

## SOIL TYPES-IASBABA

-Ancient classification as **Urvara** (fertile) and **Usara** (sterile)

-Some soil classification on basis of

A. Texture	B. Colour	C. Slope of land	D. Moisture
a. Sandy b. Clayey c. Silty d. Loamy	a. Red b. Yellow c. black		

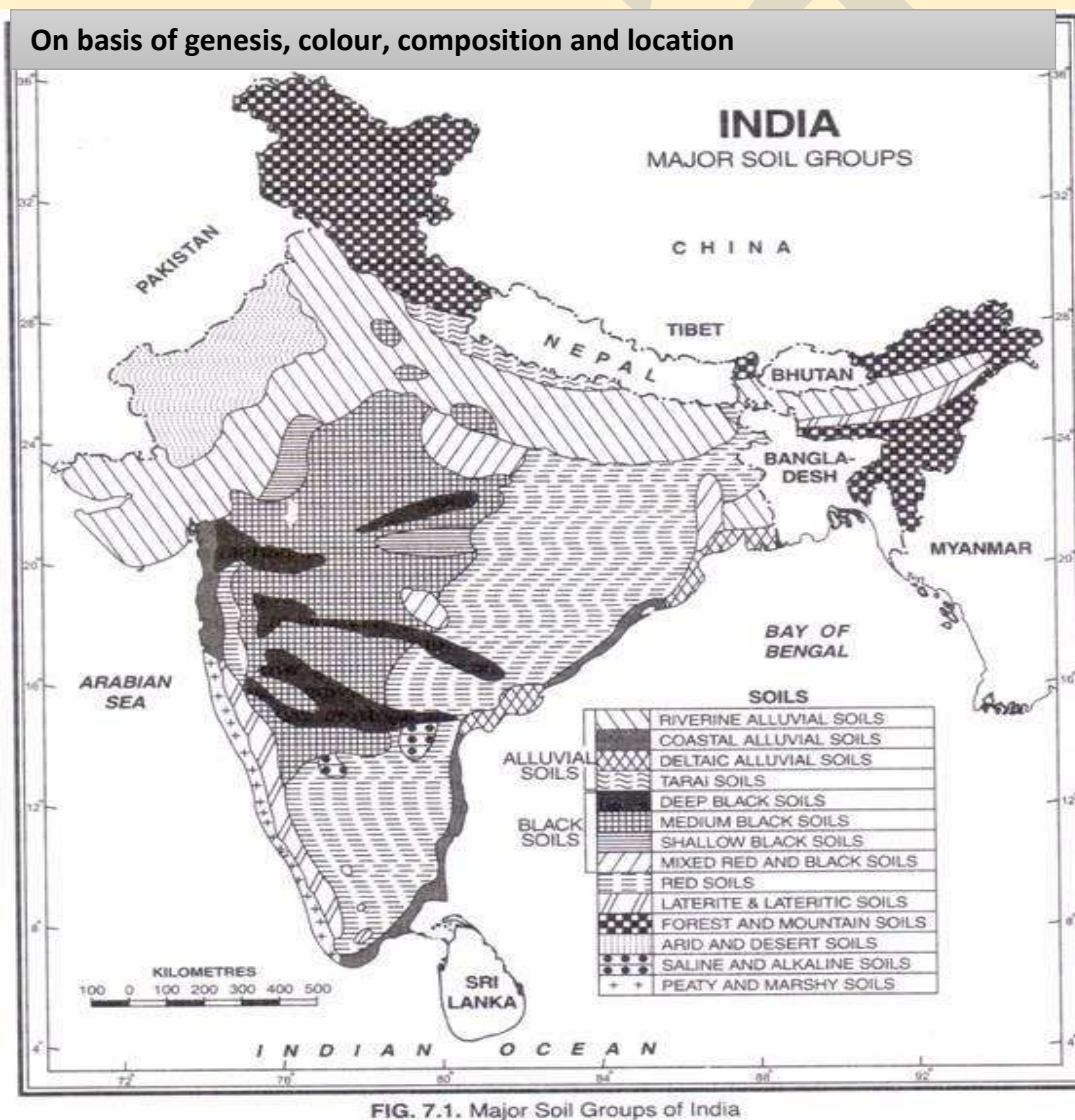
-Soil Survey of India established in **1956**

- National Bureau of Soil Survey and Land Use Planning Institute under ICAR carries out various researches on Indian soil

**ICAR**:-Classification of soils as per USDA soil taxonomy

Order	Percentage
Inceptisols (Alluvial)	39.74
Entisols(Alluvial)	28.08
Alfisols (Red)	13.55
Vertisols (Black)	8.52
Aridisols (Arid)	4.28
Ultisols	2.51
Mollisols	0.4
Others	2.92

