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CHAPTER 1: INTRODUCTION

1.1 General

Soil erosion is a primary concern for resource and environmental management as it is a continuing problem that reduces soil quality and field productivity. To support sustainable uses of these resources an appropriate model is required in this area, and to develop such model hydrological and soil erosion modeling is essential. The conventional method requires the input of too many variables making it time-consuming. On the contrary, Geoinformatics and Remote Sensing techniques can simplify the procedure. Geography and earth science increasingly rely on digital spatial data acquired from remotely sensed images analyzed by geographical information systems (GIS) and visualized on paper or the computer screen. The main advantage of the GIS methodology is in providing quick information on the estimated value of soil loss for any part of the investigated area. Therefore, in this work the analysis and modeling are done in a GIS platform.

1.2 Background

A watershed or catchment is an extent of land where surface water from various sources like precipitation, melting snow, or ice converges to a standard outlet point at a lower elevation. The watershed assumes a predominant part of the advancement of landforms, and in this manner, the analysis of drainage basin has profound importance in geomorphic studies. A watershed is a perfect unit for administration of Natural resources like soil and water and for the moderation of the effect of cataclysmic events for accomplishing sustainable advancement (Rahaman et al., 2015)