Waterberg Geology

Sharkati lies in the heart of the Waterberg Biosphere reserve in Limpopo. The reserve is situated within the Mokolo river catchment area app. 20 km north-west of Vaalwater and the Mokolo river flow through the farm towards north-west, where it later goes through Mokolo dam and then joins Limpopo River. Sharkati lies at an altitude of about 1400m above sea level. (By comparison, Johannesburg is at an altitude of 1600-1800m and Pretoria at 1400-1550m). Sharkati receives an average of about 600mm of rainfall per annum, mainly between November and March.

The geology of the region consists of a sequence of mainly sedimentary rocks varying in total thickness from 1500m to as much as 7000m. Some volcanic units occur at the base of the sequence, near Alma. This impressive succession is known collectively as the Waterberg Group of rocks, and has been dated as being of paleo-Proterozoic age, that is, between 2.0 and 1.6 billion years ago.

The characteristic reddish colour of the Waterberg sediments is due to the presence of iron oxides, which in turn could only have been formed in the presence of free oxygen. The Waterberg 'red beds' therefore reflect the presence, at this early point in the Earth's evolution, of considerable quantities of oxygen in the atmosphere and are the oldest examples known.

The Waterberg Group rests unconformably on top of the rocks of the Transvaal Supergroup (which form the hills around Pretoria and the Magaliesberg) and also above the igneous rocks of the Bushveld Complex, which occupy the area of the Springbok Flats and stretch westwards to Rustenburg and northeast towards Mokopane (Potgietersrus). All of these rock groups in turn are much younger than the sediments of the Witwatersrand Supergroup, which are 2.8-3.0 billion years old and which contain the gold reefs that provided the basis for South Africa's gold mining industry.

This succession of large sedimentary basins, starting with the Witwatersrand 3 billion years ago and progressing upward through the Transvaal, the Bushveld Complex, the Waterberg and finally the Karoo, is a reflection of the remarkable geological stability that has characterised the southern part of the African continent virtually since the beginning of the geological record.

This stable region, known as the Kaapvaal Craton, is one of only a few in the world – another is the Canadian shield – where very thick sequences of rocks can be found that represent almost the whole geological history of the earth, largely undistorted by the major volcanic or tectonic events that surrounded them.