
THE CONTRIBUTION OF FOREST PLANTATIONS (TEAK) IN SRI LANKA IN ACTING AS A CARBON SINK TO REDUCE GREENHOUSE GASES IN THE ATMOSPHERE

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Global warming is one of the major environmental issues on earth caused by the anthropogenic activities. This is brought about by the greenhouse effect due to accumulation of greenhouse gases in the earth's atmosphere. Carbon dioxide (CO₂) is the major contributor to the greenhouse effect.

This research project was carried out with two objective viz. to quantify the amount of carbon stored in the teak (*Tectona grandis*) plantations in Sri Lanka and to quantify the amount of carbon sequestered in different ages of the plantation.

The quantification of the carbon stored in the current standing teak plantations in Sri Lanka is based on the Forest Department Inventory Database - The FORDATA. The data were acquired as a sub block mean and were calculated using standard formulae to quantify the divisional value and the country value. Only the merchantable volume of the bole wood had been considered in this study, since that is the portion, which lasts for a long time without releasing its carbon storage to the atmosphere. The data obtained from the FORDATA database was field verified in three (3) major teak growing forest divisions in the country, namely Kurunegala, Puttalam and Anuradhapura.

The amount of carbon dioxide trapped in the state owned teak plantations in Sri Lanka, currently without being emitted to the atmosphere for a long time is 608,62 Gt C and the mean carbon storage of teak plantations (rotation length was taken as 50 years) is 133.66 tC/ha

When the carbon sequestration was calculated by the mean carbon storage in different age classes the results obtained were: age class 1 to 10 years = 1.1 tC/ha/yr, age class 11 to 20 years = 64.7 tC/ha/yr, age class 21 to 30 years = 322.2 tC/ha/yr, age class 31 to 40 years = 466.4 tC/ha/yr, age class 41 to 50 years = 52.2 tC/ha/yr.

According to the data obtained the current storage of carbon in the state owned teak plantations is 1.66×10^5 kt and the teak trees sequester carbon in the growing ages 0 years to 49 years.

In conclusion, teak plantations up to 49 years can be effectively used as sinks for carbon storage