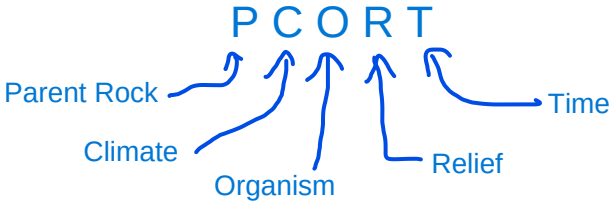
Geography Class 34

FACTORS AFFECTING SOIL FORMATION (09:30 AM)

- **Parent Rock**
- It decides the texture, colour and other basic characteristics of the soil. However, the role of parent material diminishes with time.
- E.g. Quartzite rocks result in a sandy texture. Black soil is derived from basaltic magma and is black in colour due to the presence of titaniferous magnetite.
- **Climate**
- It is the most dominant factor that affects the soil directly by controlling weathering, percolation, evaporation and decomposition.
- It is due to climate,soils develop different horizons over a period of time.
- E.g. the Saline soils of Rajasthan, and
- The laterite soils of the western ghats and Red Soil of the peninsular region- Even though the parent rock material is the same it is due to dry conditions it has resulted in red soil.
- **Organism** janwaro ka khodna
- Plant roots, burrowing animals, microorganisms etc help in loosening up soil and circulation of gases and nutrients.
- E.g. Soils of forests in Madhya Pradesh
- **Relief**
- The slope of the land decides the thickness of the soil. For e.g. the soils of the Himalayas are thinner than the soils of the northern plains.
- **Time**
- It determines the maturity of soil and decides the influence of other factors.
- E.g. Khadar and Bangar soils of Alluvial plains



Steep Slopes:
On steep slopes, water runoff and gravity tend to carry away soil particles more easily.
Erosion is more intense on steeper inclines, resulting in thinner soil layers.
Vegetation may also struggle to take root, which can further expose the soil to erosion.

Gentle Slopes or Flat Areas:
On gentler slopes or flat areas, water movement is slower, and there is less erosion.
Deposition of soil particles is more common here, leading to the accumulation of materials.
This results in thicker layers of soil forming over time.

Aspect	Khadar	Bhangar
Location	Closer to rivers, floodplains	Farther from rivers, higher terraces
Age	Younger, freshly deposited	Older, not renewed regularly
Fertility	Highly fertile due to fresh silt	Less fertile, may have kankar
Texture	Finer, more clayey	Coarser, contains gravels and kankar
Color	Lighter	Darker or brownish

SOIL FORMATION PROCESS (09:51 AM)

- **a) Transformational process**
- The process of change of soil constituents from one form to another through weathering, breakdown, decay etc is called as transformation.
- **b) Translocational process**
- It involves the movement of soil constituents from one horizon to another within the soil profile.
- It decides the nature and type of soil.
- **i) Leaching -**
- The percolating water removes humus and soluble bases from upper horizons and deposits in lower layers through the process of leaching.
- It is more pronounced in humid areas.
- Leaching involves alleviation and illuviation.
- ~~**Alluviation**~~ is the process through which minerals are removed from the top layer.
- **Illuviation** is the reverse process through which matter accumulates in the lower horizons.
- It involves the deposition of minerals.

humus refers to the organic matter in the soil that has been decomposed by microorganisms. It is a dark, nutrient-rich material formed from the breakdown of plant and animal residues, and it plays a vital role in soil fertility.

Alluviation

H) **Lateralization-** In hot and wet equatorial regions, heavy leaching removes silica and other minerals except for iron and aluminium which accumulate at the surface leading to the formation of a hard crust.

- This process is called as lateralization.
- In temperate regions, the decomposition of coniferous litter results in the formation of organic acids which leads to the removal of aluminium, iron and other organic matter except silica, leaving the top layer acidic in nature. This type of soil is called as **Podzol soil.**

These above processes are those in which precipitation is more than evaporation.

And below will be those in which evaporation is more than precipitation.

Since evaporation is slightly greater than precipitation so only $CaCO_3$ will come out and from lower horizon and will accumulate in top layer.

