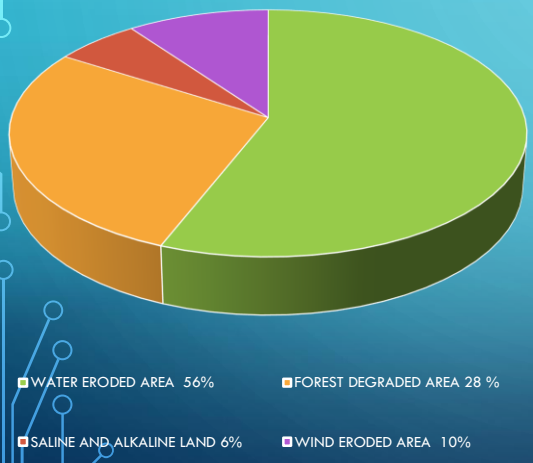
LAND DEGRADATION

INDIA WASTE LAND IN 2000



LAND DEGRADATION FACTORS

- The land has been shared by generations and in future too .
- 95% of our basic needs are received from land.
- But human activities have brought about degradation of land and also aggravated the pace of natural forces to cause damage to land.
- HUMAN ACTIVITIES AS FACTORS FOR LAND DEGRADATION
- 1. DEFORESTATION
- 2.OVER GRAZING
- 3. MINING
- 4. QUARRYING
- 5. INDUSTRIAL EFFLUENTS AS WASTE
- Mining sites are abandoned after excavation work is complete leaving deep scars and traces of overburdening.
- States like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra- over grazing led to land degradation.
- Punjab, Haryana, Western Uttar Pradesh – over irrigation – here water logging leading to increase in salinity and alkalinity in the soil.
- In Jharkhand, Madhya Pradesh, Orissa and Chhattisgarh- deforestation due to mining have caused severe land degradation.

16

1

WAYS TO SOLVE THE PROBLEM OF LAND DEGRADATION

- To meet the tremendous pressure of population on land, we must preserve or increase the capacity of the land.
- Adopt suitable methods to check soil erosion, prevent desertification and increase the fertility of the land.
- We have to check overgrazing, deforestation and improper management of forests.
- Thorny bushes should be grown, industrial effluents and wastes should be properly discharged.
- Mining activities to be controlled. Modern and scientific methods of farming with improved tools would help to increase productivity of land.
- Forest areas to be increased and some waste lands should be brought under productive use.

SOIL AS A RESOURCE

- Soil is the uppermost layer of the earth's crust consisting of organic and inorganic substances.
- It an important renewable natural resource supporting different living organisms on the earth.
- It is the living system and takes millions of years to form soil upon a few centimeter in depth.
- Relief , Parent/bed rock, climate, vegetation and other forms of life and time are important factors in the formation of soil.
- Change in temperature, running water, wind and glaciers , activities of decomposers too contribute to the formation of soil.
- On the basis of various factors including chemical and organic changes- colour, texture , age, chemical and physical properties the soil can be classified into different types.

17

2

CLASSIFICATION OF SOILS

ALLUVIAL SOIL : FERTILE SOIL, VERY FINELY GRAINED, RICH IN POTASH, PHOSPHORIC ACID AND LIME BUT DEFICIENT IN NITROGEN AND HUMUS.

TWO TYPES OF ALLUVIAL SOIL: KHADAR AND BHANGAR.

THE FORMER IS NEW ALLUVIUM, SANDY, LIGHT IN COLOUR AND FOUND CLOSE TO RIVERS.

THE LATTER IS OLDER ALLUVIUM, CLAYEY, DARK IN COLOUR, AND FOUND AWAY FROM RIVER.

