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Abstract

The aim of the present study is to prepare a nation-wide spatial database on forest cover to assess and monitor the land use changes associated with deforestation in Bangladesh. The multi-source data were interpreted to get the forest cover map of 1930, 1975, 1985, 1995, 2006 and 2014. The spatial information generated on total area under forest cover, rate of deforestation and afforestation, changes across forest types, forest canopy density, replacement land use in deforested area and deforestation hotspots. This spatial analysis has indicated that forest cover is undergoing significant negative change in area and quality. We report that forests in Bangladesh covered an area of 23140 km^2 in 1930 which has decreased to 14086 km^2 in 2014, a net loss of 9054 km^2 (39.1%) in eight decades. Analysis of annual rate of gross deforestation for the recent period indicates 0.77% during 2006-2014. During the past eight decades, semi evergreen forests show loss of 56.4% of forest cover followed by moist deciduous forests (51.5%), dry deciduous forests (43.1%) and mangroves (6.5%). The loss of 23.5% of dense forest cover was found from 1975 to 2014. Dense semi evergreen forests shows more negative change (36.9%) followed by dense moist deciduous forest (32.7%) from 1975 to 2014. Annual rate of deforestation is higher in dense forests compared to open forests from 2006 to 2014 and indicates increased threat due to anthropogenic pressures. The spatial analysis of forest cover change in mangroves has shown a lower rate of deforestation. Most of the forest conversions have led to the degradation of forests to scrub and transition to agriculture and plantation. The study has identified the 'deforestation hotspots' can help in strategic planning for conservation and management of forest resources.

Key words: Forest change, monitoring, conservation, remote sensing, Bangladesh