Urban Growth in a Part of Hyderabad City, Southern India using Remote Sensing and GIS Techniques

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Abstract

Hyderabad city is one of the fastest growing mega-cities in Southern India. It is facing loads of economic, social and environmental problems due to rapid urban growth. Therefore, understanding and periodic monitoring of the land use changes in different parts of the city to detect urban growth activities is required for the better planning of resources and providing basic amenities to its residents. Accordingly, remote sensing (RS) and geographic information system (GIS) tools were used to map the land use classes for different time periods in an area of $453km^2$ in a part of Hyderabad city. This is done to examine apparent changes in land use through Satellite Image Merge obtained from (IRS Pan + LISS III) of 2003, (Pan + LISS III) of 2006 and (Cartosat + LISS 4) of 2009. The results show that the total built up area has increased up to $18km^2$ in the investigated area over a period of six years from 2003 to 2009. The fallow area decreased by $21km^2$, whereas there is no change in land with cultivation, scrub or without scrub compared with 2006 and 2009 satellite imageries. The plantation area has increased up to $5km^2$ (1.1%) of the study area in 2009. There is no change in agricultural land, reserved forest and land without scrub, which can provide the basis for sustainable urban planning in the study area.

Keywords: Remote sensing, GIS, Urban growth, Hyderabad city, Southern India