

ESTIMATION OF TIMBER VOLUME AND CARBON STOCK OF EXISTING KHAYA (*Khaya senegalensis*) PLANTATIONS IN ANURADHAPURA AND KURUNEGALA DISTRICTS

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Khaya (*Khaya senegalensis*) is a fast growing species, newly introduced for timber plantation establishment in the dry and intermediate zones of Sri Lanka in 1994. Hence, *Khaya* has no long history and lacks with proper scientific studies on its growth performances. The present study estimated the timber volume, above ground biomass (ABG) and Carbon stock of diverse age categories of *Khaya* plantations in order to get an insight on potential income generation, through timber and C trading. The research was conducted at, selected *Khaya* plantations, distributed in the Anuradhapura and Kurunegala Districts representing the dry and intermediate zones of Sri Lanka. Data were collected from the random sample plots (10mx12m) representing different age categories. Diameters at breast height and total height of trees were measured. Timber volume, ABG and the C stocks were calculated using allometric equations. The estimates on total C stocks of the existing *Khaya* plantations in Anuradhapura and Kurunegala Districts were done. Variation of timber volume, AGB and C stocks per hectare showed a similar pattern over the age categories in both districts. *Khaya* of age bellow 5 and above 10 years showed greater per hectare timber volume, AGB and C stocks in Kurunegala than in Anuradhapura. Hence, *Khaya* seems to be performing well in Kurunegala than in Anuradhapura. The average per hectare C stock was 31.62 t ha⁻¹ and 67.08 t ha⁻¹ for Anuradhapura and Kurunegala Districts respectively. Existing *Khaya* plantations in the Anuradhapura (741.92 ha) and Kurunegala (475.2 ha) Districts had total C stock of 22864.70 and 20029.25 tonnes, respectively.

Key words: Age categories, Biomass, Carbon stock, *Khaya senegalensis*, Timber volume