

Rapid Assessment the Ability of Forest Vegetation in Kulonprogo to Store Carbon Using Multispectral Satellite Imagery and Vegetation Index

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Abstract : Development of industrial and economic sectors in various countries very rapidly caused raising the greenhouse gas (GHG) emissions. Greenhouse gases are dominated by carbon dioxide (CO₂) and methane (CH₄) in the atmosphere that make the surface temperature of the earth always increase. The increasing gases caused by incomplete combustion of fossil fuels such as petroleum and coals and also high rate of deforestation. Yogyakarta Special Province which every year always become tourist destination, has a great potency in increasing of greenhouse gas emissions mainly from the incomplete combustion. One of effort to reduce the concentration of gases in the atmosphere is keeping and empowering the existing forests in the Province of Yogyakarta, especially forest in Kulonprogo is to be maintained the greenness so that it can absorb and store carbon maximally. Remote sensing technology can be used to determine the ability of forests to absorb carbon and it is connected to the density of vegetation. The purpose of this study is to determine the density of the biomass of forest vegetation and determine the ability of forests to store carbon through Photo-interpretation and Geographic Information System approach. Remote sensing imagery that used in this study is LANDSAT 8 OLI year 2015 recording. LANDSAT 8 OLI imagery has 30 meters spatial resolution for multispectral bands and it can give general overview the condition of the carbon stored from every density of existing vegetation. The method is the transformation of vegetation index combined with allometric calculation of field data then doing regression analysis. The results are model maps of density and capability level of forest vegetation in Kulonprogo, Yogyakarta in storing carbon.

Keywords : remote sensing, carbon, kulonprogo, forest vegetation, vegetation index

Conference Title : ICCEEST 2016 : International Conference on Chemical, Ecological, Environmental Science and Technology

Conference Location : Singapore, Singapore

Conference Dates : January 07-08, 2016