THE REPUBLIC OF THE SUDAN

MINISTRY OF AGRICULTURE

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76T SUDAN

ROSEIRES SOIL SURVEY

DINDER TO RAHAD

EXPLORATORY SURVEYS

(MARCH - MAY 1965)

SUMMARY OF RESULTS

SEPTEMBER 1965

HUNTING TECHNICAL SERVICES
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ROSEIRES SOIL SURVEY
EXPLORATORY SURVEYS

CONTENTS

A. EXPLORATORY SOIL TRAVERSES.

1. Area Covered.

The area covered over two million feddans and this area is shown on the map accompanying this summary.

The greater proportion of the area is located between the rivers Rahad and Dinder and bounded in the north by the Khor El Zeraf and in the south by the Link Canal Trace. West of the Dinder a further area is bounded by the Link Canal Trace and the Khor El Aqaliyin. The remaining land occupies a strip on the east bank of the River Rahad between Wad Miskin (latitude 13° 10'N.) and Jebel el Fau (latitude 14° 09N.) In the north this strip is bounded in the west by Area 3c (extension) and not by the Rahad.

2. General Description.

The area is a flat alluvial plain. The rivers Rahad and Dinder plus numerous khors and old water courses dissect the area which may hinder large scale development.

The population is concentrated along the two main rivers and the Khor Atshan at perennial watering places. Although the rivers Rahad and Dinder are dry throughout the summer a number of stagnant pools provide a year round supply.

The main agriculture is limited to subsistance farming of dura, simsim and vegetables on riparian lands. There are also two cotton schemes located just north and south of Hawata on the east bank of the River Rahad.

3. Soil Survey Sampling.

The soil traverses were made along existing tracks, roads and traces. As will be seen from the map showing the sites sampling did not cover the area uniformly. The sites were placed at five kilometre intervals, the bores being sampled at fixed depths from 0 to 45 cm and 45 to 90 cm. Pits were sampled in the same way according to natural horizons.

4. Soil Survey Results.

The twenty eight sites on the east bank of the River Rahad all indicate arable land and it appears this area is a southward extension of the good land of Areas 3c and 3c (extension).

The lands between the Rahad and Dinder where access is difficult were examined only around the edges and the interiors were neither crossed by the field party nor were air photographs available. In fact, the whole area has been scanned only once or twice from the air. The soil analyses show that there is a very widespread alkalinity problem throughout this whole vast area. It is possible to generalise and speculate that this is a southwards extension of the alkali lands of Area 3b. Perhaps the whole area between Rahad and Dinder was originally subject to seasonal flooding and subsequent evaporation of shallow lakes because of blocked drainage. This soil problem accompanied by drainage and topographic limitations would indicate that it is necessary to proceed with caution in further evaluation of this area.

The area between the Dinder, Khor El Aqaliyin and Khor Kenana has also only been examined around the fringe. This land is higher than the Rahad-Dinder flood plain and may be considered an extension of Area 2a situated across the Khor El Aqaliyin. The generally favourable soil analyses from the eighteen sites in the area would, on the basis of the good quality land in Area 2a, indicate that possibly as high as seventy-five percent of this area will prove to be arable.

Most of the soil analyses from the sites in the lands east of Khor Aqaliyin and south of Khor Kenana indicate the land is arable and it is a fair surmise that about three-quarters of this block is suitable for irrigation.

The land classes at each of the sites is shown on the accompanying map.

5. Recommendations.

5a. Land Recommended for Semi-Detailed Soil Survey.

Two areas are recommended for semi-detailed soil and land classification without the necessity of first carrying out a reconnaissance soil and land class survey.

These areas are :-

(i) The right bank of the River Rahad between the proposed siphon at Wad Miskin and Jebel el Fau - a gross area of 360,000 feddans.

(ii) The lands east of Khor El Aqaliyin and south of Khor Kenana - a gross area of 140,000 feddans.

Total recommended for semi-detailed survey is approximately 500,000 feddans.

5b. Land Recommended for Reconnaissance Soil Survey.

It is recommended that the remainder of the area covered by the exploratory soil traverses be covered by a reconnaissance type soil and land classification. This is the most economical approach because possibly only a small proportion of the area will be suitable for irrigation development. Semi-detailed soil and land classification surveys could then be carried out on suitably located blocks of good land found by the reconnaissance survey and the reconnaissance traces could be incorporated in the semi-detailed survey.

The total area recommended for reconnaissance type survey is about 1,850,000 feddans.

B. EXPLORATORY ENGINEERING SURVEYS.

Exploratory engineering surveys to locate possible extensions to the Rahad Project were carried out in two separate areas. In the north near the Guneid Pump Scheme and in the south around the town of Hawata.

The objectives of the surveys were to demarcate the additional areas that could be included as part of the Rahad Project and to check the proposed alignment of the Guneid Link Canal near Rufa'a.

Adjacent to Guneid two areas totalling approximately 200,000 feddans (gross) were demarcated, the largest, some 170,000 feddans situated northeast of the Pump Scheme and the remainder due east of Rufa'a. The location of these areas is shown on Plate 1 accompanying this summary.

In the neighbourhood of Hawata, the surveys on the east bank of the River Rahad indicated that :

1) A gross area of 240,000 feddans can be commanded by an east bank gravity canal flowing from Wad Miskin to Jebel el Fau.

2) A gross area of 85,000 feddans, north of Hawata, can be commanded by low lift pumping from the east bank canal.

and 3) A gross area of 32,000 feddans can be commanded by pumping south of Hawata.

On the west bank of the River Rahad the reconnaissance levelling was restricted but the 150 kilometres completed was sufficient to show the general lie of the land and to indicate whether irrigation development was feasible.

Plate 1

33° 00′ 33° 15′ 33° 30′ 33° 45′ 34° 00′

15° 00′

14° 45′

Abu Horira
3d/15
3d/14
CANAL
3d/13
3d/12
El Gurra'a
3d/7
416
412
410
3d/11
Borida
Abu Sham
3d/10
Khawalda
3d/8
3d/9
3d/5
B.M. No. 6
3d/6
402
404
406
408
Tundub
Hasanab
Tambul
400
402
404
406
408
410
Saiyal Dakhakhin
Abu Galfa
GUNEID LINK CANAL
Umm Shaneq
Wad Harras
RAHAD PROJECT MAIN CANAL
Wad Rawa
Kamlin
Blue Nile
TO KHARTOUM
Laota
ABU USHAR
GUNEID PUMP SCHEME
Ganneb
Rufaa
Hasiheisa
WAD MEDANI

LEGEND

- SECTIONS LEVELLED BY MINISTRY OF IRRIGATION & H.E.P. 1962.
- 3d/7 SECTIONS LEVELLED BY SIR M. MACDONALD & PARTNERS 1965.
- ARABLE LAND SUITABLE FOR LONG STAPLE COTTON ROTATION (CLASSES 2, 3 & 4).
- ARABLE LAND NOT SUITABLE FOR LONG STAPLE COTTON ROTATION (CLASSES 2, 3 & 4).
- AREA DELINEATED FOR SEMI-DETAILED SOIL SURVEY.

NOTE:

THE CANAL LINES SHOWN TO SERVE THE EXTENSIONS ARE BASED ON LIMITED CONTOUR KNOWLEDGE AVAILABLE.

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ROSEIRES SOIL SURVEY

EXTENSIONS TO RAHAD PROJECT
EXPLORATORY ENGINEERING SURVEY
IN GUNEID AREA

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SCALE 1/250,000

DRG. No. SU.200

DATE JULY 1965