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REPUBLIC OF KENYA

MINISTRY OF AGRICULTURE — NATIONAL AGRICULTURAL LABORATORIES

KENYA SOIL SURVEY PROJECT

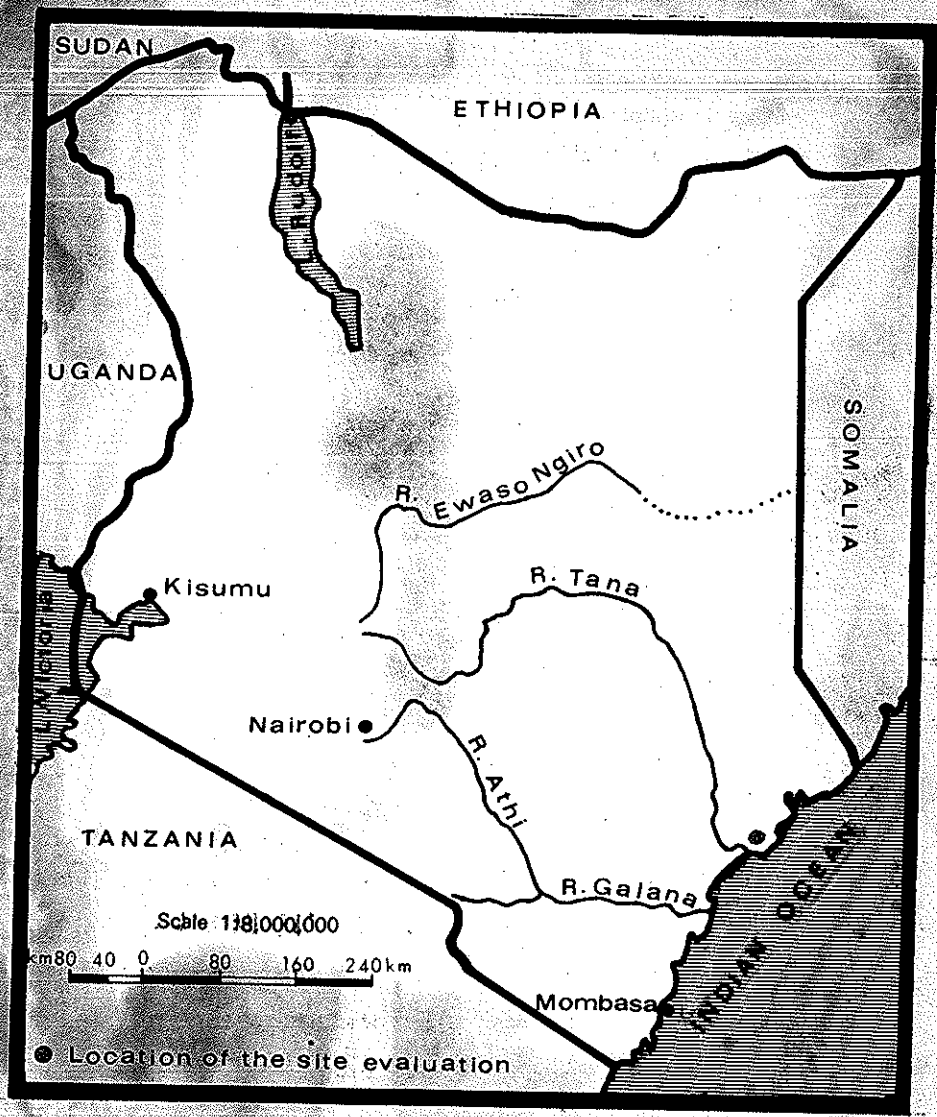
REPORT OF A SITE EVALUATION TRIP TO LAKE

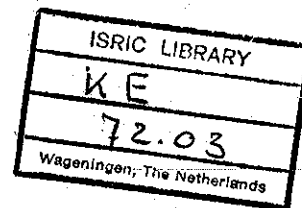
KENYATTA COTTON SCHEME (LAMU DISTRICT)

by R.F. Van de Weg

SITE EVALUATION

No: 2 Date: JUNE, 1972.





REPORT OF A SITE EVALUATION TRIP TO LAKE
KENYATTA COTTON SCHEME (LAMU DISTRICT)

by R.F. Van de Weg

June, 1972

ITINERARY

The trip was made by plane and landrover.

22nd June, 1972: Nairobi - Lamu (plane)

Lamu - Lake Kenyatta Scheme - Lamu (Landrover)

23rd June, 1972: Lamu - Lake Kenyatta Scheme - Witu (Landrover)

Witu - Nairobi (plane)

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INTRODUCTION

At the request of Mr. G.R. Rens, a member of the Kenya Soil Survey Project joined on a short trip to the Lake Kenyatta Cotton Settlement Scheme, Lamu district. The purpose of the trip was to assist the Project Manager of the scheme in the interpretation of the existing soil map and report and to advise on possible areas for further extension of the scheme.

