Studi Banjir di Kota Pontianak Menggunakan Metode Pembobotan dan Metode *Normalized Difference Water Index*

Abstrak

Dewasa ini, banjir merupakan salah satu bencana yang kerap terjadi di wilayah perkotaan terutama di Kota Pontianak. Bencana ini terjadi karena aspek dari elemen meteorologi, karakteristik fisik wilayah aliran sungai, serta aspek manusia. Untuk menghadapi hal tersebut, penyebaran informasi terkait wilayah mana saja yang rawan akan banjir beserta tingkat kerawanannya di Kota Pontianak sangat dibutuhkan. Lewat pemanfaatan perkembangan aplikasi Sistem Informasi Geografis (SIG), pemetaan daerah yang mempunyai tingkatan kerawanan banjir bisa dianalisis dan berguna sebagai penanggulangan dini. Analisis ini memanfaatkan metode pembobotan terhadap beberapa parameter banjir antara lain curah hujan, kelerengan, ketinggian, jenis tanah, penggunaan lahan, dan *buffer* sungai. Selain itu, metode penginderaan jauh juga bisa berfungsi untuk mengetahui luasan genangan banjir di suatu wilayah berdasarkan nilai indeks kebasahan yang disebut dengan *Normalized Difference Water Index* (NDWI). Hasil pengolahan menunjukkan tingkat kerawanan banjir di Kota Pontianak terbagi menjadi 3 kelas yaitu agak rawan seluas 0,012 km^2 (0,010%), rawan seluas 105,208 km^2 (94,197%), dan sangat rawan seluas 6,470 km^2 (5,793%) dari luas Kota Pontianak dengan mayoritas daerah pada tiap kelas berada di Kecamatan Pontianak Utara. Hasil analisis NDWI diketahui luas genangan banjir yang dimiliki Kota Pontianak sebesar 8,46 km^2 atau 7,575% dari luas Kota Pontianak. Sebesar 7,752 km^2 (91,633%) dari luas genangan banjir tersebut berkelas rawan dan 0,708 km^2 (8,367%)-nya berkelas sangat rawan.

Kata kunci: Pembobotan, Peta Kerawanan banjir, NDWI, Genangan banjir.

Flood Study in Pontianak City Using the Weighting Method and the Normalized Difference Water Index Method

Abstract

Today, floods are one of the disasters that often occur in urban areas, especially in Pontianak City. This disaster occurred as a result of meteorological factors, physical characteristics of the watershed, and human factors. To deal with this, the dissemination of information regarding which areas are prone to flooding and their level of vulnerability in Pontianak City is urgently needed. By utilizing the development of Geographic Information System (GIS) applications, the mapping of areas that have a level of flood vulnerability can be analyzed and used as an early response. This analysis utilizes a weighting method for several flood parameters, including rainfall, slope, altitude, soil type, land use, and river buffer. In addition, remote sensing methods can also function to determine the extent of flood inundation in an area based on a wettability index value called the Normalized Difference Water Index (NDWI). The processing results show that the level of flood vulnerability in Pontianak City is divided into 3 classes, namely moderately prone areas of 0,012 km^2 (0,010%), prone areas of 105,208 km^2 (94,197%), and very vulnerable areas of 6,470 km^2 (5,793%), with the majority of areas in each class being in the North Pontianak District. The results of the NDWI analysis show that the flood inundation area owned by Pontianak City is 8,46 km^2, or 7,575% of the total area of Pontianak City. As much as 7,752 km^2 (91,633%) of the flood inundation area is classified as vulnerable and 0,708 km^2 (8,367%) is classified as very vulnerable.

Keywords: Weighting, Map of Flood Vulnerability, NDWI, Flood Inundation.