Hello students, my name is Surabhi Prabhu, I'm assistant professor of Geography, from Santa Sohirobanath Ambiye Government College of Arts and Commerce, Pernem. Today we're going to start with the environmental studies subject, which is programmed for the students of Bachelors of Arts, Commerce, Science first years. We are going to discuss the desert ecosystem, where in we will be studying the introduction, types, features, structures and functions of the desert ecosystem. Let us start with the introduction of the desert ecosystem. The deserts are specialized and sensitive ecosystems that is difficult to inhabit. Desert ecosystem can be hot for example the Sandy Sahara. Or it could be cold, as on the peaks of mountains where the high altitude makes conditions very harsh. Both the hot and cold deserts have in common the fact that they are difficult for the organisms to inhabit. The types of desert ecosystems on the basis of temperature are divided into two types, the hot and dry desert and the cold deserts. Let us discuss the hot deserts and know their different features. These deserts are warm throughout the year, but winters bring a little rainfall. These deserts are alternately hot during daytime that is, they could go from 43 degrees Celsius to 49 degrees Celsius, but at night these deserts are extremely cold where in the temperature could reach up to minus 18 degrees Celsius. The annual rainfall here does not exceed 250 millimetres. Here the soils are very dry and therefore when there is rainfall, they quickly soak up the water and as the water evaporates, the salts are left behind on the surface of the soil. Hence this kind of soils are mostly rich in salt content. The plants in the deserts are called xerophytic or succulents. That is, they are drought tolerant and they can survive in water scarcity conditions. Also, the plants here have taproots as they reach deep under the ground to access water supplies. These plants have small leaves with the waxy coatings to reduce the water loss which is caused through the process of transpiration.

Also, the leaves consist of spines which help in the water loss conditions and there is much less water loss as compared to those of the leaves. Also, these spines prevent the plants from being grazed by the animals. The examples of some of the hot and dry deserts are Sahara and Kalahari. in Africa, the Arabian desert in the middle east, the Great Victoria Desert in Australia, the Gobi Desert in the Asia and the Great Basin Desert in the North America, one of the examples in India of the hot and dry desert is the Thar desert which is in Rajasthan.

The Cold desserts. These regions are characterized by long winter seasons and very short summer seasons. The winters would last for nine months, wherein the average temperature would range around minus two to four degrees Celsius, whereas during the remaining months there would be summer where in the mean temperature would be around 12 degrees Celsius, the precipitation would take place as rain and snow and the annual rainfall would not exceed more than 250

millimetres. Also, since the sun doesn't strike hard on the cold deserts, the evaporation is not much as that compared to the hot and dry deserts. So, the soil is almost covered in snow. Also, the plants here would shed their leaves and they are scattered. They also have needle like leaves. Whereas the animals have burrowing nature wherein they could be prevented from the harsh cold conditions. Also, they have thick fur coat which can protect them from the cold seasons during the winters. The animals which are commonly found in cold deserts include foxes, Jackrabbits, the kangaroo rats and antelopes. The examples of the cold deserts would be Antarctica and the Arctic deserts, whereas Ladakh is the cold desert in India.

Here is the structure and functions of the desert ecosystem. The structure consists of two components that is biotic and abiotic. Biotic is the living component whereas the abiotic the non-living component.

Let us discuss about the biotic components. The first component are the producers. They are mainly the shrubs or bushes with some grasses and few trees. The dominant plant spaces here would include the succulents which are water retaining plants which have adapted to the arid conditions or the dry soil conditions and also hardy grasses. Some lower plans such as lichens and xerophytic mosses are also present here. Second component is the consumer. This includes the animals such as insects, reptiles which are capable of living in the xeric conditions. Besides, there are some nocturnal rodents, birds and some mammalians like camels, which are commonly found here. And the last biotic component are decomposers, due to poor vegetation with low amount of dead organic matter the decomposers are poor in the desert ecosystem and the common decomposers which are found are bacteria, fungi, most of which are thermophilic in nature. That is, they can survive in the extreme temperature fluctuation conditions. Next are abiotic components, the abiotic components would be temperature fluctuations, very low rainfall and poor organic substances in the soil.

So, we have finished with the desert ecosystems wherein we have studied the different types, the structures and functions of the desert ecosystem. Here are some of the further references. Thank you.