The trip was made by: Mr. G.R. Rens, Entomologist of the N.A.L., Dr. K.J. Brown, Senior Cotton Research Officer, N.A.L. and R.F. van de Weg, Kenya Soil Survey Project.

The area is situated in the almost flat coastal plain, South-West of Lamu island¹⁾. Part of the area visited has been surveyed in 1969 (Ref: "Nyandat, The development of arable settlement scheme on the soils bordering Lake Mkunguya²⁾ and Mapenya and stretching to the East".)

1) Topographical map, 1:50,000, sheet 180/3, Mkunumbi.

2) Lake Mkunguya = Lake Kenyatta.

A vegetation/land use survey of the Lamu district has also been carried out recently by E.C. Trump of UNDP/FAO in the scope of the FAO Range Management project (Technical report, 1969, no.4). For a general description of the area visited, reference is made to these two reports. Photographs on scale 1:50.000 were available during the trip but appeared of restricted value (due to the small scale and the homogenous vegetative cover).

During the trip the soil map (Nyandat, 1969) was checked and assistance was given in the interpretation of the map and report. The area was crossed in several directions and many augerings were made to examine the soils.

VEGETATION AND LAND USE

The area around the Lake is covered by thickets with open grassy spaces and scattered Doum palms. In 1970 an area of about 800 acres was cleared and cotton planted (see attached sketch map). The original plan was to expand the scheme at a rate of several hundred acres a year up to 5000 acres. For several reasons the first harvest in 1971 was disappointing, the main ones being: excessive weed growth and plant diseases. But this year these problems have been tackled and prospects are more favourable.

GEOLOGY AND RELATED SOILS

The area has not been geologically surveyed but according to literature (Nyandat, Trump) two geological formations provide parent material for the soils in the area: Raised Coral reefs and Lagoonal sands.

The Raised Coral reefs tend to give rise to dark brown sandy loams and sandy clay loam topsoils and sandy clay subsoils, with coral rock occurring at depths varying from 40 to 100 cm. These soils are the best in the area and are suitable for intensive cultivation if soil depth allows.

The Lagoonal sands seem to give rise to dark grey to dark brown, loamy sand topsoils and yellowish brown sandy loams or sandy clay loam subsoils. The sandy topsoil varies in thickness. These soils may rapidly lose fertility when they are brought under continuous cultivation, unless well managed. At places these soils may be subject to periodic high ground-water tables as revealed by the presence of colour mottles.

SUITABILITY OF THE SOILS AROUND THE PRESENT SCHEME

The scheme at its present acreage is situated about 2½ km. N.E. from the lake, with the office buildings and the labour camp at the crossing of the two Shell/BP trace lines (see sketch map). The present cultivated area extends in N.W. direction for around 3 km. along a trace line, and in W. direction for around 1 km. Soils in the present scheme belong to the soil units 9 (dominant), 1, and 3. (numbers refer to map of Nyandat, 1969).

Soil 9 is the one derived from Coral Reefs. This is a good soil rich in plant nutrients and with favourable texture, It may however present difficulties from soil depth point of view. Augerings made in the area at present under cotton revealed the presence of Coral Reef at depths between 70 and 100 cm. No. problems with machinery (harrowers) have been encountered up till now.

The soils 1 and 3 are deep, sandy clay loams and sandy loams overlying sandy clays to sandy clay loams, Both soils are suitable for a wide range of crops, including tree crops.

(a) It was found that at the Northern fringe of the scheme the soils become sandier especially in the upper 50 cm. Also the area North of the present scheme (along the trace line and up to Witu-Lemu road), not included in the existing soil map, was investigated and the soils were found to be very sandy down to 100 cm (auger depth). It is therefore recommended not to extend the scheme to the North along this trace line.

(b) To the West of the present scheme and in the direction of the Lake one encounters an area with soil unit 11. This soil is subject to seasonal high water table, which makes it less suitable for arable crops.

(c) To the North-East (along the track to Mapenya village) and East (along the trace line) soils belong to unit 9 and unit 1. Soil unit 1 is suitable for a wide range of crops and this area may be well considered for further extensions of the scheme. Soil unit 9 is characterised by shallow depth and coral rock outcrops, which features even increase progressively along the N.E. trace line (oral communication, Nyandat). Further extension in the area of unit 9 is not recommended, as one will definitely run into cultivation problems, especially with machinery.

(d) The area immediately South and South West of the present scheme, with soils belonging to unit 2 and 3, do not seem to give rise to any major problem. The scheme could therefore also be extended into these

directions, up to around 2 km. along the S.E. trace line and the road to the Senior Officers camp.

