LAND-USE AND LAND COVER CHANGE (LUCC) IMPACTS ON CARBON STOCK AND GREENHOUSE GAS EMISSION[1]

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Abstract

LUCC of Pasir Mayang, Jambi Province, Indonesia during 1993 - 1995 periods was analyzed based on Landsat/TM data. The LUCC data were combined with field survey data of aboveground carbon stock and soil surface emission of greenhouse gases (N_2O, CH_4 and CO_2). It showed that there was a reduction of aboveground carbon stock and methane absorption. Meanwhile, there was an increase emission of carbon dioxide ($CO_{2)}$ and Nitrous oxide (N_2O).

I. INTRODUCTION

Forest play an important role in the global carbon cycle, since they hold most terrestrial carbon. Deforestation, conversion of forested land into non-forested land, will cause significant impact on the increase of atmospheric carbon. Today the global release carbon is estimated at from 0.6 to 2,6 billion ton per year (Holdgate, 1995). In addition, deforestation also results in emission of greenhouse gases, such as carbon dioxide, nitrous oxide and methane. However, there is considerably uncertainty in the figures, since limited information on its mechanism and measurement, especially in tropical areas.

Emission of greenhouse gases from deforestation might be come from biomass burning (slash and burn agricultural practices) or from the results of soil microorganism activities. Estimation of greenhouse gases release from biomass

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