

Watershed Characteristics and Landuse Analysis of Govindsagar Catchment, Lalitpur (UP) India Using Remote Sensing and GIS Techniques

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Abstract

Watershed characteristics and land use/land cover study is necessary, for improved decision-making and for the resource management strategies. The methodology necessitates the provision of the base map from SOI toposheet, delineation of drainage, preparation of slope and flow direction map using ASTER data and for the land use/land cover change detection, visual interpretation has been carried out using IRS P6-LISS-III data of 2005 and 2015. The land use/land cover analysis discloses several categories of land cover as well as land use present in Govindsagar variation from 2005 to 2015. The study area is mainly cramped to cultivated land and uncultivated land which show changes since last decade, there is an increase in cultivated land of about 4.86% of the geographical area where as uncultivated land (fallow land) shows a decline of 1.61% of the total geographical area, morphometric analysis reveals that area has impermeable subsurface materials and mountainous relief with dendritic drainage pattern with low surface runoff.

Keywords

Arc GIS10.2, Watershed, Morphometry, Visual Interpretation, Landuse/Landcover

1. Introduction

A watershed is an area of land that drains all the streams and rainfall to a common outlet such as outflow of reservoir, bay or any point along a stream channel. The word watershed is sometimes used interchangeably with drainage basin or catchment. The watershed consists of surface water, lakes, streams, reservoir