Revision Notes for Class 10

Social Science - Geography

Chapter 5 - Minerals and Energy Resources

Different things are used in our daily lives, some of which are made up of metals. From a tiny pin to a towering building or ship, everything is made up of metal.

There are various metals, each of which is manufactured from a particular mineral called ore. Besides, we also depend on energy resources- both renewable as well as non-renewable.

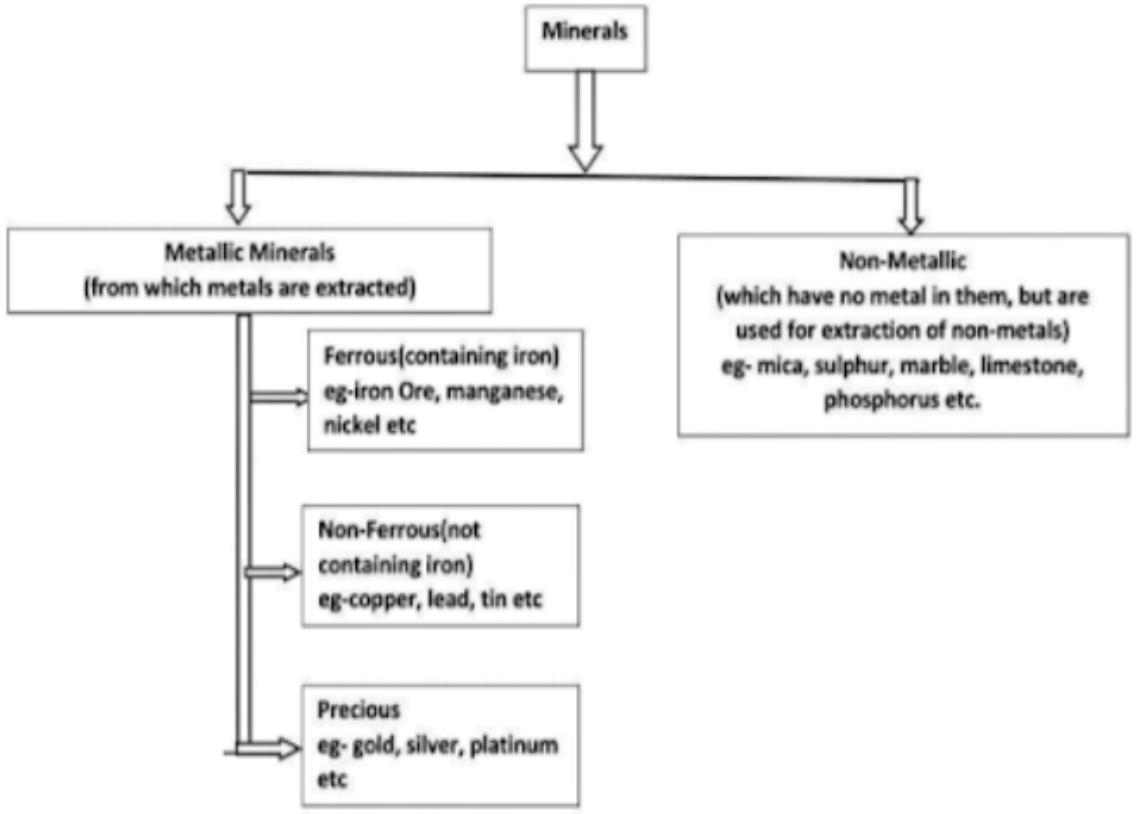
CBSE Class 10 Social Science Geography Chapter 5 enlightens us about these minerals and energy resources that are the pillars of the growth of our economy.

Resource

A resource is a thing obtained from a source and can be used to satisfy human needs. It has valuable values and hence, is of economic significance. Resources may be classified in many ways. Mineral and energy resources are two of them. Earth's crust is made up of minerals. Minerals are the most valuable, homogeneous natural resources which can be used as fuel and a source for ferrous and non-ferrous metals.

Ore

An ore is a type of rock in which metallic minerals are present in concentrated form. Mineral ores are required to be refined before their use for the extraction of metals.



Classification of Minerals Metallic

Minerals Ferrous Minerals Iron Ore

The main ore from which iron is extracted for steel manufacture. It is the backbone of modern civilization as everything - from a tiny pin to a gigantic skyscraper, bridges, railroads, etc. - is made of iron and steel. Of the four classes of iron ore –

- Magnetite is the most refined quality ore, which is black.
- Hematite is also a good quality ore. It is reddish. Areas having rich iron ore deposits in India are shown in the below map:

Distribution of Iron Ore in India

States	Mining areas
Odisha	Gorumahisani, Badampahar in Mayurbhanj
Jharkhand	Singhbhum, Noamundi
Chhattisgarh	Dalli-Rajhara, Bailadila in Bastar District
Goa	Bicholim, Ratnagiri District
Karnataka	Kudremukh in Chikmagalur, Bellary district

Manganese

When added to iron, manganese acts as a 'cleanser' in manufacturing steel to remove glasses. It is also used in the manufacture of bleaching powder, pesticides, and paint.

