CHAPTER - 7
MINERAL AND ENERGY RESOURCES

GIST OF THE LESSON:

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

TYPES OF MINERALS-METALLIC MINERALS AND NON-METALLIC MINERALS

A. Ferrous: Iron manganese

B. Non Ferrous; Copper Bauxite Non Metallic Minerals

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 occurin sedimentary deposits of Assam and Gujarat
4. New reserves are discovered in Krishna Godavari Cauvery basins
5. Most of the minerals occurin east of line linking Mangalorean Kanpur
6. There are located in three broad belts

NORTH EASTERN PLATEAU REGION

1. Cover West Bengal, Orissa, Chhattisgarh
2. Minerals areiron coal manganese, bauxite, mica

SOUTH WESTERN PLATEAU REGION

1. Covers Karnataka, Goa, Kerala & Tamilnadu
2. Minerals are ferrous metals, limestone, bauxiteiron ore, and manganese coal deposits monazitein Kerala iron orein Goa

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NORTH WESTERN REGION

1. Minerals arecopper zinc, sandstonegranitemarble, gypsum fullers earth dolomite and limestone. Petroleum in Gujarat, Himalayan belt, minerals are copper lead, zinc,cobalt tungsten

FERROUS MINERALS: IRON, MANGANESE, CHROMITE

1. **Iron ore:** largest iron orein Asia, Hematite and Magnetite are the two types of iron ores, it has great demand in the international market

   The total reserveis about 20 bi.Tones

   955 is located in Orissa, Jharkhand, Chhatisgarh, Karnataka, Andhra Pradesh, Tamilnadu

   Orissa: Sundergarh, Mayurbhanj Jhar mining centers; Gurumahishani, Sulaipet Badampahar Kiruburu Bonai

   Jharkhand; Noamundi and Gurumahisani located in west and east Singhbhum Chh; Durg Danteware Bailadila Dalli Rajhara

   Karnataka: Sundur, Hospet, Bababudnhills, Tumkur Chitradurg Ms. Chandrapur, Bhandara Ratnagiri

   Andhra Pradesh: Kurnool, Karinagar Cudapah Anantapur

2. **MANGANESE**

   Used in steel making, Orissais the leading producer, Bonai, Kandahar, Sundergarh,. Gangpur, Koraput Kalahandi Bolangir are important producers

   KAR: Darwad, Bellary Belgaum N.Canara Chikmagalur

   Maharashtra : Nagpur, Bahandara Ratnagiri Non Ferrous-minerals

3. BAUXITE

It is the oreof 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

USE DINEL ECTRICAL INDUSTRY

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

NON METALLIC MINERALS

MICA: usedin electrical industry and furnace

Foundin Hazaribagh of Bihar Nellore of ap. Jaipur Bhilwara of RAJ

COAL, PETROLEUM NATURALGAS, NUCLEAR **MINERALS COAL** : there are three types of coal

1. Anthracite: found in Himalayan region
2. Bituminous: located in Gondwana field DVC, Godavari Valley Sone Valley

   Jharia, Raniganj, Mahanadi Valley Chanda Wardha
3. Nyvelylignites: found inTamilnadu
4. Tertiary coal is found in Assam. ARP, MEG. NAG. J&K

WINDENERGY

1. Pollution free
2. In exhaustible
3. Simple machinery
4. Wind rotateturbines 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

TIDALWAVE ENERGY

Energy produced with the help of tides and waves of sea west coast is more suitable

GEOTHERMAL ENERGY

1. Hot wateris used to rotateturbines
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, itcan be converted in to electrical energy
3. Develop rural areas
4. Clean the environment
5. Cheap and easilyavailable in ruralareas

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

Very short Answer type question (1 mark each)

1. Which is the largest oil refinery in India?

Ans. Jamnagar (Gujarat)

2. Where was the first Atomic Station set up in India?

Ans. Tarapur near Mumbai in 1969

3. How many minerals are mined in India?

Ans. 68

4. Which state is largest producer of coal India?

Ans. Jharkhand

5. Where was first offshore oil field discovered?

Ans. Near Aliabet island (Gujarat)

Short Answer type question(3 mark each)

Q.1 What is conservation of minerals? Why is conservation of minerals necessary?

Ans. Use of minerals in a scientific manner to avoid their wastage is called conservation of minerals.

Conservation of minerals is necessary:

i) For the regular advancement of civilization

ii) Minerals are exhaustible resources. They are needed for our future generation.

Methods to conserve minerals-

i) Use alternatives in place of minerals like plastic doors in place of iron ans steel.

ii) Recycling.

Q.2 Distinguish between metallic and non metallic minerals.

Ans. **Metallic minerals:**

1. Those mineral from which we get minerals.
2. Can be drawn into wires and sheets after melting.
3. Examples: Iron ore , copper and tin etc

Non-metallic minerals:

1. Those minerals from which we do not get metals.
2. Can not drawn into wires and sheets.

Example: coal and marble

Q.3 Difference between conventional and non conventional source of energy.

Ans: **Conventional source of energy:**

1. These are exhaustible resources.
2. They pollute the environment.
3. Examples: coal and petroleum.

Non-conventional source of energy:

1. These are in exhaustible resources.
2. They do not pollute the environment.
3. Example: solar energy and wind energy.

Q.4 Why is conservation of minerals necessary?

Ans. 1) Minerals are unevenly distributed over space.

2) There is inverse relationship in quality and quantity of minerals i.e. good quality, Minerals are less in quantity as compare to quality minerals.

3) All minerals are exhaustible overtime. These take long develop geologically and they cannot be replenished immediately the time of need.

Long answer questions (5 mark each)

Q.1 Write a detailed note on the petroleum resource of India.

Ans. Petroleum is an essential source of energy for all internal combustion engines in automobiles, railways and aircraft. Its numerous by products are processed in petro chemical industries such as fertilizers, synthetic rubber, synthetic fiber, medicines, Vaseline's, lubricants wax, soap and cosmetics.

Crude petroleum occurs in sedimentary rocks of the tertiary period. Oil exploration, and production was systematically taken up after the oil and natural gas commission was set up in 1956. Till then the digboi in Assam was the only oil producing region.

Distribution:

Assam – Digboi, Naharkatiya, Moran

Gujarat – Ankaleshwar, kalol, Mehsana, Nawagam

Maharastra- Mumbai high