ABSTRAK

PERBANDINGAN INDEKS VEGETASI NDVI, EVI, DAN SAVI UNTUK PEMANTAUAN VEGETASI MENGGUNAKAN CITRA SATELIT DI KOTA BANDAR LAMPUNG

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Perkembangan wilayah perkotaan di Bandar Lampung yang semakin pesat menyebabkan berkurangnya tutupan vegetasi akibat alih fungsi lahan menjadi kawasan terbangun. Kondisi ini berdampak pada menurunnya kualitas lingkungan perkotaan sehingga diperlukan pemantauan vegetasi yang efektif melalui teknologi penginderaan jauh. Penelitian ini bertujuan mengidentifikasi sebaran vegetasi menggunakan indeks NDVI, EVI, dan SAVI serta membandingkan tingkat akurasi masing-masing indeks dalam merepresentasikan kondisi vegetasi perkotaan.

Data yang digunakan berupa citra Landsat 8 tahun 2025 dengan resolusi spasial 30 meter dan data batas administrasi Kota Bandar Lampung. Pengolahan data dilakukan menggunakan *Google Earth Engine* dan perangkat lunak GIS melalui tahapan pra pengolahan citra, penghapusan awan, pemotongan area penelitian, perhitungan indeks vegetasi dan klasifikasi kerapatan vegetasi. Uji akurasi dilakukan menggunakan 150 titik sampel dengan metode *confusion matrix*, *Overall Accuracy*, dan indeks Kappa.

Hasil tugas akhir menunjukkan bahwa ketiga indeks memiliki pola sebaran vegetasi yang relatif sama, dengan vegetasi rendah terkonsentrasi di pusat kota dan vegetasi tinggi berada di wilayah pinggiran bagian barat dan utara. NDVI menghasilkan luas vegetasi tinggi terbesar sebesar 6.825,27 ha, diikuti EVI 6.054,74 ha dan SAVI 5.852,33 ha. Hasil uji akurasi menunjukkan EVI memiliki performa terbaik dengan *Overall Accuracy* 94% dan Kappa 0,91, diikuti SAVI sebesar 91% dan Kappa 0,87, sedangkan NDVI memperoleh akurasi 89% dan Kappa 0,83. Dengan demikian, EVI dinilai paling representatif untuk pemantauan vegetasi perkotaan.

Kata Kunci : NDVI, EVI, SAVI, Kerapatan Vegetasi, Landsat 8.

ABSTRACT

COMPARISON OF NDVI, EVI, AND SAVI VEGETATION INDICES FOR VEGETATION MONITORING USING SATELLITE IMAGERY IN BANDAR LAMPUNG CITY

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The rapid urban development in Bandar Lampung has led to a decrease in vegetation cover due to land-use conversion into built-up areas. This condition has degraded the quality of the urban environment, necessitating effective vegetation monitoring using remote sensing technology. This study aims to identify the spatial distribution of vegetation using NDVI, EVI, and SAVI indices, and to compare the accuracy levels of each index in representing urban vegetation conditions. The data used in this study include a 2025 Landsat 8 imagery with a spatial resolution of 30 meters and the administrative boundary data of Bandar Lampung City. Data processing was conducted using Google Earth Engine and GIS software through several stages: image pre-processing, cloud masking, clipping of the study area, calculation of vegetation indices, and classification of vegetation density. The accuracy assessment was performed utilizing 150 sample points through the confusion matrix, Overall Accuracy, and Kappa index methods. The final project results show that all three indices exhibit relatively similar vegetation distribution patterns, where low-density vegetation is concentrated in the city center and high-density vegetation is located in the western and northern peripheral areas. NDVI yielded the largest high-density vegetation area at 6.825,27 ha, followed by EVI at 6.054,74 ha and SAVI at 5.852,33 ha. The accuracy assessment indicates that EVI achieved the best performance with an Overall Accuracy of 94% and a Kappa coefficient of 0.91, followed by SAVI at 91% and a Kappa of 0.87, while NDVI obtained an accuracy of 89% and a Kappa of 0.83. Consequently, EVI is considered the most representative index for urban vegetation monitoring.

Keywords: NDVI, EVI, SAVI, Vegetation Density, Landsat 8.