

Chapter 5: Minerals and Energy Resources – CBSE Notes

◆ 1. What Are Minerals?

✓ **Repeated Question:** *Define mineral.*

- A **mineral** is a **naturally occurring, homogeneous substance with a definite chemical composition** and **internal structure**.
- Found in **rocks** or as deposits in **soils, seabeds, and valleys**.

◆ 2. Mode of Occurrence of Minerals

✓ **Common CBSE Topic:** *How do minerals occur in rocks?*

Mode	Description	Example
Veins/Lodes	Formed in igneous & metamorphic rocks, minerals rise in molten form into cracks.	Tin, Copper, Zinc
Beds/Layers	Formed in sedimentary rocks by deposition.	Coal, Iron ore, Gypsum
Residual Mass	Weathering removes soluble elements, leaves minerals.	Bauxite
Placer Deposits	Found in sands of valley floors/base of hills.	Gold, Tin, Platinum
Ocean Water	Widely diffused but some like salt & magnesium are extracted.	Salt, Magnesium, Bromine

◆ 3. Types of Minerals

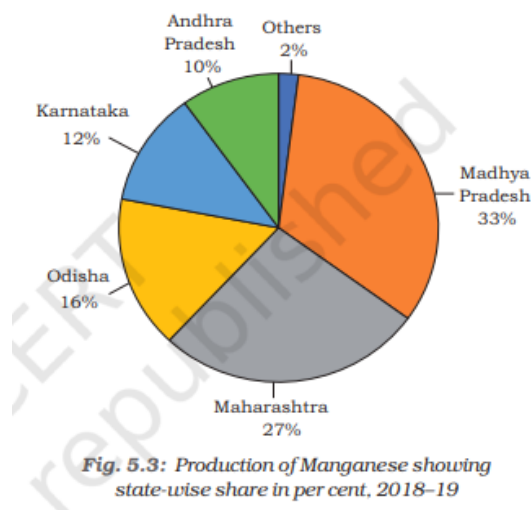
a. **Metallic Minerals:**

- Contain **metallic elements**; can be ferrous or non-ferrous.

b. **Ferrous Minerals:**

✓ Repeated in Boards

Mineral	Use	States Found
Iron Ore	Backbone of industry; Hematite & Magnetite are major types.	Odisha, Chhattisgarh, Jharkhand, Karnataka
Manganese	Steel production, insecticides, bleaching powder.	MP, Maharashtra, Odisha, Karnataka



c. Non-Ferrous Minerals:

✓ Important for Short Answer

Mineral	Use	States
Copper	Electrical wires, machinery.	MP (Balaghat), Rajasthan (Khetri), Jharkhand (Singhbhum)
Bauxite	Main source of aluminium.	Odisha (Koraput), MP, Chhattisgarh

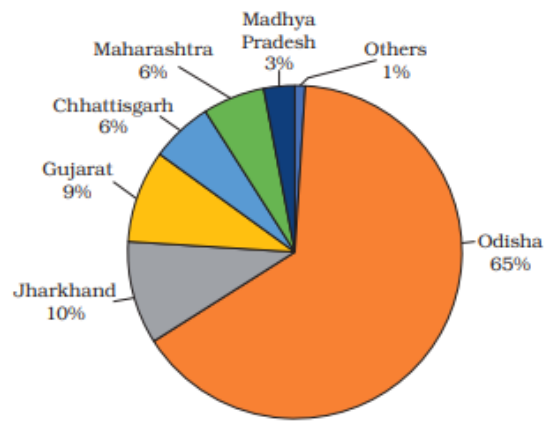


Fig. 5.5: Production of Bauxite showing state-wise share in per cent, 2018-19

◆ 4. Non-Metallic Minerals

Mineral	Use	Found In
Mica	Electrical insulator	Jharkhand (Koderma), Rajasthan (Ajmer), Andhra Pradesh (Nellore)
Limestone	Cement, iron smelting	MP, Rajasthan, Tamil Nadu

