www.gondwanags.org.in

ISSN : 2455-1953
JGSR
Journal of Geosciences Research
Vol. 7, No.1, January, 2022, pp. 86-94

Hypsometric Analysis for Determining Erosion Proneness of Dehar Watershed, Himachal Himalaya, North India

Manthena Prashanth[1*], Arun Kumar[1], Sunil Dhar[2], Omkar Verma[1] and Kakoli Gogoi[1]

[1]*Geology Discipline Group, School of Sciences, Indira Gandhi National Open University, New Delhi--110068 (DL), India*
[2]*Department of Environmental Sciences, Central University of Jammu, Samba (JK), India*
*(*Corresponding author, E-mail: mprashanth@ignou.ac.in)*

Abstract

Assessment of erosion proneness is quite essential in tectonically active, highly fragile and environmentally sensitive hilly regions. The assessment not only helps in knowing erosion proneness but also supports in adopting best practices for integrated watershed management. The hypsometric analysis performed was to know the geological stages of development of erosional landscapes that reveal the health of a watershed. The present study was carried out to assess erosion susceptible areas of the Dehar River Watershed, which forms a tributary of the Beas river catchment of Himachal Pradesh. Eight sub-watersheds were delineated from the Dehar Watershed for performing hypsometric analysis using contours generated from the DEM in a GIS environment. The hypsometric integral values were quantified by the elevation-relief method for all the sub-watersheds and are ranging between 0.43 (DW1) and 5.0 (DW4, DW5). Further, it is found that almost all the sub-watersheds are comparatively matured and erosional processes are in the course of stabilization. The present study reveals that some sub-watersheds primarily DW4 and DW5 of the Dehar Watershed are highly susceptible to erosion. Therefore, suitable remedial measures such as structural and non-structural methods may be adopted to mitigate soil erosion and also in enhancing sustainable conservation and management practices.

Keywords: Hypsometric Analysis, Erosion Proneness, Dehar Watershed, Himachal Himalaya, GIS.