

Natural Resources

Natural resources are generally defined as all those things given by nature on, above and under the surface of the earth. In this broad sense natural resources include land, water, forests, fisheries and animals, mineral ores and sources of energy like coal, petroleum, gas and uranium, etc.

There is no direct link between the availability of natural resources and the level of economic development. There are many countries which are rich in natural resources but still they are underdeveloped.

In fact, for the economic development of a country, optimum exploitation of natural resources is more important than their availability. Nevertheless, importance of natural resources cannot be undermined. Natural resources of a country influence not only economic growth but also its economic structure.

The type of resources available, their quantities, their distribution within the different regions of a country determine, to a considerable extent, the type and scale of industries that can be developed.

In the Third World countries where level of development is still very low, natural resources are of considerable importance. Most of these countries lack capital, technical know-how and enterprise, and therefore only limited substitution of capital and labor for land and natural resources is possible, even now, in most of these countries the economic life is largely determined by available resources. India is rich in natural resources. Some of its important resources are discussed below.

1. Land Resources:

In terms of area India ranks seventh in the world with a total area of 32,87.263 sq. km. (32.87 crore hectare). It accounts for 2.42% of total area of the world. In absolute terms India is really a big country. However, land man ratio is not favorable because of the huge population size.

Land utilization figures are available for about 92.9% of total geographical area, that is, for 3,287.3 lakh hectare. Forest constitutes 21.02 per cent of the total geographical area of country. Out of a total land

area of 304.2 million hectares about 170.0 million hectares is under cultivation. Food grains have preponderance in gross cropped areas as compared to non food grains.

According to Agricultural Census, the area operated by large holdings (10 hectares and above) has declined and area operated under marginal holdings (less than one hectare) has increased. This indicates that land is being fragmented.

2. Forest Resources:

India's forest cover in 2007 was 69.09 million hectare which is 21.02 per cent of the geographical area. Of this, 8.35 million hectare is very dense forest, 31.90 million hectare is moderately dense forest and the rest 28.84 million hectare is open forest.

The per capita forest in India (0.5 hectare) is much less than that in the world (1.9 hectares). According to the National Policy on Forests (1988), one-third (33%) of the country's area should be covered by forests in order to maintain ecological balance.

3. Mineral Resources

Iron-Ore:

India possesses high quality iron-ore in abundance. The total reserves of iron-ore in the country are about 14.630 million tons of hematite and 10,619 million tons of magnetite. Hematite iron is mainly found in Chhattisgarh, Jharkhand, Odisha, Goa and Karnataka.

The major deposit of magnetite iron is available at western coast of Karnataka. Some deposits of iron ore are also found in Kerala, Tamil Nadu and Andhra Pradesh. During 2007-08 its production touched the height of 2.06,939 thousand tons (estimated).

Coal and Lignite:

Coal is the largest available mineral resource. India ranks third in the world after China and USA in the realm of coal production. The main centers of coal in India are the West Bengal Bihar region, Madhya Pradesh, Maharashtra, Odisha and Andhra Pradesh. Bulk of the coal production comes from Bengal-Jharkhand coalfields.

They contribute 60 to 65% of the total production. The total known geological reserves of all types of coal stands estimated at 264.54 billion tons as of January 1, 2008. During 2009-10 the import and export of coal was about 67.744 MT and 2.171 MT respectively.

Bauxite:

Bauxite is a main source of metal like aluminum. The total resources of bauxite as per United Nations Framework Classification (UNFC) in the country were placed at 3,290 million tons as on April 1, 2005. The areas of bauxite deposits in India are: Andhra Pradesh, Jharkhand, Goa, Gujarat, Jammu & Kashmir, Karnataka, Kerala, Chhattisgarh, Maharashtra, Odisha, Rajasthan, Tamil Nadu and Uttar Pradesh. Major reserves are concentrated in the East Coast bauxite deposits of Odisha and Andhra Pradesh.

Mica:

Mica is a heat resisting mineral which is also a bad conductor of electricity. It is used in electrical equipments as an insulator. India stands first in sheet mica production and contributes 60% of mica trade in the world. As per UNFC, the total resources of Mica in the country are estimated at 393,855 tons. The important mica bearing pegmatite occurs in Andhra Pradesh, Jharkhand, Bihar and Rajasthan.

Crude Oil:

Oil is being explored in India at many places of Assam and Gujarat. Digboi, Laldangpur, Naharkatia, Kasimpur, Palliaria, Rudrapur, Shivsagar, Mourn (All in Assam) and Hay of Khambhat, Ankaleshwar and Kalol (All in Gujarat) are the important places of oil exploration in India. The exploration of oil reserves is still on the way in other parts of the country.

