Zambia

Last updated: 31-01-2004

Location and area

Zambia is a landlocked country in Southern Africa bordered on the north-west by the Democratic Republic of the Congo; on the north-east by Tanzania; on the east by Malawi; on the south-east by Mozambique; on the south by Zimbabwe, Botswana, and the Caprivi Strip of Namibia; and on the west by Angola. Zambia covers about 752,600 km^2. (Microsoft Encarta Encyclopedia 2002).

Topography

Most of Zambia is high plateau with a flat or gently undulating terrain with elevations between 1,000 and 1,600 metres above sea level. The Muchinga Mountains, which are the highest peaks in Zambia, reach elevations of up to 2,068 m. They lie to the south of Lake Tanganyika, which abuts into the northeast of Zambia.
The major river of Zambia is the Zambezi, which defines the border with Zimbabwe. Its tributaries include the Kafue and the Luangwa, in the south and west, and the Luapula in the east. In the north-east, the River Chambeshi drains into Lake Bangweulu, which lies at the centre of a vast swampy region. Lake Kariba, one of the world's largest artificial lakes, was formed by the construction of the Kariba Dam on the Zambezi. (Microsoft Encarta Encyclopedia 2002).

Climate

Although lying within the tropics, much of Zambia enjoys a subtropical climate because of the high altitude. There are three seasons: cool and dry (May-August), hot and dry (August-November), and the wet season (November-April). The average temperature during July, the coldest month of the year, is 17° C; the wettest month, January, has an average temperature of 22° C. October is usually the hottest month (30° C). Annual rainfall ranges from 760 mm in the south to 1,400 mm in the north. (Microsoft Encarta Encyclopedia 2002).

Land use

Most of the country is savannah. Compared with many other African countries, Zambia has retained a large percentage of its natural forest: about 42 % (2000) of the country is forested. (Microsoft Encarta Encyclopedia 2002).

Wetlands

Without further reference, Lappalainen & Żurek (1996c) use a figure of 11,060 km^2 for the total wetland area (cf. Bord na Mona 1985).
According to Mukanda (1998), wetlands occupy slightly more than 20% (150,520 km^2) of the country's area. Wetland soils generally have a 15-30 cm thick, black, mucky or highly humic topsoil, consisting of largely decomposing organic matter (Brammer 1973).
The following types of wetlands are distinguished (Mukanda 1998):

1. Swamps consist of vast, usually inundated, depressions with floating vegetation and wet peaty land. Ferreira (1981) identified between (a) an outer belt, which is flooded annually,

and (b) the main swamp, which is permanently flooded and covered with floating vegetation. Swamps occupy about 3 % (some 24,000 km²) of the country (Howard-Wiliams & Thompson 1985). The major swampy areas of Zambia are Busanga, Lukanga, Bangweulu swamps, and Lake Mweru - Wantipa and Lake Mweru marshes (Mukanda 1998). Associated with Lake Bangweulu are swamps (6,000 km²) and floodplains (6,000 km²).

2. Floodplains are low-lying zones along major river systems that are seasonally flooded. Major floodplains with several kilometres wide occur along stretches of the Kafue, Zambezi, and Chambeshi rivers. Floodplains are usually made up of a complex pattern of lagoons, oxbow lakes, backswamps, levees, cut-off river channels and terraces, offering a highly variable relief.
3. Dambos are seasonally or permanently wet grassy valleys, depressions, or seepage zones on slopes. Dambos have a polygenetic origin, but they are often alluvial deposits and nearly always underlain by laterite. The area of dambos in Zambia amounts to 35,000 km^2 (Ferreira 1981). Dambo soils are partly organic soils. Such "dambo peats" occupy most valleys in the podzol area east of Mongu and west of Kalabo in the Nyengo plains of the Western Province. The soils generally comprise a metre or more of black to dark brown organic material, mainly mucky, but with interstratified layers or more peaty material (Brammer 1973).

Table 1 presents an overview of major wetland areas in Zambia.

Table 1: Major wetland areas in Zambia (after Howard-Wiliams & Thompson 1985, Thompson 1985). W = wet season, D = dry season

Name	**Country**	**Character**	**km^2**
Kifukula depression	Zaire, Zambia	Swamps, floodplain	1,502
Mweru (Luapula River)	Zambia, Zaire	Shallow lake (Mweru)	4,580
Bangweulu	Zambia	Shallow lake, swamps and floodplain	W 8,800 D 2,500
Mweru Wantipa	Zambia	Shallow lake and swamps	300 1,204
Barotse plain (Zambesi floodplain)	Zambia	Floodplain	W 9,000 D 700
Liuwa plain	Zambia	Floodplain and swamp	3,500
Lukanga swamp	Zambia	Swamp	2,500
Busanga plain	Zambia	Swamp and floodplain	300
Kafue flats	Zambia	Seasonal swamp, floodplain	6,000

Peatlands

Kivinen & Pakarinen (1981) mention the presence of peatland in Zambia but present no estimates for its area.
Dudal (1980) pointed at the presence of extensive Histosols within the large swampy areas in Zambia. Bord na Mona (1985) and Shrier (1985), referring to the FAO/UNESCO 1971-1981 Soil Map of the World 1:5,000,000 (=histosols), mention a "peatland" resp. "mire" area of 11,060 km^2. Histosols occur in the extensive permanent swamp complexes around lake Bangweulu in the north and in the Lukanga swamp in central Zambia. The same figure of 11,060 km^2 is used by Andriesse (1988) for the extent of organic soils, and by Schneider &

Schneider (1990) and Pfadenhauer et al. (1993) for the peatland area. According to Markov et al. (1988) swamps are concentrated around Mweru lake and Bangweulu lake and along rivers (Kafue river), but it is unclear whether all these swamps contain peat.
According to the interpreted World Soil Map (Van Engelen & Huting 2002) 15,645 km^2 of histosols exist in Zambia and 112,032 km^2 of gley soils.

Mire and peatland losses

In the last 10 to 15 years, growing human population, increased need for food production, income generation and the occurrence of drought have been major factors leading to intensified and diversified utilization of wetlands. Where drained, the surface layer of dambo peats becomes firm with a subangular blocky structure (Mukanda 1998).
On the Upper Zambezi in western Zambia a massive expansion of cultivation on fragile peat soils has recently been taking place (http://wetlands.hud.ac.uk/Rwanda.htm).

Still to be checked:
Chidumayo, E.N. 1992. The utilization and status of dambos in Southern Africa: A Zambian case study. In: Wetlands Conservtion Conference for Southern Africa. Eds. T.Matiza; H.N. Chabwela. Gland: IUCN.
Livingstone, D.A. 1971. A 22,000 Year Pollen Record from the Plateau of Zambia. Limnology and Oceanography. 16, 62: 349-356.
Stager, C.J. (1988) Environmental changes at Lake Cheshi, Zambia since 40,000 years BP. Quaternary Research 29 : 54-65