

Land Use and Land Cover Change In Manokwari, West Papua Province

Francina F. Kesaulija^{1,3,*} Marlon I. Aipasa² Sumaryono² Ali Suhardiman²

¹ Student of the Doctoral Program at the Faculty of Forestry, Mulawarman University, Jl. Penajam PO BOX 1013, Samarinda, East Kalimantan, Indonesia

² Faculty of Forestry, Mulawarman University, Jl. Penajam PO BOX 1013, Samarinda, East Kalimantan, Indonesia 75116

³ Faculty of Forestry, Papua University, Jl. Gunung Salju Amban, Manokwari, West Papua, Indonesia 98314

*Corresponding author. Email: f.kesaulija@unipa.ac.id

Abstract

Land cover or land use change modeling is important for decision-makers in optimum land management and planning. The increasing number of residents and the pattern of regional spatial use have resulted in an increase in the need for land both for development and agricultural land. So that the clearing of forest areas that are carried out continuously will have an impact on deforestation and forest degradation. This research was conducted in Manokwari, West Papua Province. The purpose of this study was to determine the extent of forest land change due to planned and unplanned deforestation and forest degradation in Manokwari Regency as a development activity through land cover dynamics using satellite imagery data. Three satellite images, dating from 2006, 2013, and 2017, were used as main data for land cover classification based on a supervised classification approach. This study used a descriptive method with an analysis of land cover changes using an overlay technique to determine the deforested and degraded areas. Ground check uses the Purposive method for as many as 30 sample points. The results showed the change in land cover that occurred during the period 2006-2017 is dominated by reducing of forested land and becoming settlement and plantation area. The total area of deforestation for the last 10 years is 23,633.01 ha, where the deforestation area from planned deforestation was 11,490.88 ha (48,62%) and unplanned deforestation was 12,142.13 ha (51,38%). Meanwhile, the total area of degradation for the last 10 years is 21,799.93 ha. From the area of deforestation, planned deforestation was 211,32 ha (0,97%) and unplanned deforestation was 21,588,62 ha (99,03%). The integration spatial modeling can be used to construct a spatial prediction of land cover change in 2017-2025 in Manokwari. The land use prediction in 2025 was a reduction of the dry land forested area by about 9,1% while plantation and settlement were increased by about 4,5% and 2,0% respectively.

Key Word : Deforestation and forest degradation, Land cover, Manokwari