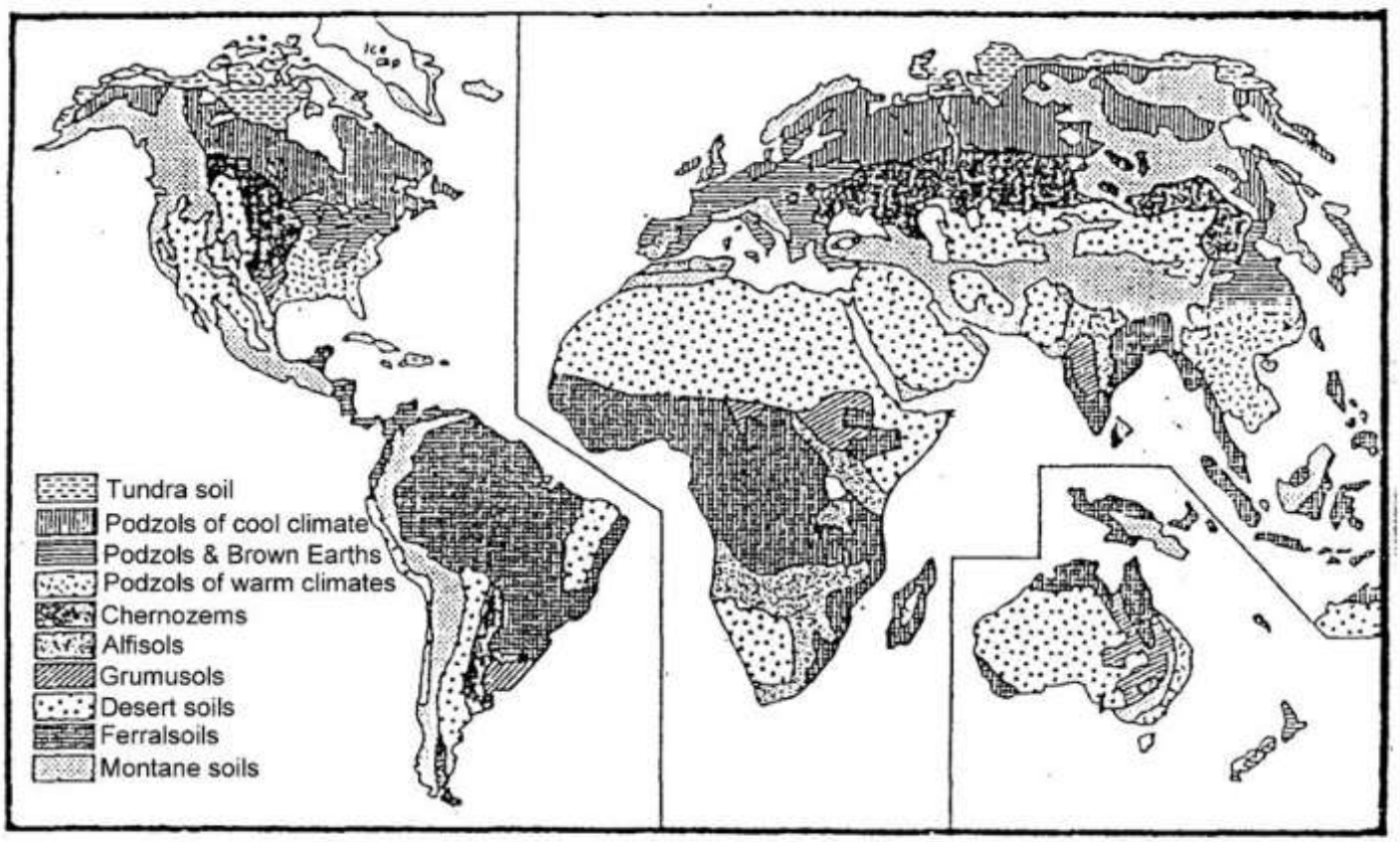
- **Calcification-** It is the deposition of calcium carbonate in the top layer in the regions of temperate grasslands.
- In these regions evaporation just exceeds precipitation.
- **Salinization-** It involves the accumulation of highly soluble Sodium and Magnesium salts in the soil. It is due to excessive evaporation in arid and semi-arid regions. The salt deposition occurs at or very near to the soil surface.
- Salinization is also active in the regions of faulty irrigation practices. E.g. Soils of Punjab and Haryana.
- **Gleyisation-** Under water-logged conditions near coastal regions, the colour of topsoil changes due to the reduction reactions. It also involves the accumulation of organic matter in the upper layer of soil.

Because they grow rice and they keep their fields flooded with water all the time but due to heavy evaporation water leaves salt behind which will effect soil badly over a long period of time.

SOIL CLASSIFICATION (10:33 AM)

- **Pedalfers soil-** In regions where precipitation exceeds evaporation.
- **Pedocals soil-** In regions where evaporation exceeds precipitation.

World Pattern of Soil



- As we go from the equator to the pole, the soil profile changes from Laterite soil to Red and Yellow Soil and Podzol soil.

Central Armed Police Force (CAPF) manages border affairs they manage in peaceful way because it is an international practice that army will come only in conflict.

