

Minerals and Energy Resources

"All ores are minerals but all minerals are not ores"...

- What is a mineral?
- Mineral is a homogenous material, which is occurs naturally with a definable internal structure. Minerals are found in varied forms in nature, ranging from the hardest i.e. diamond (C_{60}) to the softest 'Talc' ($Mg_3Si_4O_{10}(OH)_2$).
- In the world, over 2000 minerals have been identified.
- Geology - It is a study of minerals.
- Geologist - One/scientist who study minerals.

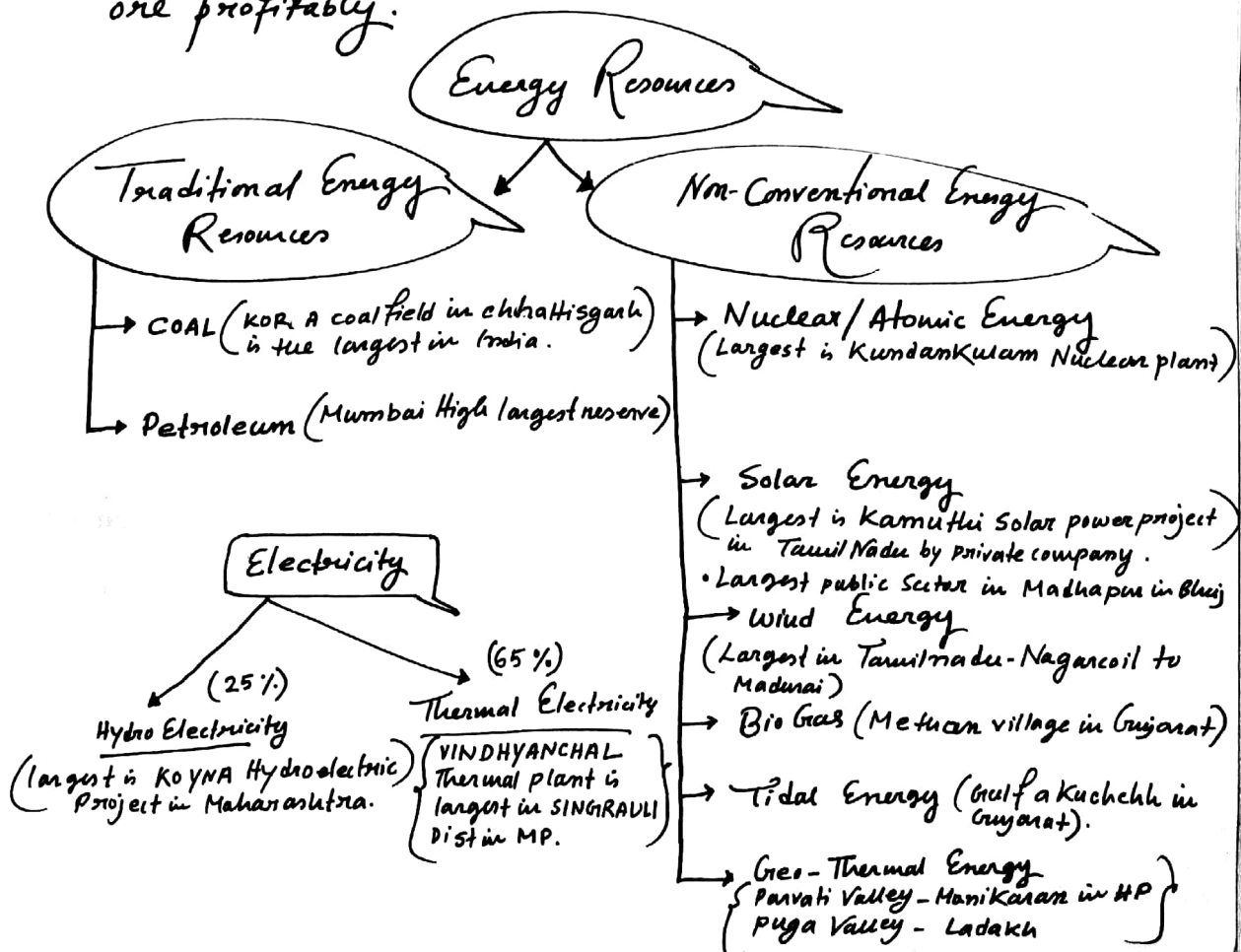
Mode of occurrence of Minerals:

