

PEATLAND DISASTER RISK REDUCTION BASED ON ECOSYSTEM MANAGEMENT IN PALANGKARAYA CENTRAL KALIMANTAN OF INDONESIA

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ABSTRACT

Peatland fire and drought which happened annually have become serious ecosystem disaster in Indonesia; especially in the Central Kalimantan. A model of peatland ecosystem management to decrease disaster risk is being developed in a 3.5 hectares plot in Kalampangan Village, Palangkaraya District, since 2016. The research consisted of estimation of carbon stock in the post-fire forest, natural forest and farming area; the post-fire peatland management by agronomic, agroforestry and conservation methods; and a simple methods of peat water treatment. Result of the first research are trees and litter total biomass (170.5 and 7 ton ha⁻¹), trees and litter carbon stock (64.3 and 3.1 ha⁻¹) in the natural forest much more higher than that of in the post-fire forest and in the farming area. Dissolved organic carbon through the water and soil respiration from soil ecosystem were also observed; physical and chemical characteristic of plot indicated peat thickness (2.7-4 m), pH (4.4 pH) and water table (35-46 cm). Some species of vegetable, food crops, forestry and conservation plants were tested in this plot; A simple methods of peat water treatment by manual and mechanical mixing were able to improve water quality to meet clean water standard.

Keywords: ecosystem management, disaster risk reduction, peatland, carbon and water.