

# **Soil Resource Inventory Using Remote Sensing (South Kurdofan Region, Sudan)**

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## **Abstract**

South Kurdofan region was known for its high potential of soil resources. The extent of the region is about 140,000 km<sup>2</sup>. It enjoys a semi-arid climate with high rainfall favouring rainfed agriculture. Traditional agriculture was the main practise of land use beside natural grazing and forestry. The environment was kept in balance.

Recently, since the 60s, the region has been subjected to unwise mechanized farming, overgrazing and deforestation. This affected the natural resources and led to land degradation.

The main objectives of the study are how to solve the problems and to reverse the decline in productivity and to increase production on sustainable basis.

The terrain analysis method comprised visual interpretation of satellite data, complemented with ground truth data gained from the field reconnaissance.

Preliminary terrain analysis was undertaken using Landsat Multi-Spectral Scanning (MSS). Field reconnaissance to verify the initial interpretation, enabled more precise delineation of the units and provided more information on their physiographic character. Further refinement on the classification system and of the spatial distribution of the units was accomplished using Landsat Thematic Mapper (TM) images. Topographic information has been obtained from 1:250,000 and 1:100,000 topographic sheets. Twenty eight profiles were dug and sampled for chemical and physical analysis.

A total of 29 units which fall in nine physiographic classes have been recognized. However several kinds of soils, because of their sealed surface are given locally the same name "Gardud".

The study proved that these soils, vary greatly in origin, topographic position, physico-chemical properties, susceptibility to erosion and management.