

REMOTE SENSING AND GIS BASED SOIL RESOURCES APPRAISAL

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ABSTRACT

Remote sensing technology has revolutionized the task of earth resource appraisal, mapping and periodic monitoring. Synoptic view, real time accurate images even for inaccessible areas available from satellite images enables quick and reliable information generation about natural resources. However, because of the three-dimensional character of soils specific interpretation and extensive ground truth are required for their appraisal and accurate mapping. In this article an over view of earth resources satellites with particular reference to Indian Remote Sensing (IRS) satellites and their capabilities for soil resources appraisal has been presented. Spectral reflectance of typical arid soils due to which these soils appear in lighter tone on satellite imagery has been discussed. Methodology of satellite image interpretation for soil resources appraisal including (1) elements of satellite image interpretation, (2) physiography-soil series association based soil mapping, and (3) multi season satellite images, have been elaborated. Among different available data IRS-P-6 LISS III geocoded data are mostly used for soil appraisal because of high spatial and spectral resolution and excellent quality. Based on the methodology potentials of different satellite images for mapping soil series, salt affected soils, soil constraints and soil degradation due to water and wind erosion have been highlighted. Application of remote sensing and GIS in developing, soil information system, soil resource atlas of Rajasthan, land resource development plan, watershed management, waterlogging and soil salinization in IGNP command area have been described.

INTRODUCTION

Remote sensing technology involves *acquiring* information about the Earth's surface and atmosphere, using satellite based sensor, *interpretation* of spectral measurements and *characterization* of land resources and environmental phenomena. The remote sensing technology integrates space technology, systems engineering, computer technology and all the disciplines of Earth's resources.

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