CONCLUSIONS AND FOLLOW-UP

If the area under cultivation has to be extended, it is recommended to start this extension in the area South of the present scheme. Further extension could be directed towards the area along the track to Mapenya Village (see sketch map). Approximately 1500 acres could be added to the present scheme following the above mentioned directions. It should however, be stressed that any further extension requires a more extensive evaluation of the present soils data. A second, more elaborated site evaluation may be necessary, covering also an area beyond the limits of the existing soil map. After that evaluation a decision can be made if any further detailed or semi-detailed soil survey is needed.

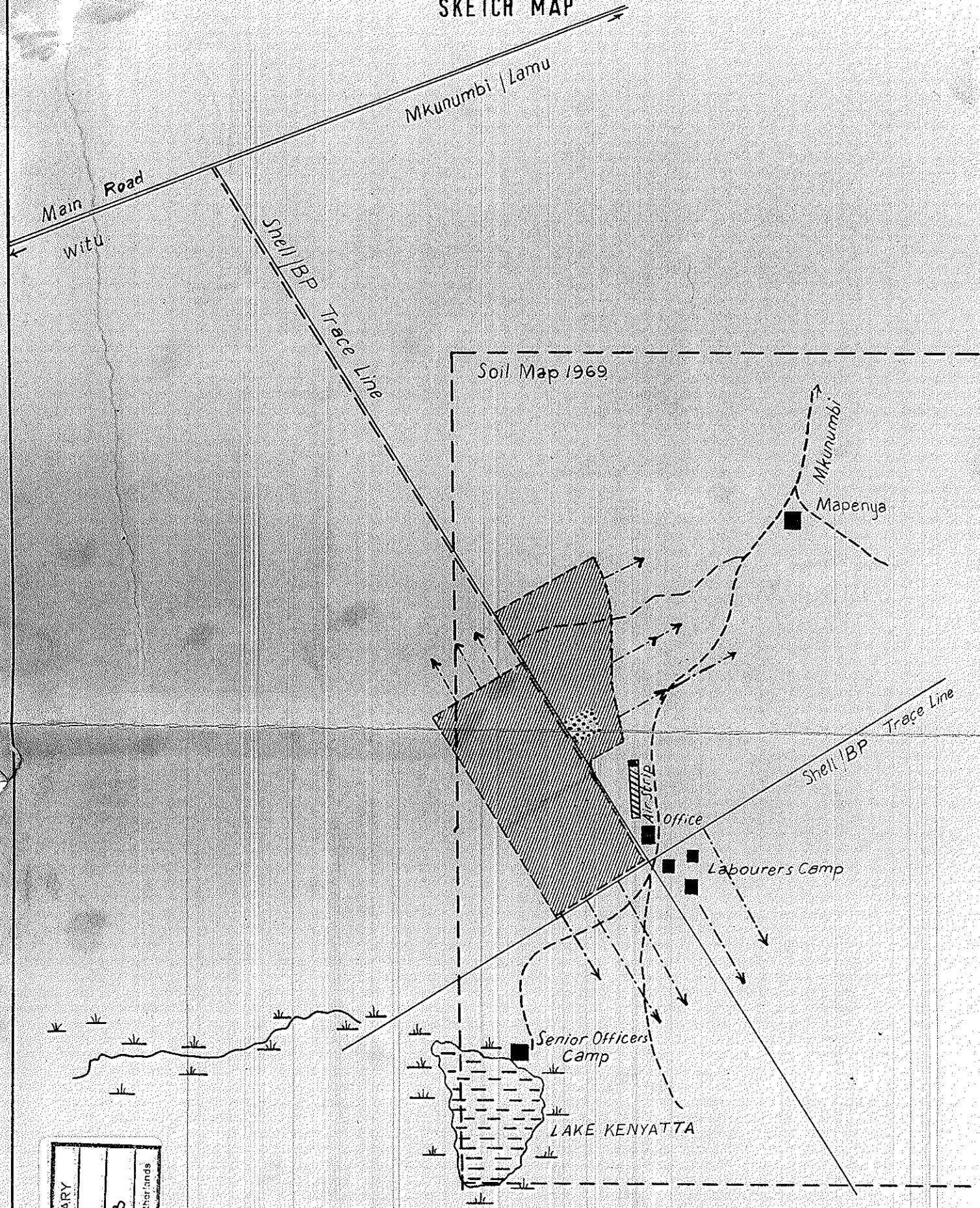
During the trip no special attention was paid to soil fertility aspects. These aspects have to be dealt with by a soil fertility expert.

APPENDIX





Sketch map "Lake Kenyatta Cotton Scheme".

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LAKE KENYATTA COTTON SCHEME SKETCH MAP



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KE
7203
Wageningen, The Netherlands

-  Present Scheme (Under Cotton)
-  Trials
-  Motorable Tracks
-  Recommended Extension

Scale 1:50,000

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