tawangsari Subdistrict and Sukoharjo Subdistrict, Regency of Sukoharjo, Central Java Province

ABSTRACT

Tawangsari Subdistrict and Sukoharjo Subdistrict, Regency of Sukoharjo, Central Java Province are areas that have passed the Bengawan Solo River straightening project. After straightening the Bengawan Solo River have a new problem arose, namely the emergence of several former river segments which until now have not been managed. *At the beginning of 2006 there was a flood around the former river section due to the influx of flow from the Bengawan Solo River by the former river section, so that it inundated the settlements and farmland of the residents. Based on this, the former river segment has not been well managed and has caused environmental problems. The purpose of this research are to determine the vulnerability of flood and utilization of former river sections as engineering for flood disaster control at the study site.*

The methodology used in this research are survey method and field mapping. Mapping method based on the parameters like slope, landform, soil type, rock unit, infiltration capacity, and land use. Other parameters used include rainfall and the distance of the buffer zone. Zonation level prone to flood by using scoring and weighting method based on these parameters. Determination of flood engineering was carried out by hydrological analysis using the Gumbel Method, Mononobe Method, and Rational Method. Another analysis used to determine the flood scenario in this study was the analysis of the highest flood height (High Water Level). The interview method was conducted to find out historical flood information.

The research area has three flood vulnerability zones, namely low vulnerability with 66,7%, moderate vulnerability with 27,75%, and high vulnerability level with 5,55% of the study area. Management directives are carried out in areas with a high level of vulnerability through a technological approach in the form of making embung in the north and detention ponds in the south that are interconnected with drainage channels with sluice gates. The management directives are adjusted to the hydrological analysis in the existing conditions and discharge design with 25 year period. Cultural social and economic approach in the form of community empowerment, and institutional approach in the form of procurement of management of former river sections.

Keywords: Flood Hazard, Hydrological Analysis, Embung, Detention Pool