

An Approach to Sustainable Landuse and Land Suitability Indices of Delta Wadi Hodien, Southeast Egypt.

M.M. Kotb, I.S. Rahim and G.W. Ageeb

Soils & Water Use Dept., National Research Centre, Cairo, Egypt.

DUE TO the rapid increase in population in Egypt, there is a great need to expand the cultivated areas. One of the suggested areas for the horizontal expansion is Wadi Hodien region in the southeast corner of Egypt which covers about 3700 feddans (15.54 km²).

The current work was conducted to investigate the main soil characteristics that refer to the promising possibilities for expansion and economical agriculture in "Delta Wadi Hodien". Forty four soil profiles were selected for the current study. Soil parameters for land capability and suitability evaluation have been determined, to estimate the suitability classification in each unit for seven field crops, six vegetable and fodder crops and five fruit crops promising for the study area. According to the ALES arid capability indices the soils of the studied area were grouped into three capability classes. The suitability assessment of the studied area revealed that; 16% of the area is moderately suitable (S2), 67% are marginally suitable (S3), 16% of the studied area is conditionally suitable (S4) and 1% of the area is potentially suitable (NS1) soils for the selected crops. Soil salinity and low soil fertility are the most effective soil limitations in the study. Air temperature of the area must be taken into the considered cultivation programme.

Keywords: Capability and suitability, ALES arid, Delta Wadi Hodien, Egypt.

Delta Wadi Hodein lies between Latitudes 22° 58' 00" and 23° 13' 00" N, Longitudes 35° 15' 00" and 35° 45' 00" E (Fig. 1). It occupies an area of about 759.6 km². The aim of the present study is to evaluate land capability and suitability for growing different crops. Such work will be useful for agricultural development policy of the region. The topography of this area varies from gently slope plains to rugged mountains and hilly lands, with elevations ranging between 50 m above sea level (at the basin outlet) to 1,443 m. Drainage basin are the fundamental units of the fluvial landscape and accordingly, a great amount of researches had focused on their geometric characteristics, including the topology of the stream network, and the quantitative description of drainage texture pattern, slope and relief (Abrahams, 1984). Because drainage basins are the physical entities used to measure the volume of water produce by runoff, the analysis of basin morphometry has been extended to include the