

## Chapter-7 Mineral and Energy Resources

A mineral is a natural substance of organic /inorganic origin with definite chemical and physical properties.

### Types of minerals

#### Metallic minerals

- A. Ferrous: iron manganese
- B. Non-ferrous; copper bauxite

#### Nonmetallic mineral

- A. Fuel mineral: coal, petroleum,
- B. Other non-metallic: lime stone

### Agencies involved in the exploration of minerals

- 1. Geological survey of India
- 2. Oil and natural gas commission
- 3. Mineral exploration corporation ltd
- 4. National mineral development corporation
- 5. Indian bureau of mines
- 6. Bharat gold mines
- 7. Hindustan copper ltd
- 8. National aluminum ltd
- 9. Dept. Of mining and geology

### Distribution of minerals

- 1. Metallic minerals occur in peninsular region
- 2. Coal reserves are found in valleys of Mahanadi, Godavari, Sone, Damodar
- 3. Petroleum occur in sedimentary deposits of Assam and Gujarat
- 4. New reserves are discovered in Krishna Godavari Cauvery basins
- 5. Most of the minerals occur in east of line linking Mangalore a Kanpur
- 6. There are located in three broad belts

### North eastern plateau region

- 1. cover WB, ORI, CHH
- 2. Minerals are iron coal manganese, bauxite, mica

### South western plateau region

- 1. Covers KK, Goa, KER and TN
- 2. Minerals are ferrous metals, lime stone, bauxite iron ore, manganese coal deposits monazite in Kerala iron ore in Goa

# Key Notes

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## North Western Region

1. Covers RAJ, GUJ
2. Minerals are copper zinc, sandstone granite marble, gypsum fullers earth dolomite and lime stone. Petroleum in GUJ.  
Himalayan belt  
Minerals are copper lead, zinc, cobalt tungsten

## Ferrous minerals: Iron Manganese, Chromite

1. Iron ore: largest iron ore in Asia, Haematite and Magnetite are the two types of iron ores, it has great demand in the international market
2. The total reserve is about 20 bi. Tones  
955 is located in ORI JHAR, CHH KA, AP TN  
Orissa: Sundergarh, Mayurbhanj Jhar mining centers; Gurumahishani, Sulaipet  
Badampahar Kiruburu Bonai  
Jharkhand; Noamundi and Gua Located Inwest and East Singhbhum  
Chh; Durg Danteware Bailadila Dalli Rajhara  
Kk: Sundur, Hospet, Bababudn hills, Tumkur Chitradurg  
Ms. Chandrapur, Bhandara Ratnagiri  
Ap: Kurnool, Karinagar Cudapah Anantapur

**Manganese:** Used in steel making, Orissa is the leading producer, Bonai, Kendujhar, Sundergarh, Gangpur, Koraput Kalahandi Bolangir are important producers

KAR: Darwar, Bellary Belgaum N. Canara Chikmagalur  
MS: Nagpur, Bhandara Ratnagiri  
Non Ferrous Minerals

**Bauxite:** It is the ore of aluminum

Aluminum is used to make construction, aircraft, utensils, electrical items  
Orissa: Kalahindi, Sampalpur are leading producers  
Lohardhaga in Jharkhand,  
Kolaba Thane Ratnagiri of MS  
Bhavnagar, Jamnagar of Guj.

**Copper:** Used in electrical industry

Distribution: Singhbhum in Jharkhand, Balaghat of MP, Jhunjhunu Alwar of raj.  
Minor producers are Hassan of Karnataka, Agnigundale of AP

## Non-metallic minerals

**Mica:** used in electrical industry and furnace. Found in Hazaribagh of Bihar Nellore of ap.  
Jaipur Bhilwara of RAJ

## Energy resources

**Coal, petroleum natural gas, nuclear minerals**

**Coal:** there are three types of coal

1. Anthracite: found in Himalayan region

# Key Notes

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2. Bituminous: located in Gondwana field DVC, Godavari Valley Sone Valley Jharia, Raniganj, Mahanadi Valley Chanda Wardha Valley
3. Nyctely lignites: found in TN
4. Tertiary coal is found in Assam. ARP, MEG. NAG. J&K

**Petroleum:** Used to make energy resource, petrochemical industries fertilizer, synthetic rubber, wax lubricants, soap cosmetics

It is also called as liquid gold

It is found in Digboi, Naharkatia Moran in Assam, Ankaleshwar, Kalol Mehasena Nawagam In Gujarat. Mumbai High

Krishna Godavari Basin

Oil refineries

There are two types of oil refineries (i) field based (ii) market based

There are 18 oil refineries

**Natural gas:** Found in Guj, Raj, Tri. Krishna Godavari and Cauvery Basin

Nuclear energy resources

Uranium and thorium re important minerals

Uranium is found in Dharwad rocks

Found in Singhbhum in Bihar, Udipur Alwar, Jhunjhunn of Raj. Durg of Chh. Bhandara of Ms Monazite sands of Kerala

Atomic energy commission was established in 1948

Nuclear power stations

Tarapur of MS, Rawatbhata of RAJ, Kalpakkam of TN, Narora of UP Kaiga of KK Kakrapar of GUJ

## Non-conventional resources

### Advantages of non-conventional resources

1. no pollution
2. abundant
3. cheapest
4. easy to tap
5. eternal

## Solar energy

### Advantages

1. Abundant
2. Huge potential used for two purposes
3. Photovoltaic's, solar thermal technology
4. Cost competitive,
5. Environmental friendly
6. Easy to construct
7. 7% more efficient than coal
8. 10% more efficient than coal
9. More applications heater, crop dryer's cooker
10. Western part has more potential

# Key Notes

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## Wind energy

1. Pollution free
2. Inexhaustible
3. Simple machinery
4. Wind rotate turbines to produce electricity
5. Permanent wind systems are used to rotate turbines
6. India planned to establish 250 wind driven turbines with 45 mw potential
7. There are 12 suitable locations
8. India is able to produce 3000 mw, it can produce 50000 mw
9. Lamba and Kutch in GUJ are suitable places

**Tidal wave energy:** Energy produced with the help of tides and waves of sea west coast is more suitable

## Geothermal energy

1. Hot water is used to rotate turbines
2. Ground water is heated and gushed out and can be used for generating electricity
3. Hot springs and geysers are used to generate electricity

## Bio energy:

1. Energy generated from agricultural, animal waste, urban waste, it can be converted in to electrical energy
2. Develop rural areas
3. Clean the environment
4. Cheap and easily available in rural areas

## Conservation of mineral resources

1. Use non-conventional resources
2. Recycling of metals
3. Reuse of energy resources
4. Use alternative resources
5. Use scrap metals
6. Export of strategic mineral to be reduced