

Sudan (Republic of)

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Location and area

Sudan is a republic in northeastern Africa, the largest country (2,505,800 km²) of the African continent with a maximum length from north to south of more than 2,250 km and an extreme width of about 1,730 km. The country is bordered on the north by Egypt; on the east by the Red Sea, Eritrea, and Ethiopia, on the south by Kenya, Uganda, and the Democratic Republic of the Congo, and on the west by the Central African Republic, Chad, and Libya. (Microsoft Encarta Encyclopedia 2002).

Topography

Sudan is divided into three natural regions:

1. Desert in the north, covering about 30 % of the country. The Libyan Desert, a barren waste broken by rugged uplands, covers most of Sudan northwest of the Nile. The Nubian Desert lies east of the Nile and the Atbara.
2. The semi-arid Sahel region of steppes and low mountains in central Sudan.
3. Vast wetlands (the Sudd) and rainforest in the south.

Most of Sudan comprises a flat, featureless plain. The few uplands include the Red Sea Hills along the coast and the Nuba Mountains in the west-central area. Jebel Marra, an isolated extinct volcanic cone in the far west, is the highest point (3,500 m). Kinyeti in the south, near the Ugandan border, is 3,187 m high.

Major topographical features of Sudan are the River Nile, its headstreams the White Nile and Blue Nile (which meet at Khartoum), and the tributaries of these rivers. The White Nile crosses the country from the Ugandan border to its confluence with the Blue Nile, to form the Nile proper. The Blue Nile, the most important of the two headwaters in terms of the volume of water carried as well as the area of irrigated land watered, rises in the Ethiopian Plateau and flows across east-central Sudan. Of the Nile tributaries the most important is the Atbara, which also rises in the Ethiopian Plateau. (Microsoft Encarta Encyclopedia 2002).

Climate

Sudan has a continental tropical climate; only the Red Sea coast is affected by maritime influences. In the desert zones winter temperatures of 4° C are common, particularly after sunset; summer temperatures often exceed 43° C, and rainfall is negligible. Dust storms frequently occur in the hot summer months before the rains. High temperatures also prevail to the south throughout the central plains region, but the humidity is generally low, except along the Red Sea coast.

In the vicinity of Khartoum, the average annual temperature is about 27° C; annual rainfall, most of which occurs between July and September, is about 250 mm. Equatorial climatic conditions prevail in southern Sudan. In this region the average annual temperature is about 29° C, annual rainfall is more than 1,000 mm, and the humidity is excessive. Droughts are common outside the south (Microsoft Encarta Encyclopedia 2002).

Land use

Vegetation is sparse in the desert zones. Large forested areas are found in central Sudan, especially in the river valleys, although fuel-wood cutting and grazing has reduced their size considerably.

Large areas of cultivable land are situated in the region between the Blue Nile and the Atbara in the east, and in the area between the Blue and White Niles, known as the Gezira (Arabic, "island"), in the centre of Sudan. Other cultivable land is found in the narrow Nile valley above Khartoum and in the valleys of the plains region. Irrigation is extensively employed; the Gezira is the largest irrigated area under single management in the world, covering more than 1 million hectares. The country also has vast areas of grasslands and forests, including acacia forests in the Sahelian region. Only about 7 per cent of the country's land area is used for arable cultivation; large areas are used for seasonal grazing. (Microsoft Encarta Encyclopedia 2002).

Wetlands

The Swamps of the Upper Nile in Sudan, also called the Sudd, constitute one of the world's largest wetlands. The data on their extent, however, vary strongly. The WCMH gives an area of 50,000 km² (www.wcmc.org.uk/wh/reviews/wetlands/t11.htm), Howard-Wiliams & Thompson (1985) mention an area (including floodplain) of 92,000 km² of which 40,000 km² (10,000) can be considered as permanent swamp, Thompson (1985) gives an area of 80,000 km² of seasonal swamp and 8,000 km² of permanent swamp, whereas Denny (1993) subdivides the Swamps of the Upper Nile into 16,000 km² of permanent swamp, 15,000 km² of seasonal swamp, and 70,000 km² of rain-induced floodplain.

Other swamps in Sudan include the Kenamuke Swamp (13,955 km²) and the Lotagipi Swamp (12,900 km², shared with Kenya) (Howard-Wiliams & Thompson 1985).

Without further reference Lappalainen & Žurek (1996c) give an area for the total wetland area of 1,000 km².

Peatlands

On the soil map of Africa, Schokalskaja (1953) indicates large areas of freshwater peatland soils in the Sudd southwest of Malakal. She describes how the roots of the wetland vegetation, consisting of *Cyperus papyrus* L. and *Phragmites australis*, do not decompose completely but build a mat of up to 3 m thick close to the river Nile. Kivinen & Pakarinen (1981) mention the presence of peatland in Sudan but present no estimates for its area.

On the basis of the FAO Soil Map of the World, Bord na Mona (1985) and Shrier (1985) mention the occurrence of Histosols associated with Orthic Ferrasols and Humic Gleysols in Sudan. According to Markov et al. (1988) peatlands can be found in southern Sudan along the rivers. Along the White Nile swamps are said to occupy some 145 km², of which some may be peatlands. There are 3 National Parks and some other reserves in Sudan that include swamps (peatlands).

According to the interpreted World Soil Map (Van Engelen & Huting 2002) 33,270 km² of histosols exist in Sudan and 124,046 km² of gley soils.

A pollen profile from a fossil lake basin in the present zone of absolute desert in Northern Sudan indicates the presence of peatland vegetation and possible peat formation in the marginal areas of the former lake (Jahns 1995).

Still to be checked:

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