

Soils of India: Classification and Characteristics



This article is part of our [free online study materials](#) in the Geography section. Like the previous [articles in the History section](#), this post – about the classification of soils in India – highlights only the main points in an exam point of view. From the UPSC exam perspective aspirants should be aware of nature, colour, nutrients present/absent in each soil type. Recommended reference materials for the topic are NCERT books for Geography. Now let's dig deep into the current topic.

Definition of Soil

Soil can be simply defined as a mixture of small rock particles/debris and organic materials/humus which develop on the earth surface and support growth of plants.

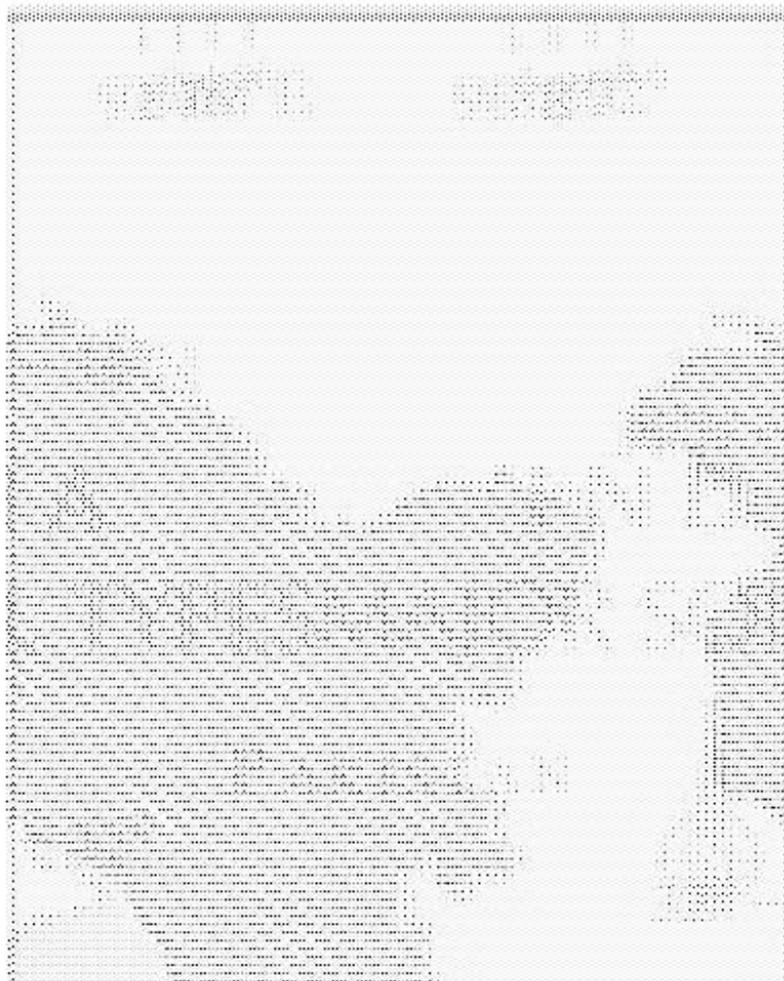
Soil Classification – Urvara vs Usara

- In India, soil had been classified from the ancient period itself even though it was not as detail as the modern classifications.
- In the **ancient period**, the classification was based on only two things; whether the soil is fertile or sterile. Thus the classification were:
 1. Urvara [fertile]
 2. Usara [sterile]

Soil Classification – Agencies involved

- In the modern period, when men started to know about the various characteristics of soil they began to classify soil on the basis of texture, colour, moisture etc.
- When the **Soil survey of India** was established in **1956**, they studied soils of India and their characteristics.
- **The National Bureau of Soil Survey and the Land Use Planning**, an institute under the control of Indian Council of Agriculture Research did a lot of studies on Indian soil.

Major classification of Indian soils



1. Alluvial soil [43%]
2. Red soil [18.5%]
3. Black / regur soil [15%]
4. Arid / desert soil
5. Laterite soil
6. Saline soil
7. Peaty / marshy soil
8. Forest soil
9. Sub-mountain soil
10. Snowfields

Alluvial soil:

- Mostly available soil in India (about 43%) which covers an area of 143 sq.km.
- Widespread in northern plains and river valleys.
- In peninsular-India, they are mostly found in deltas and estuaries.
- Humus, lime and organic matters are present.
- Highly fertile.
- Indus-Ganga-Brahmaputra plain, Narmada-Tapi plain etc are examples.
- They are depositional soil – transported and deposited by rivers, streams etc.
- Sand content decreases from west to east of the country.
- New alluvium is termed as **Khadar** and old alluvium is termed as **Bhangar**.
- **Colour:** Light Grey to Ash Grey.
- **Texture:** Sandy to silty loam or clay.
- Rich in: potash
- Poor in: phosphorous.
- Wheat, rice, maize, sugarcane, pulses, oilseed etc are cultivated mainly.

Red soil:

- Seen mainly in low rainfall area.
- Also known as **Omnibus group**.
- Porous, friable structure.
- Absence of lime, kankar (impure calcium carbonate).
- **Deficient in:** lime, phosphate, manganese, nitrogen, humus and potash.
- **Colour:** Red because of Ferric oxide. The lower layer is reddish yellow or yellow.
- **Texture:** Sandy to clay and loamy.
- Wheat, cotton, pulses, tobacco, oilseeds, potato etc are cultivated.

Black soil / regur soil:

- Regur means **cotton** – best soil for cotton cultivation.
- Most of the Deccan is occupied by Black soil.
- Mature soil.
- High water retaining capacity.
- Swells and will become sticky when wet and shrink when dried. **Self-ploughing** is a characteristic of the black soil as it develops wide cracks when dried.
- **Rich in:** Iron, lime, calcium, potassium, aluminum and magnesium.
- **Deficient in:** Nitrogen, Phosphorous and organic matter.
- **Colour:** Deep black to light black.
- **Texture:** Clayey.

Laterite soil:

- Name from Latin word 'Later' which means Brick.
- Become so soft when wet and so hard when dried.
- In the areas of high temperature and high rainfall.
- Formed as a result of high leaching.
- Lime and silica will be leached away from the soil.
- Organic matters of the soil will be removed fast by the bacteria as it is high temperature and humus will be taken quickly by the trees and other plants. Thus, humus content is low.
- **Rich in:** Iron and Aluminum
- **Deficient in:** Nitrogen, Potash, Potassium, Lime, Humus
- **Colour:** Red colour due to iron oxide.
- Rice, Ragi, Sugarcane and Cashew nuts are cultivated mainly.

Desert / arid soil:

- Seen under Arid and Semi-Arid conditions.
- Deposited mainly by wind activities.
- High salt content.
- Lack of moisture and Humus.
- Kankar or Impure Calcium carbonate content is high which restricts the infiltration of water.
- Nitrogen is insufficient and Phosphate is normal.
- **Texture:** Sandy
- **Colour:** Red to Brown.

Peaty / marshy soil:

- Areas of heavy rainfall and high humidity.
- Growth of vegetation is very less.
- A large quantity of dead organic matter/humus which makes the soil alkaline.
- Heavy soil with black colour.

Forest soil:

- Regions of high rainfall.
- Humus content is less and thus the soil is acidic.

Mountain soil:

- In the mountain regions of the country.
- Immature soil with low humus and acidic.

PS: Also refer the article '[Different soil types in India: Understand the differences](#)' for a comparative study. Data are given in a table format there.