

Assessing the geoindicators of land degradation in the Kashmir Himalayan region, India

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Abstract The geoindicators of land degradation such as erosion, vegetation change and wetland loss were identified in the Kashmir Himalayan region using a geospatial model. Geomatics techniques were used to generate information on landuse/landcover, NDVI, slope and the lithological formations that form inputs to map the erosion risk. The results of erosion analysis revealed that 48.27 % of the area is under very high erosion risk. The Middle Himalayan watersheds were found to be under high erosion risk compared to the Greater Himalayan watersheds. Pohru and Doodhganga watersheds of the Middle Himalayas were found to be under very high erosion risk. These two watersheds were studied in detail from 1992 to 2001 for vegetation change and wetland loss. In Pohru watershed, significant change was found in the dense forest with 10 % decrease. Wular lake, an important wetland in the Pohru watershed, has shrunk by 2.7 km² during the last decade. The vegetation change analysis of the Doodhganga watershed revealed that there has been 9.13 % decrease in the forest, 7 % increase in built up and the largest wetland in the Doodhganga, Hokarsar, has reduced by 1.98 km² from 1992 to 2001. Field studies showed that anthropogenic activities and chemically deficit soil (Karewa) along Pir Panjal ranges are the main factors responsible for high land degradation in the area. The assessment of these geoindicators provided valuable information for identifying causes and consequences of the land degradation and thus outlining potential hazard areas and designing remedial measures.

Keywords Geoindicators · Land degradation · ICONA · Landuse/Landcover · Wetlands

1 Introduction

Land degradation is defined as the reduction in physical, chemical or biological status of land, which may restrict its productivity capacity and can occur under wide variety of conditions

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