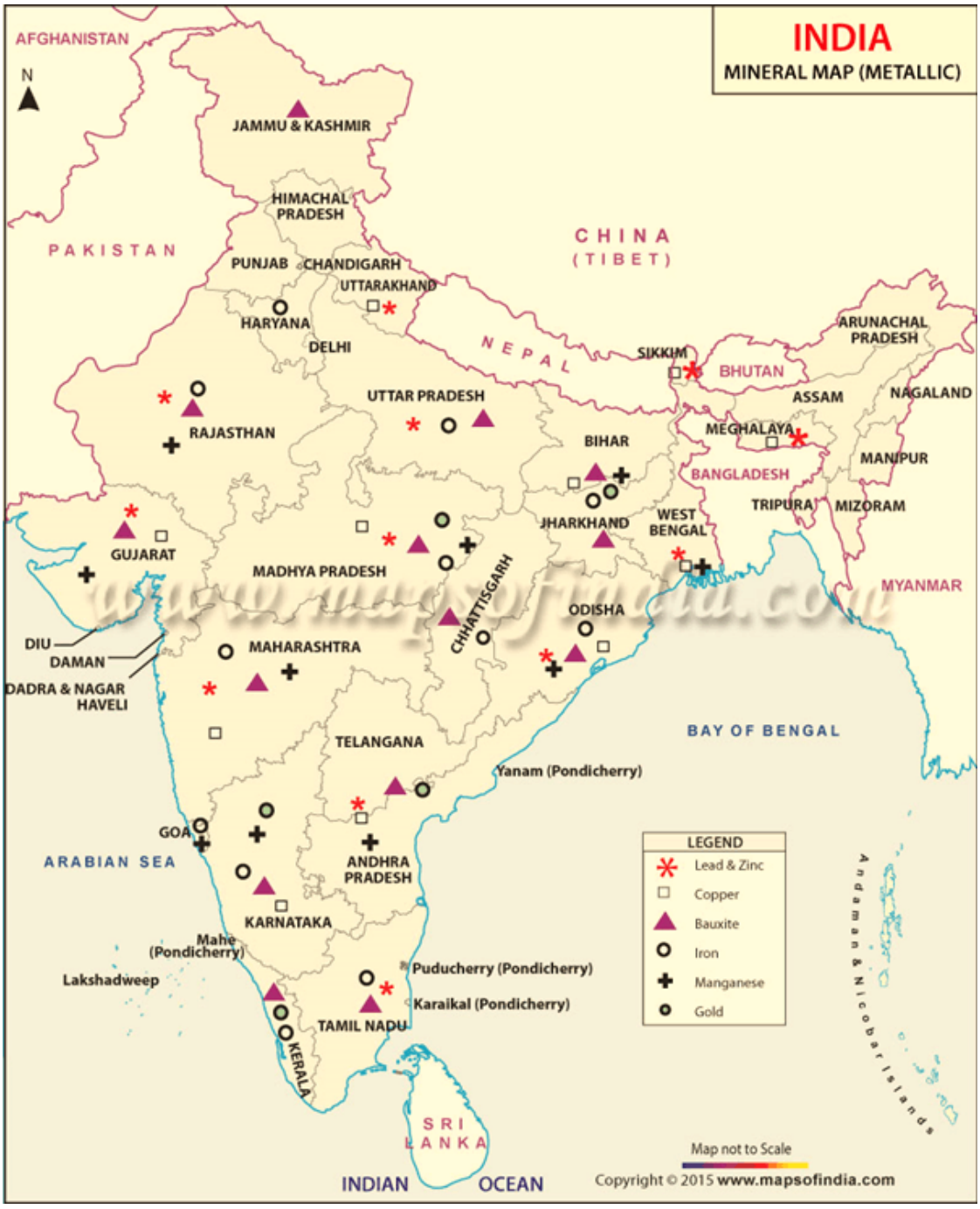
Development of Mineral and Energy Resources: Objectives, Mineral Resources of India, Spatial Distribution of Minerals and Energy Resources

- Minerals like land and water are invaluable treasures of the earth. Without them, we cannot think of industrialisation and hence the development of our economy. In many countries, they are the main source of national income. The social and economic development of a nation depends on its capacity to utilise its natural resources, avoiding its wasteful use to the extent possible.
- The most important characteristics of minerals which have bearing on our present and future well-being is that they are practically lost, once used. They are non-renewable resources. Hence, the need to conserve these resources and to recycle them cannot be over emphasised.



