

UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Classification of Soil in India [Geography Notes for UPSC]

The first scientific classification of soil was done by Voelekar and Leather. According to them, Indian soils were classified into four categories.

1. Alluvial
2. Regur (black)
3. Red soil
4. Lateritic soil

The All India soil and land use survey organization attempted a classification on the basis of texture, colour, structure, pH value, porosity etc. in 1957. After that recently, the Indian council of agricultural research, on the basis of texture, structure, colour, pH value, porosity etc.

Alluvial soil

The alluvial soil occurs mainly in the Satluj- Ganga- Brahmaputra Plains. They are also found in the valleys of the Narmada, Tapi and in the Eastern and Western coastal plains. These soils are mainly derived from the debris brown from the Himalayas. This soil is well drained and poorly drained with an immature profile in undulating areas. This soil has potash deficiency. The colour of soil varies from light grey to ash. This soil is suited for Rice, maize, wheat, sugarcane, oilseeds etc.

This soil is divided into

- **Khadar soil:** the khaddar soils are enriched with fresh silts. They are low lying, frequently inundated by floods during the rainy season. It occupies the flood plains of rivers. The khaddar tracts called as kankar are rich in concentration.
- **The Bhangar:** This soil lies above the flood level. It is well- drained but because of the calcium carbonate nodules. The texture of soil varies from the loamy soil to clayey soil.

Red soil

This soil developed on Archean granite occupies the second largest area of the country. They are mainly found in the Peninsula from Tamil Nadu in the south to Bundelkhand in the north and Raj Mahal in the east to Kathiawad in the west. This soil is also known as omnibus group. The presence of ferric oxides makes the colour of soil red. The top layer of the soil is red and horizon below is yellowish. Generally, these soils are deficient in phosphate, lime, magnesia, humus and nitrogen. This soil is good for the cultivation of wheat, cotton, pulses, tobacco, millets, orchards, potato, and oilseeds.



Black or Regur soils



Black soil is also known cotton soil and internationally it is known as 'Tropical Chernozems'. This is the third largest group in India. This soil is formed from rocks of cretaceous lava. This stretch over the parts of Gujarat, Maharashtra, Western parts of Madhya Pradesh, North- Western Andhra Pradesh, Karnataka, Tamil Nadu, Rajasthan, Chhattisgarh, Jharkhand up to Raj Mahal hills. The soil is rich in iron, lime, calcium, potash, magnesium and aluminium. It has high water retaining capacity and good for the cotton cultivation, Tobacco, citrus fruits, castor, and linseed.

Desert soil



This soil is deposited by wind action and mainly found in the arid and semi-arid areas like Rajasthan, West of the Aravallis, Northern Gujarat, Saurashtra, Kachchh, Western parts of Haryana and southern part of Punjab. They are sandy with low organic matter. It has low soluble salts and moisture with very low retaining

capacity. If irrigated these soil give a high agricultural return. These suitable less water requiring crops like Bajra, pulses, fodder, and guar.

Laterite Soil



These soft, when they are wet and 'hard and cloddy' on drying. These are found mainly in the hills of the Western Ghats, Raj Mahal hills, Eastern Ghats, Satpura, Vindhya, Odisha, Chhattisgarh, Jharkhand, West Bengal, North Cachar hills, and the Garo hills. These are poor in organic matter, nitrogen, potassium, lime and potash. These iron and aluminium rich soils are suitable for the cultivation of rice, ragi, sugarcane and cashew nuts.

Mountain soils



These soils have less developed soil profile and mainly found in the valleys and hill slopes of Himalayas. These soils are immature and dark brown in colour. This soil has very low humus and it is acidic in nature. The orchards, fodder, legumes are grown in this soil.

Red and Black soils

These are developed over the granite, gneiss and quartzite of Precambrian and Archean era. This soil performs well if irrigated. Generally, this soil has very less productivity.

Grey and brown soils

These soils are found in Rajasthan and Gujarat. It is formed by the weathering of granite, quartzite, and gneiss. These loose, friable soils contain iron- oxide (haematite and limonite)

Submontane soil

These are formed by the deposition of eroded material from Shiwaliks and the lesser Himalayas. These are found in the Tarai region of the submontane stretching from Jammu and Kashmir to Assam. The soil supports a luxuriant growth of forest and more prone to soil erosion.

Snow fields

This soil found under the snow and glaciers at the highest peak of greater Himalayas, Karakoram, Ladakh, and Zaskar. This soil is immature in nature and unsuitable for crops.

Karewa soil

Karewa soils are the lacustrine deposits in the Kashmir valleys and Bhadarwah valley. The fine silt, clay, and boulder gravels are the composition of Karewa soil. They are characterized with the fossils. These soils are mainly devoted to the cultivation of saffron, almonds, apple, walnut etc.

Peaty and marshy soils



This soil originates from the areas where adequate drainage is not possible. It is rich in organic matter and has high salinity. They are deficient in potash and phosphate. These mainly found in Sunderbans delta, Kottayam, and Alappuzha districts of Kerala, Rann of Kachchh, deltas of Mahanadi etc.

Saline and alkaline soils



These are also called as Reh, Usar, Kallar, Rakar, Thur and Chopan. These are mainly found in Rajasthan, Haryana, Punjab, Uttar Pradesh, Bihar and Maharashtra. Sodium chloride and sodium sulphate are present in this soil. It is suitable for leguminous crops.