Hydrological Modeling and Conservation Planning For Development of Lake City: Warasgaon Dam Catchment, Pune, India

Abstract

The pressure of growing population is immense on natural resources. However, it is necessary to conserve our natural resources viz. soil and water. For conservation of soil and water the estimation of these natural resources are necessary. For this study the proposed Lake City has been identified as the study area which is the part of Warasgaon Dam Catchment, Pune, India. The study area lake Town is located in the scenic surrounding of the Western Ghats. The area lies between the geocoordinates 18° 21’00” to 18° 25’48” North latitude and 73° 25’12” to 73° 37’12” East longitude. The main objective of the study are land use/land cover mapping using remote sensing data, soil erosion modeling, watershed prioritization, rainfall-runoff modeling, site suitability analysis for rainwater harvesting structure. It was estimated that annual average soil loss is 45 tones/ha, which is highly significant and it is necessary to implement a conservation plan to the catchment. Using Spatial Decision Support System various site suitability of water harvesting structures has been identified. RS based input in conjunction with GIS is utilized for soil and watershed conservation planning.

Sharavathi river basin in the Western Ghats has been chosen for the present study. The area was divided into various sub basins on the basis of major tributaries. Based on the cumulative effect of the causal factors, the sub-basins are ranked/graded to indicate the sub-basins prone to landslides. The zones derived as unstable and moderately stable were considered for further analysis considering parameters such as slope and aspects.