Abstract

This study uses old aerial photographs, current high resolution satellite images and ground truthing to analyze the patterns and dynamics of Mida Creek mangrove forest changes over 41 years from 1969-2010. A non-distractive method was used to collect data on 25 sample plots and 934 trees were measured to estimate the above ground biomass and carbon stock of the forest. General published allometric equations with variables of Diameter at Breast Height (DBH) and wood density (ρ) which were species specific were used to estimate above ground biomass. A decline in mangrove cover (16%) took place between 1969 and 1989 and between 1989 and 2010 an increment was observed in mangrove cover (1452.5 ha in 1989 to 1655.7 ha in 2010). Signs of degradation within the mangrove forest were observed in 2010 in which the degraded land covered 8.8 ha. The total above ground biomass and carbon estimated on the 25 plots was 296.14 ton $\cdot$ ha^{-1} and 148.07 ton $\cdot$ ha^{-1} respectively. Mida Creek mangrove forest is largely dominated by the presence of *Rhizophora mucronata* and *Ceriop tagal* and the regeneration of these two species is very high. If the present dominance of the two species continues it will affect the species composition of the current mangrove forest. This study recommends a better management plan for the mangrove forest through increasing involvement of the surrounding communities. Furthermore, there should be a way to control selective and illegal cutting of mangroves and promote other species of trees for domestic and commercial use to reduce the high dependency on the use of mangroves for construction purposes.