**Assessment of Peat Swamp Forest Cover and Carbon Stock Changes of Malaysia using Remote Sensing**

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**ABSTRACT:** Concern over global problems induced by rising CO2 has prompted attention on the role of forest as carbon ‘storage’ because forests store a large amount of carbon in vegetation biomass and soil. Monitoring techniques based on multispectral satellite-acquired data have demonstrated potential as a means to detect, identify, and map changes in forest cover. This study was focuses on the role of remote sensing and geographic information system (GIS) in assessment of changes in forest cover and carbon stock, between 2010 and 2005, in the peat swamp forest of Malaysia. Peat swamp forests are tropical moist forests where waterlogged soils prevent dead leaves and wood from fully decomposing, which over time creates a thick layer of acidic peat. Peat swamp forest constitute a significant component of Malaysia forest cover with an estimated about 1.54 million ha still remaining. The importance of peat swamp forests in relation to maintaining the environmental stability includes flood mitigation, revitalizing the soil and providing a limited source of water during droughts, and as a carbon store and carbon sequestration. Forest’s mapping is very significant for the estimation and evaluation of the forest resources, carbon sequestration, and to support sustainable forest management. Optical satellite remote sensing such as Landsat 8 provides a cost-effective method to obtain current and reliable terrestrial information because of its widespread availability and frequency update. This information is useful to discover the driving forces of the forest changes and can provide policy decision supporting information to the local relevant government in Malaysia. A total of 40 plots have been established in the peat swamp forest using plotless technique for estimating carbon stock through the combination of field inventory and remote sensing data. It was found that the distribution of biomass within the plot is ranging from 96.06 to 213.10 tone/ha. The trend of forest cover changes over the time span of 5 years was precisely analysed in this study. The object oriented classification technique has been applied to remote sensing data to map the distribution of peat swamp forest cover of Malaysia. It was noticed that the peat swamp forest cover has decrease between 2005 and 2010, because of rapid development of oil palm plantation and horticulture. It is envisage that this project would prove the usefulness of remote sensing and geographic information system in forest resource management. The maps produced could serve as a platform for assessing and monitoring forest resources in Malaysia.

**KEYWORD:** Peat Swamp Forest, Remote Sensing, Carbon Stock, Plotless Plot Sampling

Note: Oral Presentation by Mr. Mohd Azahari Faidi