LAND USE LAND COVER CHANGE ANALYSIS OF TEHSIL PABBI, DISTRICT NOWSHERA

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Abstract:

Land use of an area reflects the patterns of natural and human environment. In physical terms it varies from natural topography to water bodies and natural resources of an area. On the other hand, it also focus and narrate the human activities, which had been carried out in the past. These activities include urban structure growth, its temporal variation, infrastructure routes constructions and upgradation, agricultural land use spatial and temporal pattern change and industrialization etc. Land use land cover changes are considered one of the most important components while defining current and in-future strategies for managing natural resources and monitoring environmental changes. Unplanned land use land cover modifications have largely resulted in deforestation, biodiversity loss, global warming and increase of natural disaster flooding. Therefore, to ensure a sustainable management of natural resources, it is of vital importance to understand and quantify the processes of landscape changes locally as well as globally. However, a main problem is that still for mapping and monitoring of these changes, traditional techniques are used; that are considered laborious and time consuming. Satellite remote sensing is a potentially powerful means of monitoring land-use change at high temporal resolution and lower costs than those associated with the use of traditional methods. Satellite remote sensing data as a good alternate provides a systematic, up-to-date and precise overview of land cover at regular time intervals for mapping and monitoring of land use land cover and the associated changes over time. The main objectives of this study were to quantify land use land cover change from 1996 to 2015, using remote sensing and to explore the spatio-temporal pattern of land use land cover in Tehsil Pabbi, District Nowshera.

In the analysis Landsat imagery downloaded from USGS Earth explorer (*https://earthexplorer.usgs.gov/*) for 1996, 2001 and 2015 were utilized. The analysis was carried out in ArcGIS-10.2. Pre-processing steps like cloud, haze removal and filtering were carried out. The images were pan sharpened using panchromatic band in Landsat-8 images. To analyze the data, false color composite was created to ensure a better visibility for vegetation and stack layers together. The 1996 image was not pansharpend due to unavailability of panchromatic band. Supervised classification method was performed. For the validation of results accuracy assessment was carried out and the overall accuracy was found to be 79.6%.