

UNIVERSITY OF CALIFORNIA
Santa Barbara

THE SUITABILITY OF LANDSAT DATA TO MAP AND MONITOR SOIL
EROSION HAZARDS IN SEMI-ARID LANDS :
A case study of Kitui district, Kenya. //

A Thesis submitted in partial satisfaction of the
requirements for a degree of

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in

Geography

by

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Abstract

The Suitability of Landsat Data to Map and Monitor
Erosion Hazards in Semi-arid Regions:

A case study of central Kitui, Kenya.

by

Joel Kipkemboi Yego

Soil erosion hazards is a serious threat to land utilization in the semi-arid regions of Kenya and there is a need to inventory them.

The use of landsat data to map and monitor erosion hazards on a study site in Kitui district, Kenya, was investigated. Ratio channels of Landsat Mss data were employed in a digital analysis to determine the spatial location, extent and severity of these hazards over the study site as at 1979.

A two date change analysis was also done to detect the spatial changes of erosion hazards which could have occurred in the study site over a six year

period between 1973 and 1979.

The results indicate that ratio channels of Landsat Mss data could be used to map the spatial location and extent of soil erosion hazards to some degree at a regional scale. The recognition of the degree of severity of erosion hazards using this technique alone was found to be somewhat difficult and could be unreliable.

Detection of spatial changes of erosion hazards was also found to be possible but complexities in the dynamics of semi-arid environments could make any attempt to monitor erosion hazards using this technique over short periods of time difficult and unreliable.