شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

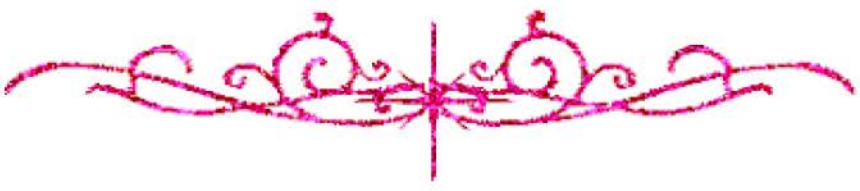
نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة



بالرسالة صفحات لم ترد بالأصل

STUDYING LAND CAPABILITY CLASSES AND SOIL CLASSIFICATION FOR SOME AREAS IN SOUTH EGYPT AND NORTH SUDAN

BY

KAREMA MOHAMED RASLAN MOHAMED

B. Sc. Reclamation and Cultivation of Desert, Soils, Fac. Agric. (Soils), Cairo University, 2007

Thesis submitted in partial fulfillment of the requirements for the Master Degree in

African Studies

(Soil Resources)

Department of Natural Resources

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ABSTRACT

Kom Ombo western plain occupies about 321.000 feddans. It extends in the western side of Kom Ombo district, Aswan Governorate. It runs parallel to the alluvial soils of the Nile valley between Idfu and Aswan sites. The aim of this investigation is to study physical, chemical and mineralogical Characteristic of Kom Ombo western plain soils in order to evaluat their capability and suitability for growing main crops using RS, GIS and Sys - Arid system.

To fulfill these objectives, Santinal 2 images and digital elevation model (DEM) of the studied area were used to define the geomorphic units.

The geomorphic units of the area under considerations could be grouped and described as recent alluvial terraces, old alluvial terraces, Pediplain, alluvial plain, Wadi plain and rock outcrop. The different landforms were represented by 22 Soil profiles, the morphological description was carried out and 64 disturbed soil samples were collected for physical, chemical and mineralogical analysis. The obtained results revealed that all studied soils could be categorized into two orders Aridisols and Entisols and are classified up to the family Level under five Sub great groups namely, Typic Haplosalids. Typic Torrifluvents, Vertic Torrifluvents, Vertic Torriorthents, and Typic Torriorthents. Mineralogical composition of the clay fraction separated from some soil layers representing Kom Ombo western plain and clay minerals were identified. using X-ray. The results indicated that the studied soils are dominated by Kaolinite followed by smectite with less pronounced occurrence of illite and chlorite. The identified accessory minerals were also dominanted by quartz and feldspars. Calcite, dolomite and apatite were also detected but occurred in few amounts in some samples. Also, the mineralogical composition of the fine sand and silt fractions were dominated with quartz and some extent with Kaolinite. Other identified minerals are Calcite, feldspars, dolomite, gypsite, albaitę, siderite, hematite, pyrite, magnetite, muscovite and apatite in less pronounced occurrence. The studied soils were evaluated for their suitability for

agricultural use. They were categorized from classes namely; moderately suitable (S2), marginally suitable (S3), Currently not Suitable (N1) and permanently not suitable (N2). These soils are currently suffering from limitations of texture, salinity and alkalinity, topography, gypsum and carbonate with different intensity. The severty as these limitations could be corrected by further land improvements. Accordingly, the potential suitability of the most studied soils could be improved to moderately suitable (S2), marginally suitable (S3 and not suitable (N2).

Moreover, the suitability of 18 main crops in these soils was carried out in the current and potential situations. The results indicated that these soils were not suitable for growing some crops in the current situations. The potential suitability of the soils for these crops could be improved according to the satisfaction conditions between soil properties and crops requirements.

Sulieman et al. (2015) found the lands of northern Sudan containing three physiographic units. Physiographic unit 1 (first beaches) suitable for cultivation (S2) due to limited soil texture and moderate drainage, while units 2 and 3 (the second and third terraces, respectively) were marginally suitable (S3) due to limitations of poorly drainage (low infiltration rate) and texture (clay). The slope, soil depth, calcium carbonate, salinity, and alkalinity were not considered as limiting factors in all study area.

Key Words : Remote sensing (RS), GIS, DEM, Land evaluation, Soil classifications.

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