On basis of genesis, colour, composition and location



### CLASSIFICATION OF SOILS

	SOIL	Where	Chemical Properties	Characteristics	Crop Produced
1	Alluvial	Northern plains and river valleys Rajasthan, Gujarat, Deltas of East Coast of Peninsula	<ul style="list-style-type: none"><li>Rich in<ul style="list-style-type: none"><li>✓ Potash</li><li>✓ Lime</li></ul></li><li>Poor in<ul style="list-style-type: none"><li>✓ Nitrogen,</li><li>✓ Humus</li><li>✓ Phosphorous</li></ul></li><li>Colour<ul style="list-style-type: none"><li>✓ Light grey to ash grey</li></ul></li></ul>	<ul style="list-style-type: none"><li>-Covers around 43% on India</li><li>-Depositional soils, transported and deposited by rivers and streams</li><li>-Sand, silt and clay texture</li><li>-Sand content <b>decreases</b> from West to East</li><li>-Fertilisation to support crop production</li><li>-<b>Two types</b><ol style="list-style-type: none"><li><b>1. Khaddar</b><ol style="list-style-type: none"><li>a. New alluvium</li><li>b. Deposited by floods annually</li><li>c. Sandy and light in colour</li><li>d. More fertile than Bhangar</li></ol></li><li><b>2. Bhangar</b><ol style="list-style-type: none"><li>a. Old alluvium</li><li>b. Away from flood plains</li><li>c. Clayey and dark in colour</li></ol></li></ol></li></ul> <p>Both contain kankar (calcareous concentration)</p>	Rice, Wheat, Maize, Sugarcane, Tobacco, Cotton, Jute, Oilseeds, Vegetables and Fruits

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2	Black	Deccan Plateau Maharashtra, Gujarat, Madhya Pradesh and some parts of Tamil Nadu Upper reaches of Godavari and Krishna	<ul style="list-style-type: none"> <li>Rich in                             <ul style="list-style-type: none"> <li>✓ Lime</li> <li>✓ Iron,</li> <li>✓ Magnesia,</li> <li>✓ Alumina,</li> <li>✓ Calcium,</li> <li>✓ Potassium</li> </ul> </li> <li>Poor in                             <ul style="list-style-type: none"> <li>✓ Phosphorous,</li> <li>✓ Nitrogen,</li> <li>✓ Organic matter</li> </ul> </li> <li>Colour                             <ul style="list-style-type: none"> <li>✓ Deep Black to grey (Due to iron and alumina)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Covers 15% of land in India</li> <li>-Clayey. Deep and impermeable</li> <li>-High water retention capacity</li> <li>-Also called Regur soil or Black cotton soil as it is suitable for cotton cultivation</li> <li>-Wet areas-&gt; Sticky</li> <li>-Dry areas-&gt;crack</li> <li>-<b>Self ploughing</b> characteristics: Develops wide cracks when dried. Thus                             <ul style="list-style-type: none"> <li>• Slow absorption</li> <li>• Less moisture outflow</li> </ul> </li> <li>Helps rain fed crops to sustain during dry season</li> </ul>	Cotton, wheat, jowar, castor, sunflower, linseed, millets, tobacco and oilseeds



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3	<b>Red and Yellow</b>	South part of Deccan plateau Odisha, Western Ghats, Chhattisgarh, Southern parts of Ganga plains	<ul style="list-style-type: none"> <li>Rich in                             <ul style="list-style-type: none"> <li>✓ Potash,</li> <li>✓ Ferromanganese minerals</li> <li>✓ Soluble salts</li> </ul> </li> <li>Poor in                             <ul style="list-style-type: none"> <li>✓ Nitrogen,</li> <li>✓ Phosphorous,</li> <li>✓ Humus,</li> <li>✓ Lime</li> </ul> </li> <li>Colour                             <ul style="list-style-type: none"> <li>✓ Red due to diffusion of iron in crystalline and metamorphic rocks</li> <li>✓ Yellow when in hydrated form</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Covers around 18% of land in India</li> <li>-Crystalline igneous rocks</li> <li>-Sandy, clayey, loamy texture</li> <li>-Porous structure</li> <li>-Areas of low rainfall in east and southern Deccan plateau</li> <li>-Fine grain → Fertile soil</li> <li>-Coarse grain → Poor fertility</li> </ul>	Rice, Ragi, cotton, pulses, tobacco, oilseeds, potato, wheat





