

عنوان مقاله:

Land use changes, green house gas emissions, and rehabilitation model of native tree species towards sustainable management

محل انتشار:

فصلنامه جهانی علوم و مدیریت محیط زیست, دوره 10, شماره 4 (سال: 1403)

تعداد صفحات اصل مقاله: 24

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خلاصه مقاله:

BACKGROUND AND OBJECTIVES: Tropical peatlands play a crucial role in the global ecosystem. These distinctive ecosystems are frequently regarded as peripheral areas that are not suitable for agricultural purposes. Peatlands serve as efficient carbon storage systems in a consistent climate, however, they are vulnerable to alterations. This study focuses on analyzing the dynamic of peatland use land cover changes, its driver and impact on green house gas emission, and rehabilitating degraded peatlands in Jambi province, Indonesia, specifically in the Bram Itam and Londerang peat forest reserves. This study was depicted into ۳ objectives consisted of ۱) Utilize spatial analysis to examine the dynamics of peatland use change and the trajectory of peatland use, as well as to identify the drivers behind these changes; ۲) describe the effects of altering peatland utilization; and ۳) describe seedling performance planted on the peatland forest of Jambi province, as Tanjung Jabung Barat and Tanjung Jabung Timur. **METHODS:** Land-use and land-cover change analysis was carried out utilizing various map resources. Cellular Automata-Markov is employed to forecast forthcoming land cover alterations by evaluating the likelihood of land cover transitions throughout a given period. Planting trials using native peatland tree species were conducted at ۲ locations with ۲ different rehabilitation models following social typology of the sites. **FINDINGS:** Key findings indicate that peatland conversion to non forest use

significantly increases greenhouse gas emissions, while rehabilitation with native tree species shows promising results in carbon sequestration. Peatland use land cover alteration in anthropogenically disturbed peat areas significantly contributes to emissions through peat decomposition and fires. Biophysical analysis reveals variations in peat depth, water table levels, and precipitation between these sites. The two locations exhibit notable disparities in terms of peat soil attributes, such as potential of hydrogen, nutrient composition, and exchangeable cations. This study examines the growth performance of several native tree species that were planted on degraded peatlands. Native peatland tree species like Shorea balangeran, Ilex cymosa, and Fagraea crenulata show promising survival and growth rates. Areca nut (Areca catechu), a non native peatland species, was planted for non-timber forest product purposes. This study delivers significant insights for policymakers looking to strike a balance between economic priorities and environmental ... conservation.CONCLUSION: L

کلمات کلیدی:

Growth performance, Native tree species, Paludiculture, Peatland management, Peatland use and cover change

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