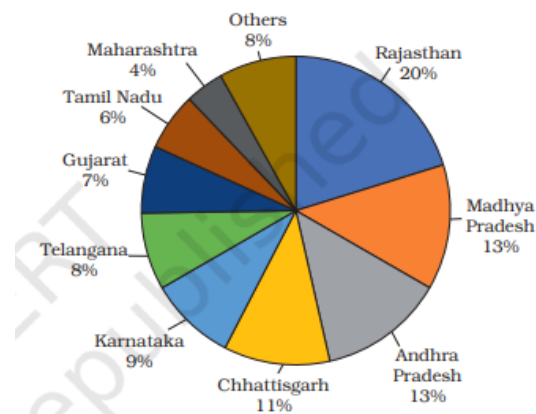


Fig. 5.7: Production of Limestone showing state-wise share in per cent, 2018-19

◆ 5. Hazards of Mining

✓ Frequently Asked: Environmental impacts of mining

- **Health issues:** Dust, fumes → lung diseases.
- **Land degradation:** Waste dumping, forest loss.

- **Water pollution:** Due to chemicals and slurry.
- **Risk of accidents:** Roof collapse, fires.

◆ 6. Conservation of Minerals

✓ Repeated Long Answer Question

- Minerals are **finite and non-renewable**.
- Extraction causes **environmental degradation**.
- **Methods:**
 - Use low-grade ores efficiently.
 - **Recycle metals**, use substitutes.
 - Avoid wastage.
 - Use energy-efficient technologies.

◆ 7. Energy Resources

◆ a. Conventional Energy

✓ CBSE Important: *Coal, petroleum, natural gas*

Source	Use	Key Locations
Coal	Electricity, industry	Jharkhand (Jharia), WB (Raniganj), MP, Odisha
Petroleum	Fuel, lubricants, chemicals	Mumbai High, Gujarat, Assam
Natural Gas	Power, fertiliser, cooking	Mumbai High, KG Basin, Cambay

- India has cross-country pipelines (e.g., **HVJ Gas Pipeline**).
- Coal: Found in **Gondwana (older)** and **Tertiary deposits (NE states)**.

◆ b. Electricity

- **Hydro Power:** From running water (renewable).
 - Projects: Bhakra Nangal, Damodar Valley.
- **Thermal Power:** From coal, gas (non-renewable).

◆ 8. Non-Conventional Energy Sources

✓ Frequently Asked: *Why promote non-conventional energy?*

Source	Description	States/Uses
Solar	Uses sunlight; photovoltaic cells.	Rajasthan, Gujarat, TN
Wind	Fast-moving air rotates turbines.	Tamil Nadu (Nagarcoil), Gujarat, Kerala
Biogas	From organic waste; gobar gas.	Rural India
Tidal	From ocean tides.	Gulf of Khambhat & Kachchh
Geothermal	Earth's heat generates electricity.	Manikaran (HP), Puga Valley (Ladakh)
Nuclear	Uses Uranium & Thorium .	Rajasthan (Rawatbhata), Tamil Nadu, UP

✓ Key Definitions

- **Mineral:** Naturally occurring substance with a definite composition.
- **Ore:** Mineral deposit that is economically viable to extract.
- **Ferrous:** Minerals containing iron.
- **Non-ferrous:** Do not contain iron but useful metals (copper, bauxite).
- **Non-conventional energy:** Renewable, eco-friendly energy sources.

CBSE Repeated Topics – Highlighted

Topic	Importance
Modes of mineral occurrence	3-mark questions
Ferrous vs non-ferrous	Short answer, MCQ
Distribution of iron, manganese, coal, bauxite	Very common
Non-conventional energy – solar, biogas	Often in 5-mark/long answers
Conservation of minerals and energy	Frequently repeated in boards
Rat-hole mining & hazards of mining	Conceptual Qs/Case-based Qs