Non-Ferrous Minerals

Copper

As copper is a ductile metal and a good conductor, it is ideal for making electric wires. It is also used in the electronics and chemical industries.

State-wise Distribution of Copper Ore in India:

State	Mining Area
Madhya Pradesh	Balaghat
Jharkhand	Singhbhum
Rajasthan	Khetri

Bauxite

Bauxite is a rock consisting of aluminium oxides. Aluminium is an essential metallic mineral as it is light, resistant to corrosion. It combines the strength of the metals such as iron. Odisha is the leading state producing bauxite. Koraput, Sambalpur are some important districts where bauxite is mainly found.

Non-Metallic Minerals

Mica

It has thin crystal layers and is brittle. It can be easily broken into sheets. It has a low power loss factor and is resistant to high voltage; it is used in the electric and electronic industries.

State-wise Distribution of Mica in India:

State	Mining Area
Jharkhand	The northern edge of the Chota Nagpur plateau, Koderma Gaya of Hazaribagh belt are the leading producer of mica in The India.
Rajasthan	Ajmer
Andra Pradesh	Nellore

Energy Resources

An energy resource produces heat and light, is needed to cook food and run vehicles. Energy resources can be classified into two kinds, they are :

i. Conventional Energy Resources

ii. Non-Conventional Energy Resources

Conventional Energy Resources

Conventional energy resources have been in everyday use on a large commercial scale for generating power. These include the non-renewable fossil resources of coal, petroleum, and natural gas on the one hand and running water on the other.

Coal

Coal is formed from the remains of plants that got buried in deep layers of the earth's surface over a million years.

Types of Coal:

i. Peat (the first stage)

ii. Lignite or Brown Coal (the second stage with 30-40% carbon content)

iii. Bituminous Coal (the third stage with 40-80% carbon content is the most popular coal in commercial use) iv. Anthracite (the fourth stage with 90% carbon content, it is also known as 'hard coal')

Importance and uses of coal

● It is an essential source of power in India.

● Besides providing heat and raising steam in industrial sectors, it is still an essential domestic fuel.

Regional Distribution of Coal

● The primary source of Gondwana coal is in Damodar Valley.

● Jharia, Bokaro, and Giridih in Jharkhand are some essential coalfields.

Petroleum

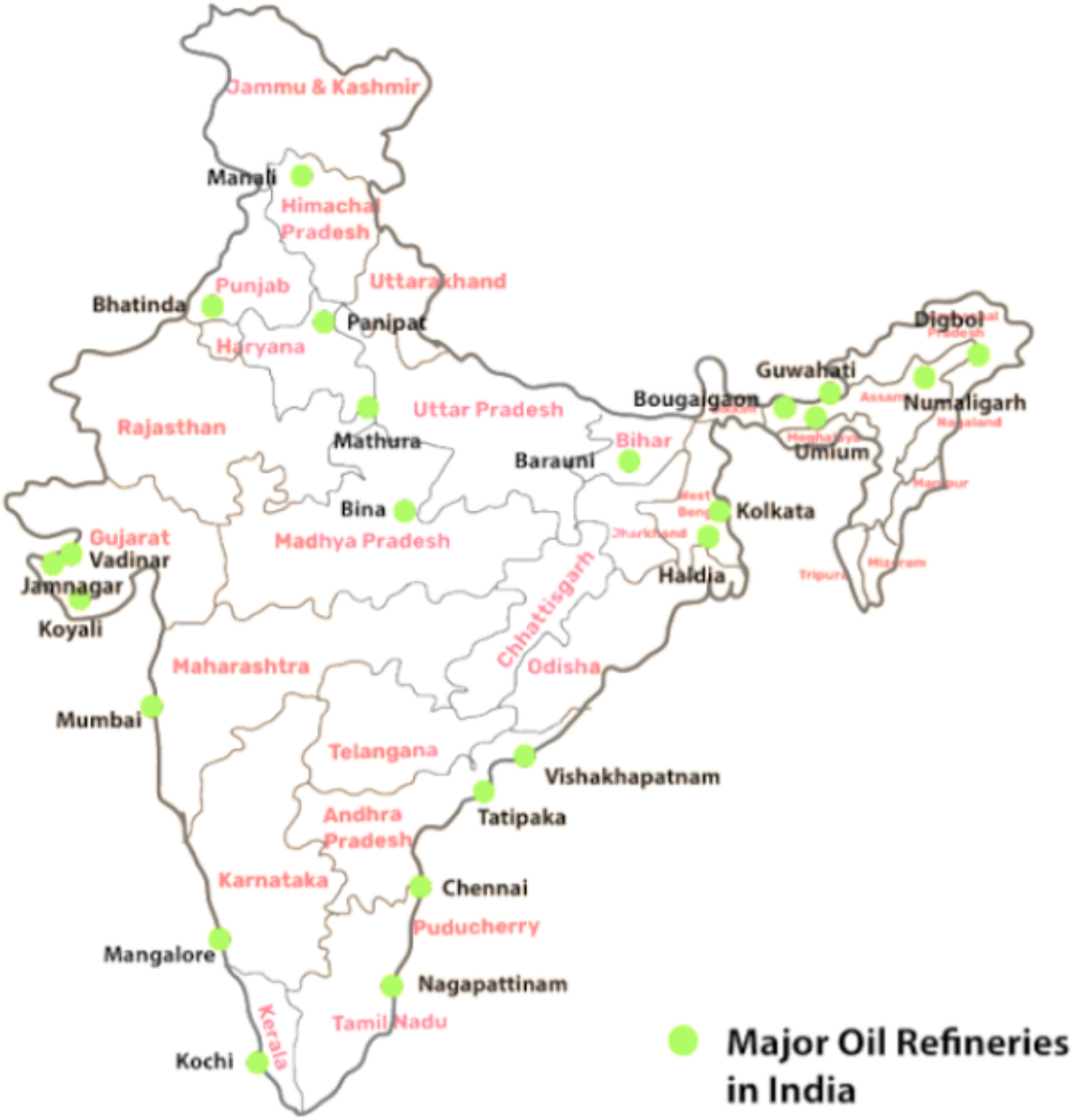
It is formed from the dead plants and animals buried in rocky strata on the ocean floor. It has the broadest range of domestic as well as industrial use and so it is called liquid gold.