- Veins and Lodes. (in metamorphic & igneous Rock)
- Layers and bed (in Sedimentary Rock)
- Residuals mass of weathered material (Ex. Bauxite)
- Placer Deposit / Alluvial Deposit (Gold, platinum etc.)
- Oceanic occurrence (NaCl, MgCl, etc.)

Rat Hole Mining (Meghalaya).

<u>Leading State Name</u>	<u>Mine Name</u>	<u>Mineral Name</u>
① ODISHA (52 %)	Badampahar	Iron Ore
① Madhya Pradesh (27 %)	Balaghat	Manganese
① Copper mine in Jharkhand	Khetri in Rajasthan, Singhbhum in Jharkhand	Copper
① ODISHA (49 %)	Amarkantak plateau & Maikal Hills	Bauxite
① Jharkhand	Koruma, Hazaribagh	MICA
① Rajasthan	Rampura-Agucha	Limestone

- ⑥ Chota Nagpur plateau is called 'Store House of Mineral'
- ⑦ Mining is known as the Killer industry due to. —
 - i) It is dangerous for health of miners.
 - ii) Sometimes mines causes Land subsidence.
 - iii) Due to mine activity poisonous gases are emitted (CO, CO_2, SO_2 etc.) which caused breathing problems and different health issues.
 - iv) Even it causes principal physical hazards, like, noise, Segmental vibration, heat, changes in barometric pressure and ionizing radiation.
- ⑧ Conservation of Minerals:
 - i) Use of minerals in a planned and Sustainable manner.
 - ii) Recycling of metals.
 - iii) Use of alternative renewable substitutes.
 - iv) Technology should be improved to use the low grade ore profitably.



⑥ Important Mines/ Energy plants in India :

- A) COAL : BOKARO, JHARIA (Jharkhand); KORBA (Chhattisgarh);
TALCHER (ODISHA); SINGARENI (Andhra Pradesh);
Neyveli (Tamilnadu).
- B) OIL fields : Mumbai High, (Maharashtra); Ankaleswar (Gujarat);
DIGBOI, NAHARKATIA (Assam)
- C) HVS Gas pipeline (Hajira - Vijaypur - Jagdishpur) largest gas pipeline.
(Gujarat) (MP) (UP)
- D) IRON ORE MINE: Mayurbhanj, Kendujhar (Odisha); Bailadila (Chhattisgarh);
Shimoga, Chikkamagaluru, (Karnataka);
- E) MANGANESE MINE: Marmagao (GOA); Shimoga (Karnataka).
- F) Bauxite Mine: KORAPUT (Odisha); Katni (MP); Amarkantak (MP).
- G) MICA Mine: Hazaribagh, Koderma (Jharkhand).
- H) Copper Mine: Khetri (oldest) in Rajasthan; Singhbhum (Jharkhand)
- I) Nuclear / Atomic power plant: Narora (UP); Rawat Bhata (Raj.);
Kakrapar (Gujarat); Kaiga (Ker.);
Kalpakkam (Tamilnadu), Tarapur (MH)
- J) Thermal Power plant: Bongaigaon (Assam); Korba (Chhattisgarh);
Neyveli (Tamilnadu); Kothagudem (Hydrabad);
Singrauli (MP); Talcher (Odisha).

* In Kerala Thorium is found in Monazite Sand.

- H) Wind Power plant: (Tamilnadu); Jaisalmer Wind park in Rajasthan.
- I) Solar power plant: Kamuthi (Tamilnadu); Bhiy (MP).
- J) Tidal power station: Sundarban (WB); Gulf of Kambhat &
Gulf of Kutch in (Gujarat).
- K) Geo Thermal Energy: Manikaran (HP); Puga Valley (Ladakh).