

Carbon stock and sequestration valuation in a mixed dipterocarp forest of Malaysia

ABSTRACT

Forest degradation and deforestation are some of the major global concerns as they can reduce the forest carbon stock and sequestration capacity. However, the carbon stock and sequestration potential in a mixed dipterocarp tropical forest remains unclear due to a lack of information. This study was carried out on the carbon stock and estimated its economic value to justify its conservation. Six plots were established in the Endau Rompin National Park, Johor and subplots measuring 50×20 m were established in each plot. All trees greater than 15 cm DBH (diameter at breast height) were identified and the parameters measured included tree height and diameter. The aboveground carbon (AGC) content was about 222 Mg(C) ha⁻¹, belowground carbon (BGC) was 53 Mg (C) ha⁻¹ and it was 6 Mg (C) ha⁻¹ for other components. In total, the carbon stock amounted to 281 Mg (C) ha⁻¹. On the other hand, the total CO₂ sequestered in the mixed dipterocarp forest amounted to 1,040 t CO₂ ha⁻¹. The carbon value was estimated at RM32,240 t CO₂ ha⁻¹ or \$7,280 t CO₂ ha⁻¹. Therefore, the study found that the dipterocarp forest should be preserved to mitigate greenhouse gas emissions.

Keyword: Carbon sequestration; Conservation; Dipterocarp forest; Forest carbon; Valuation