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Research Paper

Secondary Succession of Vegetation in the Former Coal Mine Area PT. Bukit Asam Tbk

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Abstract
Open-pit mining activities cause environmental degradation such as decreased soil fertility and degradation of plantation. After mining activities are completed, land improvements will be carried out through post-mining reclamation. Low pH conditions, high metal concentrations and low organic matter are the main problems in post-mining activities reclamation land. Reclamation activities carried out by PT. Bukit Asam, Tbk runs continuously from time to time. Mining land that is no longer used for mining activities must immediately carry out land reclamation activities to preserve the environment and maintain ecosystem stability in coal mining areas. The reclamation efforts that have been carried out require vegetation analysis to determine the vegetation growing on the reclaimed land of various ages. This research aims to analyze vegetation using the transect method in reclamation areas aged 1 year, 3 years, 5 years, and natural land as a control. The research results show that all reclaimed land is ultisol soil which is acidic (pH 3.52 – 4.50), and the older the reclaimed land can increase the C-Organic, C-Total and C/N of the soil. The condition of land that is 5 years old also has lower soil temperatures and greater humidity than land that is younger. The Importance Value Index (INP) of seedlings, saplings, poles and trees on reclaimed land at 1 year old is smaller than at 5 years old. The common vegetation found on all reclaimed land of different ages is seedlings (*Mimosa pudica*), saplings (*Malaleuca cajuputi*), poles and trees (*Malaleuca cajuputi, Acacia mangium*).

Keywords
Vegetation Analysis, Succession Pattern, Reclamation

1. INTRODUCTION

The existence of the mining sector in Indonesia is a very important sector in improving the nation's economy. Many countries need the support of mining resources to maintain and improve prosperity. Mineral resources are a unit of geological order as part of the ecosystem (Eddy et al., 2010). South Sumatra is an area with very high mining activities. Many forests are encroached on and used as mining land because there are so many minerals contained in the earth. According to Hilwan et al. (2013), mineral and coal mining lands can be in jungle areas or other use areas (APL). The status of this area will determine the main purpose of land use for reclamation of ex-mining land: reforestation, planting plantation crops, planting food crops, becoming a livestock or fishing area, ecotourism location, wetland, etc.

Every coal mining company has an obligation to carry out reclamation of ex-mining areas and surrounding areas that are disturbed as a result of mining activity. The reclaimed area is carried out by arranging the overburden pile and then sowing topsoil. This area must immediately be given a layer of soil cover such as mulch and planting of ground cover vegetation to reduce the dispersion of rain on the soil surface. The results of reclamation are expected to have an impact on an ecosystem such as regulating the balance of carbon dioxide and oxygen in the air, improving soil properties, regulating water management and so on (Patiung et al., 2011).

Apart from that, it also affects the balance of the land surface ecosystem, reducing soil productivity and environmental quality. Also, the land surface becomes irregular, the soil fertility is low and prone to erosion so that the soil's carrying capacity for plants is low (Thoreau, 2014). PT. Bukit Asam is a coal mining company that has been around for quite a long time and has carried out many reclamation activities well in accordance with guidelines from the Ministry of Energy and Mineral Resources and the Ministry of Forestry. Therefore, this company realizes that it is very important to do so revegetation or land reclamation process after mining activities. This is important to do to maintain sustainability and minimize environmental damage (PTBA, 2021). Reclamation activities continue to be carried out by PT. Bukit Asam, Tbk runs continuously from time to time. Mining land that is no longer used for mining activities will immediately carry out land reclamation activities to

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[josaet] Editor Decision

2 pesan

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Dear Ariyono Suyono Supomo Asnawi, Prof. Dr. Yuanita Windusari, S.Si., M.Si, Dr. Ir. M. Umar Harun, M.S.:

We have reached a decision regarding your submission to Journal of Smart Agriculture and Environmental Technology, "Secondary Succession of Vegetation in the Former Coal Mine Area PT. Bukit Asam Tbk".

Our decision is to: Accept Submission

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Dear Ariyono Suyono Supomo Asnawi, Prof. Dr. Yuanita Windusari, S.Si., M.Si, Dr. Ir. M. Umar Harun, M.S.:

The editing of your submission, "Secondary Succession of Vegetation in the Former Coal Mine Area PT. Bukit Asam Tbk," is complete. We are now sending it to production.

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