Geophysical Research Abstracts
Vol. 16, EGU2014-11017, 2014
EGU General Assembly 2014

Bank Erosion Vulnerability Zonation (BEVZ) -A Proposed Method of Preparing Bank Erosion Zonation and Its Application on the River Haora, Tripura, India

Shreya BANDYOPADHYAY (1) and Sunil Kumar DE (2)

(1) TRIPURA UNIVERSITY, GEOGRAPHY AND DISASTER MANAGEMENT, Agartala, India, (2) NORTH EASTERN HILL UNIVERSITY, GEOGRAPHY, Shillong, India (desunil@yahoo.com, +913642550076)

In the present paper an attempt has been made to propose RS-GIS based method for erosion vulnerability zonation for the entire river based on simple techniques that requires very less field investigation. This method consist of 8 parameters, such as, rainfall erosivity, lithological factor, bank slope, meander index, river gradient, soil erosivity, vegetation cover and anthropogenic impact. Meteorological data, GSI maps, LISS III (30m resolution), SRTM DEM (56m resolution) and Google Images have been used to determine rainfall erosivity, lithological factor, bank slope, meander index, river gradient, vegetation cover and anthropogenic impact; Soil map of the NBSSLP, India has been used for assessing Soil Erosivity index.

By integrating the individual values of those six parameters (the 1st two parameters are remained constant for this particular study area) a bank erosion vulnerability zonation map of the River Haora, Tripura, India (23˚37´-23˚53´N and 91˚15´-91˚37´E) has been prepared. The values have been compared with the existing BEHI-NBS method of 60 spots and also with field data of 30 cross sections (covering the 60 spots) taken along 51 km stretch of the river in Indian Territory and found that the estimated values are matching with the existing method as well as with field data. The whole stretch has been divided into 5 hazard zones, i.e. Very High, High, Moderate, Low and Very Low Hazard Zones and they are covering 5.66 km, 16.81 km, 40.82km, 29.67 km and 9.04 km respectively.

KEY WORDS: Bank erosion, Bank Erosion Hazard Index (BEHI), Near Bank Stress (NBS), Erosivity, Bank Erosion Vulnerability Zonation.