B-43: Stem diameter estimates from crown width and tree height for timber species in the Kandy area

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Although non-forest timber species contribute significantly to the current wood requirements of the country, information on their silvicultural characteristics and interrelationships are inadequate to make reliable forecasts of potential wood supply from this resource. Relationship between tree or stand variables and stem diameter of 8 selected timber species was examined in this study.

Individual tree data (stem diameter, tree height, crown width and crown class) and stand information (crown density) were collected for 8 species

(*Alstonia macrophylla, Albizia falcataria, Swietenia macrophylla, Michelia champaca, Filicium decipiens, Cedrella toona. Artocarpus heterophyllus, Pterocarpus indicus*). A multiple regression of the data shows the relationship between stem diameter and variables that can be measured in the aerial photographs. For the purpose of estimating stem diameter, the regression equation obtained was :

$$D = a + b_1H + b_2W + b_3HW$$

where D = stem diameter at breast height, H = tree height and
W = tree crown width

In the regression equations for each of the species, there was a high degree of multiple correlation between dependent and independent variables (R = 0.80 - 0.96). The possibility of having a common regression equation for 2 or more species was examined but the results were negative, suggesting species specific relationships.