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4	Laterite	Red laterite soil in Andhra Pradesh, Tamil Nadu, Kerala for cashew nut Commonly found in Karnataka, Tamil Nadu, Madhya Pradesh, Kerala, hilly parts of Odisha and Assam	<ul style="list-style-type: none"> <li>Rich in                             <ul style="list-style-type: none"> <li>✓ Iron oxide,</li> <li>✓ Potash</li> <li>✓ Alumina</li> </ul> </li> <li>Poor in                             <ul style="list-style-type: none"> <li>✓ Humus,</li> <li>✓ Organic content,</li> <li>✓ Nitrogen,</li> <li>✓ Phosphate</li> <li>✓ Calcium</li> </ul> </li> <li>Colour                             <ul style="list-style-type: none"> <li>✓ Red</li> </ul> </li> </ul>	-Latin word 'later' which means brick -Iron in upper layer and silica goes down due to <b>intense leaching</b> in tropical areas -High temperature and high rainfall areas with alternate wet and dry periods -Not suitable for cultivation; Application of manures and fertilizers to make soil suitable -Used for bricks	Tea Coffee Rubber, Coconut, Ragi



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5	Arid	Western Rajasthan Rann of Kutchh in Gujarat Parts of Haryana and Punjab	<ul style="list-style-type: none"> <li>Has moderate amount of ✓ Phosphate</li> <li>Poor in ✓ Moisture, ✓ Humus, ✓ Nitrogen, ✓ Organic matter</li> <li>Colour ✓ Red to brown</li> </ul>	<ul style="list-style-type: none"> <li>-Sandy structure</li> <li>-Saline nature</li> <li>-Some areas salt content so high that common salt obtained from evaporating water</li> <li>-Dry climatic regions; Due to less leaching, mineral content is high</li> <li>-Lower horizons of soil occupied by 'kankar' layer because of <b>increasing calcium content downwards.</b></li> <li>-Kankar layer makes water infiltration difficult, hence irrigation required</li> <li>Fertility can be increased by adding <b>lime and gypsum</b></li> </ul>	Wheat, Tobacco, Millets, Barley, Maize, Pulses, Cotton



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6	<b>Saline (Usara)</b>	<ul style="list-style-type: none"> <li>-Arid and semi-arid region</li> <li>-Water logged swamps</li> <li>-West Gujarat, Deltas of East coast, Sunderbans, Punjab, Harayana, Uttar Pradesh, Bihar</li> </ul>	<ul style="list-style-type: none"> <li>• Rich in <ul style="list-style-type: none"> <li>✓ Sodium,</li> <li>✓ Potassium</li> <li>✓ Magnesium</li> </ul> </li> <li>• Poor in <ul style="list-style-type: none"> <li>✓ Nitrogen</li> <li>✓ Calcium</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-More salts because of dry climate and poor drainage</li> <li>-White incrustation of calcium, magnesium and sodium salts on surface → Infertile- does not support vegetative growth</li> <li>-Sandy to loamy structure</li> <li>-Seawater intrusions in deltas promote salinity</li> <li>-Intense cultivation with excessive use of irrigation has made alluvial soil saline</li> <li>-Excessive irrigation with dry climate promotes capillary action, thus salt deposits on topsoil</li> <li><b>Gypsum</b> is added to solve salinity problems</li> </ul>	



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7	<b>Peaty and Marshy</b>	Bihar, Uttarakhand, Coastal areas of Bengal, Odisha and Kerala, Tamil Nadu	<ul style="list-style-type: none"> <li>Rich in                             <ul style="list-style-type: none"> <li>✓ Organic matter</li> <li>✓ Humus</li> </ul> </li> <li>Colour                             <ul style="list-style-type: none"> <li>✓ Black</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-Places of heavy rainfall and high humidity</li> <li>-Heavy soil</li> <li>-Vegetation at wet places accumulates over years and forms rich organic content</li> <li>-When alkaline nature-More irrigation done</li> <li>-Temperate region-&gt;Bog soil</li> <li>-Evaporation -&gt;Lignite</li> </ul>	Rice





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8	Forest	Himalayas and other mountain regions of North Eastern and Western Ghats	Humus content is a bit less, thus, acidic soil  <b>Poor in</b> <ul style="list-style-type: none"> <li>• Potash,</li> <li>• Phosphorous and</li> <li>• Lime</li> </ul>	-Sufficient rainfall available -Shallow, stony, infertile soil -Structure and texture depends on mountain environment <ul style="list-style-type: none"> <li>• Valley region -Loamy and silty</li> <li>• Upper slope -Coarse grained</li> <li>• Lower valley-fertile soils</li> </ul> -Denudation in snow, acidic with humus	Timber, Tropical and Temperate fruits, Tea, Coffee, Spices and Fuel



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