

STUDY ON ESTIMATION OF CARBON STOCKS AND DOCUMENTATION OF TREE SPECIES AT SAU CAMPUS

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Executive Summary

Carbon storage in urban vegetation plays a vital role in mitigating CO₂ concentration in the atmosphere and may ensure long-term stability of stored carbon in fluctuating environments. The study was conducted in Sher-e-Bangla Agricultural University during the period from June 2017 to July 2018 to quantify the current above and below ground carbon stock with tree diversity and documentation of plant species in various vegetation at SAU. The 72 plots were selected purposively due to existence of fewer plantations in SAU campus and divided into seven categories. In SAU campus, Mango was the most predominant tree species with 18.33% followed by Kanthal 8.21%, Mahogany 7.93% Narikel 6.84% and Supari 6.02%. Among the seven categories the highest species diversity was found in Farm land with the value of 2.97 and Woodlot had the lowest mean value of 0.94. Academic area had the highest basal area (33.47 m² ha⁻¹) and Pond side had the lowest value that was 13.82 m² ha⁻¹. The Farm land (1366.66 trees/ha) had the highest density and lowest in Pond side (925 trees/ha). In case of mean Diameter at Breast Height, Roadside had the highest value of 31.36 cm and Residential area had the lowest value of 14.2 cm. Among 72 plots the average carbon stock was found 142.71 Mg ha⁻¹ which ranged from 15.83 Mg ha⁻¹ to 327.83 Mg ha⁻¹. Academic area had the highest mean carbon stock (229.06 Mg ha⁻¹) with a number of 8 plots followed by Woodlot (191.00 Mg ha⁻¹), Farm land (184.22 Mg ha⁻¹), Roadside (163.46 Mg ha⁻¹), Hall area (157.27 Mg ha⁻¹), Pond side (93.00 Mg ha⁻¹) and lowest mean carbon stock (88.15 Mg ha⁻¹) was found in Residential area with a number of 21 plots. It is said that the five major carbon containing species were Mango (102.53 Mg) followed by Jackfruit (46.34 Mg), Mahogany (44.42 Mg), Debdaru (33.72 Mg), Shirish (19.94 Mg) in SAU. The highest mean carbon stock (229.06 Mg ha⁻¹) was found in Academic area and the lowest mean carbon stock (88.115 Mg ha⁻¹) was found in Residential area. Mango was the most predominant tree species with 18.33%. The highest species diversity was found in Farm land (2.97) and the highest inter-species diversity was found for fruit species (0.404). The study found a positive relationship between tree diversity and carbon stock.

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