Regional Distribution of Petroleum

● About 60-63% of the country's total production is from Bombay High.

● About 18-19% of the output is from Gujarat. Ankleshwar is the essential oil mining field here.

● About 16% of the output is from Assam. Here, the oldest oil field of India is located in Digboi.



Natural Gas

It is considered a clean environmental fuel or energy resource as less carbon dioxide is emitted from its combustion.

Hydro-electricity

By constructing dams on the river, river water is stored and is made to fall from a height over turbine blades which start moving by the force of falling water. Moving blades of a turbine turn the generator that produces electricity. E.g., the BhakraNangal Project, Damodar Valley Corporation, the Hirakud Project, etc., have hydroelectric power.

Thermal Electricity

Fossil fuels such as coal, petroleum, and natural gas generate thermal power.

Nuclear Energy

When atoms of one chemical element change into those of another, the energy which is released is known as Nuclear Energy. Many places reserve certain nuclear minerals in India, e.g.- Uranium deposits are found in Rajasthan and Singhbhum in Jharkhand. High-grade thorium is located in the monazite sands on the coast of Kerala.

Non-Conventional Energy Resources

These are eco-friendly energy resources, reduce our carbon footprint, and not emit greenhouse gases that pollute the environment. Being natural resources, they are renewable and are all "flow" resources that are inexhaustible and sustainable.

Solar Energy

Heat energy from the sun is captured by using a solar energy collector or concentrator and used in various applications. Solar energy has domestic as well as commercial usage. It is used in solar cookers, solar water heating systems, solar air heating systems, crop dryers, refrigerators, etc. The largest solar plant of India is located in Madhapur, near Bhuj, Gujarat.

Wind Energy

As the wind in the coastal areas of Tamil Nadu, Gujarat, and Maharashtra blows steadily, comparatively at high speed, the wind turbines can operate efficiently. Hence, wind energy plants/turbines are primarily localized in the coastal areas. The largest wind firm cluster is installed in Tamil Nadu from Nagercoil to Madurai.

Biogas Energy

Biogas is the gaseous mixture produced by the breakdown of organic matter in the absence of oxygen, primarily methane and carbon dioxide. It can be synthesized from kitchen waste (green), agricultural waste containing manure,

plant parts, municipal waste, and sewage. Biogas is readily available and hence, acts as a low-cost raw material for electricity generation.

Tidal Energy

The areas which are situated in the coastal regions of Bay Bengal/ Gulf of Kutch (an inlet of the Arabian sen along the west coast of India), there the energy can be easily extracted from tides rather than the cities which are situated far away from the coastal areas.

Geo-Thermal Energy

The heat energy present in rocks deep within the earth is called Geothermal energy. The groundwater in these areas absorbs heat from the rocks and becomes warm. It is so hot that when it reaches the earth's surface, it turns into steam used to drive turbines and electricity. These are clean and safe and readily available. Many hot springs or geothermal energy locations are there in India. Among them, the Parvati Valley near Manikaran in Himachal Pradesh is essential.