



# **Geo-informatics for Combating Land Degradation and Desertification**



# **GEO-INFORMATICS FOR COMBATING LAND DEGRADATION AND DESERTIFICATION**

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## **PREFACE**

Land degradation is the ultimate situation of desertification, which has numerous environmental economic, social and ecological consequences. The ecosystem of each region is affected by one or other form of land degradation and ecology of region is damaged with land degradation and desertification. Serious impact of the situation are soil erosion, loss of soil fertility which is resulted into reduced plant growth and crop productivity, clogging up of rivers and drainage systems, extensive floods and water shortages. Loss of topsoil has tremendous implications, outweigh benefits of development and give rise to problem.

Geoinformatics is a new discipline integrating elements for various disciplines dealing with geographic data. It deals with management, analysis and presentation of geographic and other spatially defined data. It includes Surveying, Remote Sensing, Geographical Information System, Global Positioning System, Photogrammetry, Cartography, Geography, Computer Science and Statistics. It has emerged as a credible tool in mapping, modeling, monitoring and managing natural resources, environment and natural disasters, which are vital components in sustainable development planning.

The information of the study area gathered through geoinformatics reveals that there is land degradation over all the categories of land put under productive uses. With the increased human and livestock of region with more than 300 population and 200 units per sq kms the carrying capacity of land has been seriously affected due to human destructive activities to put every possible land under cultivation practices and degradation of land and water resources. The soil productivity analysis of the region reveals that out of total area of three blocks, 3.34 percent soil is high productive, 51.05 percent soil is low productive and 45.61 percent soil is negligible or no-productive. Total forest area of these blocks is 15.74 percent of which 33.01 percent area has trees with very poor density, 63.31 percent area has no tree but shrubs only and 3.68 percent area is barren. This is impact of uncontrolled felling of trees and open grazing.

Ground water is the only source of all water-based requirements. The rate of ground water depletion has reached up to one metre annual with depth of 70 metres. There is no control over the use of water resources which are at the verge of extinction in near future. All the destructive factors have reached a level of severe land degradation and desertification.

This situation can be controlled if people of the region stop their destructive activities completely and government starts package of programmes for revival of situation by keeping the forest resources intact to complete density level and another

area under barren land, pasture land, tree groves and waste land is put under plantation to meet human requirement with peoples participation without disturbing the trees and vegetation. Treatment of total land put or intended to put under productive use is treated with bio-technology and meeting existing deficiencies of nutrients. Surface water run off as delineated through geoinformatics are able to provide sufficient water for cultivation, forests and plantation areas without disturbing ground water resources.

The suggested measures will put 28.52 percent area under forest and plantation, helpful for controlling climatic adversities and cultivated land would regain its fertility through bio-fertilizers. With these measures additional employment to 50,000 families will be generated with assured annual family income of more than Rs. 20,000 and another 10,000 families will be benefited with preparation of bio-fertilizers. Total area can be free from land degradation and desertification with suggested measures within five years and there will be no significant burden over the state.

**T S Chouhan**

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