

## GIS & REMOTE SENSING TECHNIQUES IN MAPPING LANDUSE / LAND COVER CHANGE WITH EMPHASIS TO ARID AREAS IN JHUNJHUNUN & SIKAR DISTRICTS OF RAJASTHAN

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### Abstract:

Rajasthan, the largest state of India is located in the north-western part comprising of the large Thar Desert. Dry land is characterized by harsh environment, fragile ecosystems in addition to limited water resources and arable lands. Desertification of an area proceeds if certain land components are brought beyond specific threshold, where further change produces irreversible alterations. In recent years however, there is a declining tendency in the arid area with a westward shift in heavy rainfall events. Jhunjhunun & Sikar districts are chosen as study area as they lie on the eastern limit of the desert area of Rajasthan which is expected to show the change in the spatial extent of the arid area over the years. In this study the methodology includes classification and change detection of different temporal data and computing three quality indices (i.e. Soil Quality Index, Vegetation Quality Index and Climatic Quality Index). Landsat satellite images, geologic and soil maps and rainfall data are being used as main sources for calculating the indices. Arc GIS 10.1 is used to derive the classification maps, change detection maps, indices maps and overlaying the indices maps. For the assignment of weights to each factor for indices Analytical Hierarchy Process (AHP) is being adopted.