KHADAR IS MORE FERTILE THAN BHANGAR AS IT CONSISTS OF KANKAR NODULES

AREAS: GREAT PLAINS FROM PUNJAB TO ASSAM, DELTAS OF MAHANADI, GODAVARI, KRISHNA AND KAVERI AND ALONG THE COAST OF KERALA

- **Regur or Black soil:** Black in colour and suitable for cultivation of cotton. It is also called cotton soil.
- This soil is formed due to weathering of lava rocks in the Deccan Plateau over thousands of years ago.
- Rich in Potash, magnesium, lime and calcium but deficient in nitrogen and phosphoric acid.
- The soil has large capacity to hold water and become sticky when wet. They develop large and deep cracks before monsoon which helps in aeration.
- They are fertile in the valleys but in upland fertility is poor.
- Suitable for growing oil seeds, cotton and cereals.
- They are found in Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Madhya Pradesh, and parts of Rajasthan, UP and Tamil Nadu.

RED OR YELLOW SOIL: FORMED BY WREATHING UP OF IGNEOUS AND METAMORPHIC ROCKS.

RED COLOUR OF THE SOIL IS BECAUSE OF THE PRESENCE OF IRON THEREIN. THESE SOILS APPEAR YELLOW WHEN THESE OCCUR IN HYDRATED FORM.

THESE ARE DEFICIENT IN NITROGEN, HUMUS, PHOSPHORIC ACID AND LIME. THEY ARE SUITABLE FOR CULTIVATION OF RICE, COTTON, PULSES, TOBACCO, JOWAR ETC…

THESE SOILS ARE FOUND IN PARTS OF TAMIL NADU, KARNATAKA, ANDHRA PRADESH, ORISSA AND JHARKHAND.

- **Laterite soils:** These soils are formed due to intense leaching of soils caused by heavy rainfall.
- They are red in colour and made up of clay and gravels of red sandstones.
- They are generally poor in nitrogen , potash, potassium and organic matter. These have low fertility but readily respond to manuring. These soils have low humus content as most of the microorganisms are destroyed due to high temperature.
- Laterite soil cover an area of 1.26 lakh square kilo metres. And are found in the hills of Deccan, Karnataka, Kerala, Tamil Nadu, Madhyapradesh, and parts of Orissa and Assam.
- They are suitable for growing coffee and cashew nuts.. 18

3

CLASSIFICATION OF SOILS

FOREST SOIL OR MOUNTAIN SOIL: THESE SOILS ARE FORMED BY THE DEPOSITION OF ORGANIC MATTER DERIVED FROM THE FOREST GROWTH.

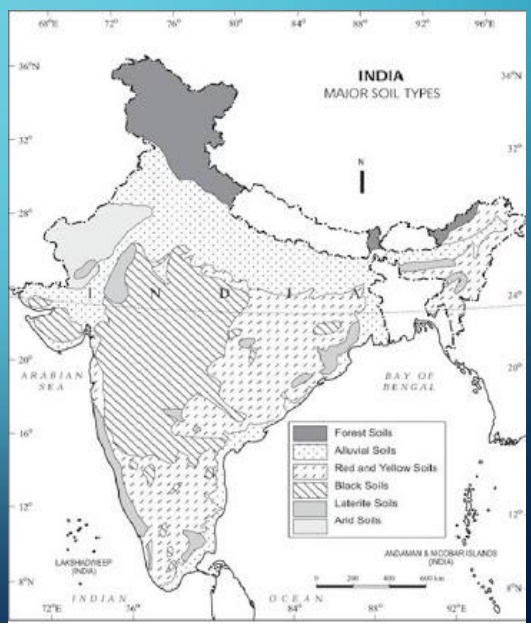
THERE IS ABUNDANCE OF HUMUS IN THIS SOIL. THEY ARE DEFICIENT IN POTASH, PHOSPHORUS , AND LIME. THEIR FERTILITY VARIES FROM PLACE TO PLACE.

THESE ARE LOAMY AND SILTY IN VALLEY SIDES AND COARSE GRAINED IN THE UPPER SLOPES.

HIMALAYAS THESE SOILS EXPERIENCE DENUDATION AND ARE ACIDIC WITH LOW HUMUS CONTENT. THE SOIL FOUND IN THE LOWER PARTS OF VALLEY ON THE RIVER TERRACES AND ALLUVIAL FANS ARE FERTILE.