5 CAPF agencies are there among which BSF is largest one. BSF is for Bangladesh and Pakistan.

For China we made a different force after Indo-China war which is Indo Tibetan Border Police Force (ITBP).

Shasastra Sima Bal (SSB) for Bhutan and Nepal.

Myanmar border is managed by Assam Rifles which is not a CAPF, Assam Rifles is Para Military force. Paramilitary force is managed by Army which comes directly under Defense Ministry. CAPF comes directly under Home Ministry.

Central Reserve Police Force(CRPF) which manages internal security like Naxalism etc. comes under CAPF. CRPF is also posted in Kashmir.

Central Industrial Security Force(CISF) manages security of urban areas like at ports.

- **USDA soil classification-** → U.S. Department of Agriculture

Soil type (as per USDA taxonomy)	Meaning
Entisol	Fresh alluvial
Inceptisol	Old alluvial, volcanic soil
Spodosol	Podzol soil
ALFIsol	Leached soil with Al & Fe
Ultisol	Laterite soil
Oxisol	Top layer strongly weathered with rich Al & Fe
Vertisol (continuous flowing and mixing)	Black soil
Histosol	Peaty soil rich in organic matter
Mollisol (where $CaCO_3$ accumulate)	Prairie soil
Aridisol	Desert soil

Leaching increases as we go down

Red Line is the border of Afghanistan and Pakistan.

Wakhan Corridor is the area which is part of Afghanistan and from there Afghanistan shares border with four countries India, Pakistan, China and Tajikistan.

LOC is border of Pakistan and LAC is border of China where we deployed BSF, ITBP, CRPF and Army also. (LOC is the border in Kashmir which is in between POK and Indian Kashmir.)

NSG and SPG also comes from CAPF.

Northern most point of India is Gilgit Baltistan which is in POK but the accessible point is Indira Pole. Southern most point is Indira Point located at Great Nicobar island of Andaman and Nicobar island.

Sir Creek is Western most point located in Gujrat.

Eastern most point is Kibithu village in Arunachal Pradesh

K2 is highest peak (8611m) in India which is located in POK and this is 2nd highest in the world. K2 is also known as Godwin Austen and it is toughest to climb.

Kanchanjunga is the 3rd highest located at border of India and Nepal.

Lowest point of India is Kuttanad in Kerala.

INDIAN PHYSICAL GEOGRAPHY (11:09 am)

- **Length of Border of India with its neighbours-** (15000Km)
- The longest border is with Bangladesh (nearly 4000 km)
- 2nd longest border is with China (Approx. 3500 km)
- 3rd longest is with Pakistan (Approx 3300 km)
- 4th longest is with Nepal (Approx 1700 km)
- 5th longest is with Myanmar (1650Km)
- 6th longest is with Bhutan (700Km)
- 7th longest is with Afghanistan (100Km)
- **Maritime neighbours of India** (7500Km)
- There are 7 maritime neighbours.
- 4 exclusive maritime neighbours are (exclusively maritime):
- Sri Lanka
- Maldives
- Thailand
- Indonesia

} Near to Andaman and Nicobar.

- Countries which share both land and Maritime boundaries with India:-
- Myanmar (Coco island of Myanmar is near to Andaman and Nicobar island.)
- Bangladesh
- Pakistan
- **Extent of India**
- India extends from **8°4 'N** to **37°6 'N** latitudes and **68°7 'E** to **97°25 'E** longitudes.
- The southernmost point of the country is Indira Point (6°45'N latitude) located in the Andaman and Nicobar Islands.
- Westernmost of India is in Gujarat- Sir Creek.
- The easternmost point is in Arunachal Pradesh. The nearest town to this point is Kibithu.

Meghalaya is only surrounded with Assam.

- The highest point in India is K2.
- The lowest point of India on land is Kuttanad (Kerala).
- Only Sikkim and Meghalaya share a border with only one state.

TOPIC OF THE NEXT CLASS- PHYSIOGRAPHY OF INDIA

See the junction of HP, Uttarakhand, UP and Punjab. (see Paonta Sahib)

Haryana and UK are not connected.

Telangana and Oddisa has no borders but Chattisgarh and AP share borders.

See junction of MP, Bihar, Jharkhand and UP. Jharkhand and MP are not connected and same as with Chattisgarh and Bihar.

Sikkim has West Bengal border and Meghalaya has Assam border so only these two states are like that which have only single border.
Tripura has border of Assam and Mizoram.

Uttar Pradesh has the highest number of borders it share borders with 9 Indian states:
Uttarakhand, Himachal Pradesh, Haryana, Delhi, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, and Bihar.