

SANDY SOILS

Report of the FAO/UNDP Seminar on
Reclamation and Management of Sandy Soils
in the Near East and North Africa, *1973*

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12.1 INTRODUCTION

Sandy soils in the Sudan are widely extended and cover most of the Northern, Kordofan and Darfur provinces. They are rain-cultivated and there is the problem of the short rainy season which lasts for three to four months only, leaving the rest of the year as a dry hot period. Due to the availability of vast areas which are suitable for agricultural expansion, relatively little attention has been given to the proper development of these sandy soils.

12.2 TYPES AND ORIGIN

Most of the sandy soils are of aeolean origin and are believed to be derived from the northern desert which occupies a large part of Libya and extends southwards into the Sudan. Geomorphologically, these soils are found in the form of slightly undulating sand sheets, transverse dunes or longitudinal sand ridges. They are very deep and have usually uniform texture throughout the profile with the clay content ranging from about 5 to 10%. The ratio of the coarse to fine sand, which are the main components of the mechanical analysis of these soils, seems to narrow from north-west to south-east. Their pH is about neutral. As would be expected from their low clay and organic matter contents, the sandy soils are inherently poor in nutrients especially phosphorus and nitrogen.

The other type of sandy soils has been formed in situ from the Nubian sandstones or from the Basement Complex rocks. This type is different from the former in that it shows more differentiation in the profile, has high clay content which increases with depth and it is distinctly acidic.

12.3 LAND USE

The rainfall varies considerably over the extensive area of the sandy soils, and it ranges from traces in the north to about 800 mm in the south. For convenience, the area covered by the sandy soils can be divided into the following three zones:-

- i. The Northern Zone with rainfall less than 250 mm; this zone is usually used by nomadic pastoralists and the animals kept here are mainly camels, sheep goats and, to a lesser extent, cattle.
- ii. The Central Zone with rainfall ranging between 250 and 450 mm; this is a cropping zone and the main crops grown here are sesame (Sesamum orientale), dukhn (Pennisetum typhoideum) and groundnuts. Shifting cultivation with four years continuous cropping followed by twelve years bush fallow is practised. The main component of the bush fallow is the Gum Arabic Hashab Tree (Acacia senegal) which is a leguminous tree and is claimed to fix atmospheric nitrogen. However, with the increase of the population, farmers are now compelled to deviate from this practice and tend to cultivate the same piece of land more frequently. This over-cultivation coupled with the

decrease in rainfall in recent years has no doubt resulted in increased wind erosion and encroachment of the desert on arable land.

- iii. The Southern Zone with rainfall ranging between 450 and 800 mm; this zone is occupied mainly by the Baggara, the famous cattle nomads. About 70% of the Sudan cattle are raised here. However, with the recent anti-thirst campaign, water points (mainly boreholes) were constructed in this zone, thus making drinking water available for opening more land for cultivation and grazing. Similar wells were also constructed in the other two sandy zones. As a result of this, many Baggara nomads are now settling and giving more attention to crop production.

In conclusion, attention must be given to the proper management of these extensive rainfed sandy soils in order to check the desert encroachment on arable lands.