- **Desert Soil: They are formed under arid and semi-arid conditions in the north=western parts of the country- western parts of Rajasthan, parts of Punjab and Haryana.**
- **They have very low humus and nitrogen content. They are sandy and alkaline in nature.**
- **They have low moisture content and contain high percentage of soluble salt.**
- **The entire area west of the Aravali range in Rajasthan, southern districts of Haryana and Punjab and Rann of Kutch in Gujarat have desert soils.**

INDIA – SOILS **19**



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SOIL EROSION AND SOIL CONSERVATION

SOIL EROSION IS THE WEARING AWAY OF THE TOP SOIL COVER BY NATURAL AGENTS LIKE WATER AND WIND.

- **There are two types of soil erosion – water erosion and wind erosion**
- **Human activities like deforestation, over-grazing ,construction and mining also lead to soil erosion.**
- **During heavy rains water removes the thin soil cover over large areas more or less uniformly.**
- **In areas of clayey soils, running water cuts through making deep channels called gullies. It is called gully erosion. These gullies are termed as Bad lands and are unfit for cultivation.**
- **In the Chambal basin such lands are called ravines.**
- **When water flows down the slope as a sheet, the top soil is washed away. This is termed as sheet erosion.**
- **Due to removal the removal of vegetation the topsoil becomes extremely loose to be carried away by wind in large quantities . This is called wind erosion. Generally confined to arid and semi-arid regions.**

SOIL CONSERVATION AND MEASURES TO CHECK SOIL EROSION

- Soil conservation includes measures which help protecting the soil from erosion.
- **Strip Cropping:** Here large fields are divided into strips and in between the crops, strips of grass are left to grow which help in restricting the force of the wind.
- **Contour ploughing:** In hilly areas, to prevent water from running down the slopes, ploughing is done along the contour lines.
- **Shelter belts:** To reduce the force of the wind , lines of trees are planted to create shelter, the rows of such trees are called shelter belts.
- **Terrace cultivation**: Here steps are cut on the slopes making terraces to restrict soil erosion.
- **Construction of bunds** across gullies
- **Levelling of uneven land**.
- **Raising grass** and other **vegetables** on land
- The above measures are quite effective to protect soil from erosion.
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QUESTIONS TO BE DONE IN NOTEBOOK

17. EXPLAIN THE FACTORS THAT RESULT IN LAND DEGRADATION IN INDIA. 5 MARKS

18. SUGGEST SOME WAYS TO SOLVE THE PROBLEM OF LAND DEGRADATION IN INDIA. 5 MARKS

19. WHAT IS SOIL? EXPLAIN ITS IMPORTANCE . 3 MARKS

20. DESCRIBE THE MAJOR SOIL TYPES OF INDIA. EXPLAIN TWO FEATURES OF EACH TYPE OF SOIL . 5 MARKS

21. SUGGEST A FEW METHODS FOR SOIL CONSERVATION. 5 MARKS

22. DISTINGUISH BETWEEN RENEWABLE AND NON-RENEWABLE RESOURCES. 3 MARKS

23. DISTINGUISH BETWEEN STOCK AND RESERVE 3 MARKS

24. DIFFERENTIATE BETWEEN LATERITE SOIL AND RED SOIL WITH FEATURES . 3 MARKS

25. ON THE POLITICAL OUTLINE MAP OF INDIA USING DIFFERENT SHADES SHOW WHERE THE SOILS ARE SPREAD OVER.

MENTION THE NAMES OF STATES TOO.

a) ALLUVIAL SOIL B) RED SOIL C) DESERT SOIL D) BLACK SOIL E) FOREST SOIL F) ARID SOIL

21

6

ACKNOWLEDGEMENT

- NCERT TEXT BOOK
- WWW. MAPS OF INDIA.COM
- CBSE .NIC.IN

For providing the resources to complete this project work.

7