Objectives

The major objectives of this chapter are:

- To state about the mineral resources of the country
- To explain the importance of minerals and energy resources for the economic development
- To differentiate between metallic and non-metallic minerals, and conventional and non-conventional resources of energy
- To show the different areas where mineral and energy resources are found
- To infer the effects of mining/refining and using of fossil fuels on local environment

- To suggest measures to conserve minerals and energy resources

Mineral Resources of India

- India is richly endowed with minerals. Our country possesses more than 100 minerals. Out of 100 minerals, there are 30 minerals which have economic significance. Some of the examples are coal, iron ore, manganese, bauxite, mica etc. The situation is also satisfactory in felspar, fluorides, limestones, dolomite, and gypsum. But the reserves of petroleum and some nonferrous metallic minerals especially copper, lead, zinc, tin, and graphite are inadequate. Non-ferrous minerals are those which do not contain iron. Country fulfils the internal demands for these minerals by importing them from other countries.

- In India most of the minerals were exported during British period. After independence though export continues but also mineral production has picked up in consonance with the increasing industrial demands in the country. As a result, the total value of all minerals produced in the country reached about ₹ 744 billion in 2004 - 05 from ₹ 892 million in 1950 - 51. Therefore, there has been 834 times increase during the past fifty-five years. If we look at the mineral wise break up it has been found that fuel minerals (coal, petroleum, natural gas, and lignite) accounted for about 77% , metallic minerals for about 10% , and non-metallic minerals for about 3% of total value of minerals produced. In metallic mineral category, iron ore, chromite, manganese, zinc, bauxite, copper, and gold are important minerals whereas in non-metallic category limestone, phosphorite, dolomite, kaolin, magnesite, barytes, and gypsum are important. If we look at individual minerals in terms of value, then coal (36.65%) followed by petroleum (25.48%) , natural gas (12.02%) , iron ore (7.27%) , lignite (2.65%) , limestone (2.15%) , and chromite (1.1%) are few minerals that contributes more than 1% each of the total value of all minerals produced in the country.

Spatial Distribution of Minerals and Energy Resources

The distribution of mineral and energy resources is uneven. It is because occurrence of mineral resources is associated with certain types of geological formations. Coal deposits are mostly associated with Gondwana system. Dharwar and Cuddapah systems contain resources of major metallic minerals like copper, lead, zinc etc. and major non-metallic minerals like limestone, dolomite, gypsum; calcium, sulphate etc. are found in Cuddapah and upper Vindhyan systems.

If we look at the distribution in terms of region, then it has been found that much of the peninsular region west of a line from Mangalore to Kanpur has very little mineral wealth. East of the line covers the states of Karnataka, Andhra Pradesh, Orissa, Madhya Pradesh, Chhattisgarh, Jharkhand, Bihar, and West Bengal. These states have the major reserves of metallic minerals like iron, bauxite, manganese etc. and non-metallic minerals like coal, limestone, dolomite, gypsum etc. Most of these mineral bearing states are located in the peninsular plateau region of India. Within the peninsular plateau region of India, the following three mineral belts can be demarcated.

- **The North-Eastern Plateaus**: It covers Chhota Nagpur plateau, Orissa plateau, and eastern Andhra plateau. This belt contains rich deposits of a variety of minerals, specially used for metallurgical industries. Prominent minerals that are large and widely distributed are iron ore, manganese, mica, bauxite, limestone, dolomite etc. This region has also rich deposits coal, along the river valleys of Damodar, Mahanadi, Son etc. This region has also substantial amount deposit of copper, uranium, thorium, phosphate etc.

- **South-Western Plateaus**: This region extends over Karnataka plateau and adjoining Tamil Nadu plateau. The region is rich in metallic minerals particularly in iron ore, manganese, and bauxite and in some non-metallic minerals. All the three gold mines of India are found in this region. However, coal is not found in this plateau region.
- **North-Western Region**: This belt extends from the Gulf of Khambhat in Gujarat to the Aravalli range in Rajasthan. Petroleum and natural gas are principal resources of this belt. Deposits of other minerals are small and scattered. However, it is known for reserves and production of several non-ferrous metals particularly copper, silver, lead, and zinc.

Outside of these mineral belts, the upper Brahmaputra valley is a significant petroleum producing area whereas Kerala possesses enormous concentration of heavy mineral sands. Outside these above-mentioned areas minerals deposits are very poor, scattered and reserves are inconsistent.