APPLICATION OF GIS AND RS TOOLS FOR REGIONAL GEOLOGICAL MAPPING OF CHAKWAL AND ITS SUBURBS

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Abstract

Regional geological mapping particularly for expanding cities like Chakwal has a significant value due to its impact on exploration of mineral, economic and environmental resources. The present study attempts to highlight the use of Geographic Information System and Remote Sensing techniques in geological mapping of Chakwal quadrangle bounded by the Survey of Pakistan topographic sheet No. 43-D/7 at a scale of 1:50,000. The project area lies at the southern periphery of Potwar plateau just north of the Salt Range. Gee has mapped the Salt Range and part of the study area whereas the area of Potwar region has been mapped by various authors. Generally, the sedimentary sequence ranging in age from Eocene to Recent is exposed in the area with marked unconformities between late Eocene to Oligocene. The sequence becomes older to younger as we move from south to north direction. SRTM DEM of 90m resolution was used to extract topographic details for the purpose of geological information. The structure of the southern area is complex due to series of folding and faulting events. However, the northern part is having relatively simple rolling structure with Siwaliks cropping out along nala cuts. Crude oil, bentonite and building stone are major economic resources present in the area which can be exploited for the local dwellers in particular and for our beloved homeland in general.

Key words: Chakwal, Geological Mapping, GIS, RS, SRTM DEM.