Gold:

India possesses only a limited gold reserve. There are only three main gold mine regions—Kolar Goldfield, Kolar district and Hutti Goldfield in Raichur district (both in Karnataka) and Ramgiri Goldfield in Anantpur district (Andhra Pradesh).

As per UNFC, total gold metal ore reserves (primary) as on April 1, 2009 were estimated at 390.29 million tons, with a metal content of 490.81 tons. Most of the gold (about 38.71 tons) is reserved in Kolar and Hutti mines. In 2003-04, 3,363 kg of gold was produced which increased to 3,400 kg (estimated) during 2007-08.

Diamond:

As per UNFC the total reserves of diamond is estimated at around 4582 thousand carats which are mostly available in panna (Madhya Pradesh), Rammallakota of Kurnur district of Andhra Pradesh and also in the Basin of Krishna River.

The new kimberlite fields have been discovered in Raipur and Pastar districts of Chhattisgarh, Nuapada and Bargarh districts of Odisha, Narayanpet – Maddur Krishna areas of Andhra Pradesh and Raichur-Gulbarga districts of Karnataka.

Limestone:

Limestone is available almost in all the states of the country and every state contributes in its production. Andhra Pradesh is the leading state followed by Rajasthan, Karnataka, Madhya Pradesh, Gujarat, Odisha, Chhattisgarh and Tamil Nadu. As per UNFC, the total reserves of limestone of all categories and grades were placed at 175,345 million tons as of April 1, 2015.

Manganese:

Manganese is used in the production of steel and other iron compounds. The total resources of manganese ore in the country are placed at 379 million tons. Its maximum deposit is found in Karnataka. Besides, Odisha, Madhya Pradesh, Maharashtra and Goa also possess relatively larger deposits of manganese. Some deposits are also found in Andhra Pradesh, Jharkhand, Gujarat and West Bengal.

Copper:

As per United Nations Framework Classification (UNFC), the total resources of copper ore are placed at 1.39 billion tons with a metal content of 11,418 thousand tons. Important copper producing areas are Singhbhum (Bihar), Balaghat (Madhya Pradesh), Jhunjhunu and Alwar (Rajasthan), Khammam (Andhra Pradesh), Chitradurga and Hasan districts of Karnataka and Sikkim.

Barytes:

It is a colorless or white mineral which consists of barium sulphate. Barium metal is obtained from barytes. As per UNFC, India has got 74 million tons deposits of barytes as on April 1, 2005 which are mostly available in Mangampet of Cuddapah district of Andhra Pradesh.

Chromite:

It is a mineral of brown black shade with which chromium and its other compounds are prepared. As per UNFC, the total resources of chromite as on 1st April, 2005 were 213 million tons.

Chromite deposits of economic significance occur in Andhra Pradesh, Bihar, Karnataka, Maharashtra, Manipur, Odisha and Tamil Nadu. The largest share (about 96%) of the total geographical resource is accounted by Cuttack district in Odisha.

Dolomite:

It is mostly a colorless mineral (sometimes white or pink) which is the main source of calcium magnesium carbonate. Magnesium and its compounds are obtained from dolomite.

As per UNFC, the reserves of all types of dolomite are estimated at 7.533 million tons which are mostly found in Odisha, Madhya Pradesh, Gujarat, Chhattisgarh, Andhra Pradesh and Maharashtra.

Fluorspar:

It is a shining mineral which contains calcium fluoride. Fluorine and its compounds are obtained from fluorspar. This mineral is mainly available in Gujarat, Chhattisgarh, Maharashtra and Rajasthan. As per UNFC, the total resources of fluorite in the country as on April 1, 2005 were estimated at 20.16 million tons.

Gypsum:

Gypsum is a colorless or white mineral which contains calcium sulphate. It is used in the production of cement and plaster of Paris. The total resources of gypsum in India as per UNFC as on April 1, 2005 were estimated at 1.237 million tons. Most of its deposits are found in Rajasthan, Tamil Nadu, Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh and Gujarat.

Graphite:

It is a crystalline form of carbon which is used in making pencils and electrodes. Graphite is also used as a lubricant and moderator in atomic reactors. As per UNFC, the total resources of graphite in India as on April 1, 2005 were estimated at about 168.77 million tons. It contains carbon between 10 to 40%. Odisha is the main graphite producing state.

Ilmenite:

It is a black colored mineral having some magnetic property. It contains iron titanium oxide with which titanium and titanium dioxide are obtained. As per Department of Atomic Energy, the total deposits of

ilmenite in the country are estimated to be 461.37 million tons which are mostly found in the sands of eastern and western coast. Kerala, Odisha and Tamil Nadu are the states having abundant reserves of ilmenite.

Kaolin:

It is a white mineral used in making porcelain and bone china. It is also used in making medicine. The total deposits of kaolin in India are estimated to be about 2,595.66 million tons. Jharkhand, