Pemetaan Distribusi Biomassa Hutan dan Kaitannya dengan Suhu dan Intensitas Cahaya Melalui Pendekatan Sistem Informasi Geografi

The Mapping of Forest Biomass Distribution and Its Relation with Air Temperature and Light Intensity through Geographical Information System Approach

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Abstract

Information on vegetation distribution and contents of biomass in sequestering carbon is very important in relation to support Clean Development Mechanism (CDM) and Reducing Emissions from Deforestation and forest Degradation (REDD) project through carbon trade, and other purposes. A research to study forest biomass distribution by using Geographical Information System (GIS) has been conducted at forest area of Faculty of Agriculture, Pattimura University, Ambon. The aim of this research was to know distribution of vegetation, forest biomass, air temperature, light intensity, and to arrange the database of vegetation and its biomass contents, air temperature and light intensity through GIS approach. The database can be used to support CDM or REDD project and efficiency of energy consumption for building with surrounding vegetation area. The result showed that biomass distribution at the forest area 0.85 ha can be classified at three classes i.e. high biomass 0.39 ha (46%), middle biomass 0.31 ha (37%), and low biomass 0.15 ha (17%). By using GIS, this forest biomass distribution has been presented on the map of biomass distribution including map of vegetation, air temperature, light intensity distribution and its non spatial data.

Key words: biomass distribution, carbon stock, allometric equation, spatial analysis

Abstrak

Informasi mengenai distribusi vegetasi dan kandungan biomassa dalam penyerapan karbon sangat penting dalam mendukung proyek *Clean Development Mechanism* (CDM), *Reducing Emissions from Deforestation and forest Degradation* (REDD) melalui perdagangan karbon dan tujuan lainnya. Studi mengenai distribusi biomassa hutan dengan Sistem Informasi Geografi (SIG) telah dilaksanakan pada areal hutan Fakultas Pertanian, Universitas Pattimura Ambon. Tujuan penelitian adalah mengetahui distribusi vegetasi, biomassa hutan, suhu udara, dan intensitas cahaya matahari serta menyusun pangkalan data vegetasi hutan berikut kandungan biomassanya serta suhu udara dan intensitas cahaya matahari melalui pendekatan SIG. Tesedianya pangkalan data dimaksud akan bermanfaat dalam mendukung proyek CDM atau REDD dan efisiensi penggunaan energi berbagai gedung yang dikelilingi dengan vegetasi. Hasil studi menunjukkan bahwa distribusi biomassa pada areal hutan seluas 0,85 ha telah berhasil diklasifikasikan kedalam 3 (tiga) kelas yaitu sebaran biomasa tinggi 0,39 ha (46%), sedang 0,31 ha (37%), dan rendah 0,15 ha (17%). Melalui penggunaan SIG, distribusi biomassa hutan tersebut telah dapat disajikan dalam peta distribusi biomassa, termasuk peta distribusi vegetasi, suhu udara, intensitas penyinaran matahari dan data non spasialnya.

Kata kunci: distribusi biomassa, kandungan karbon, persamaan allometrik, analisis spasial