

POTENSI SIMPANAN KARBON TUTUPAN LAHAN DI HUTAN MANGROVE BAGEK KEMBAR, DESA CENDI MANIK, SEKOTONG, LOMBOK BARAT

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INTISARI

Peningkatan emisi gas rumah kaca akibat aktivitas manusia mendorong upaya mitigasi perubahan iklim, salah satunya melalui sektor *Forestry and Other Land Use* (FOLU). Ekosistem mangrove memiliki peran vital karena kapasitas penyerapan karbonnya yang tinggi. Hutan Mangrove Bagek Kembar, sebagai kawasan rehabilitasi mangrove di Lombok Barat, memiliki potensi simpanan karbon yang dipengaruhi oleh perbedaan tutupan lahan sehingga perlu dikaji. Penelitian ini bertujuan untuk menentukan klasifikasi kelas kerapatan vegetasi, menganalisis simpanan karbon pada setiap tutupan lahan, dan membandingkan simpanan karbon antara tutupan lahan yang ada di lokasi tersebut.

Penelitian ini menggunakan metode survei lapangan di Mangrove Bagek Kembar dengan teknik *stratified systematic sampling* pada 63 plot ukur berbentuk lingkaran (0,045 ha). Metode klasifikasi tutupan lahan dilakukan dengan mempelajari peta citra dan pengecekan lapangan dan kerapatan vegetasi menggunakan *Normalized Difference Vegetation Index* (NDVI) dari citra satelit. Pendugaan biomassa vegetasi dilakukan secara *non-destructive* menggunakan persamaan alometrik. Nilai simpanan karbon diestimasi sebesar 47% dari total biomassa yang diperoleh.

Hasil penelitian menunjukkan terdapat tiga kelas tutupan lahan yang teridentifikasi, yaitu mangrove alami, mangrove rehabilitasi, dan tambak. Klasifikasi kerapatan vegetasi di Mangrove Bagek Kembar secara keseluruhan terbagi menjadi kelas rapat (36%), nonvegetasi (25%), jarang (23%), dan sedang (16%). Total rata-rata simpanan karbon terestimasi adalah 19,75 ton C/ha, yang tergolong kategori rendah. Hutan mangrove alami menyimpan karbon tertinggi (14,22 ton C/ha), secara signifikan lebih besar dibandingkan mangrove rehabilitasi (3,26 ton C/ha) dan tambak (2,26 ton C/ha), yang menegaskan perbedaan besar potensi karbon antara ekosistem alami yang mapan dan area yang sedang dipulihkan.

Kata Kunci: Biomassa, Kerapatan Vegetasi, Alometrik, Mangrove Rehabilitasi, Indeks Vegetasi

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CARBON STORAGE POTENTIAL OF LAND COVER IN THE BAGEK KEMBAR MANGROVES, CENDI MANIK VILLAGE, SEKOTONG, WEST LOMBOK

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ABSTRACT

Rising greenhouse gas emissions from human activities necessitate climate change mitigation efforts, particularly through the Forestry and Other Land Use (FOLU) sector. Mangrove ecosystems play a vital role due to their high carbon sequestration capacity. The Bagek Kembar Mangroves in West Lombok, a mangrove rehabilitation site, possesses carbon storage potential influenced by varying land covers, warranting investigation. This study aims to classify vegetation density, analyze carbon storage across all land covers, and compare the carbon storage among the different land covers present at the location.

This study used a field survey method in Bagek Kembar Mangroves with stratified systematic sampling techniques on 63 circular plots (0.045 ha). Land cover classification was carried out by studying image maps and field checks and vegetation density using the Normalized Difference Vegetation Index (NDVI) from satellite images. Vegetation biomass estimation was carried out non-destructively using allometric equations. Carbon storage values were estimated at 47% of the total biomass obtained.

The results of the study show that there are three classes of land cover identified namely natural mangrove, rehabilitated mangrove, and ponds. Overall vegetation density in Bagek Kembar Mangroves was classified as dense (36%), non-vegetation (25%), sparse (23%), and moderate (16%). The total estimated average carbon storage was 19,75 tons C/ha, which is categorized as low. Natural mangrove stored the highest carbon (14,22 tons C/ha), significantly exceeding both rehabilitated mangrove (3,26 tons C/ha) and ponds (2.26 tons C/ha). This highlights the substantial difference in carbon potential between established natural ecosystems and areas undergoing restoration.

Keyword: Biomass, Vegetation Density, Allometric, Rehabilitated Mangrove, Vegetation Index

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