

Soil

The loose material or the upper layer of the mantle rock (regolith – a layer of loose, heterogeneous material covering solid rock) consisting mainly of very small particles and humus which can support the growth of plants is known as “soil”. Soil mainly consists of mineral/rock particles, portions of decayed organic matter, soil water, soil air and living organisms. The major factors that influence the formation of soil are parent material, relief, climate, vegetation, life forms and time.

In general, soil is composed of four elements:

1. Inorganic or mineral fraction derived from the parent material
2. Organic matter (decayed and decomposed plants and animals)
3. Air
4. Water

Soil is formed under specific natural conditions and each of the elements of the natural environment contributes to this complex process of soil formation known as “pedogenesis”.

Soil Profile

The soil profile is a vertical cross-section of the soil, made of layers parallel to the surface. Each layer of soil has a different texture and is known as the horizon.

- Horizon A (Topsoil) – It is the topmost layer where the organic materials have got incorporated with the mineral matter, nutrients and water – elements necessary for the growth of plants.
- Horizon B (Subsoil) – This zone has a greater content of minerals and humus is present in smaller quantities. It represents a transition between Horizon A and Horizon C and contains matter derived from below as well as above.
- Horizon C (weathered and decomposed rock) – This zone is composed of the loose parent/rock material. This layer is the first stage in the soil formation process and eventually forms the above two layers.

Underneath these three horizons is the rock which is known as the parent rock or the bedrock.

Different Types of Soil in India

In the ancient period, soils were mainly classified into two – Urvara (fertile) and Usara (sterile).

The first scientific classification of soil was done by Vasily Dokuchaev. In India, the **Indian Council of Agricultural Research (ICAR)** has classified soils into 8 categories. They are:

1. Alluvial Soil
2. Black Cotton Soil
3. Red & Yellow Soil
4. Laterite Soil
5. Mountainous or Forest Soil
6. Arid or Desert Soil
7. Saline and Alkaline Soil
8. Peaty and Marshy Soil

As mentioned before, there are eight types of soils categorized by ICAR but some Indian Soils like – Karewa soil, Sub-Montane Soil, Snowfield, Grey/Brown Soil are all sub-types of main Indian Soil. Let's read about them one by one:

Types of Soil in India – Alluvial Soil

- Alluvial soils are widespread in the northern plains and river valleys.
- It covers about 40% of the total land area of the country.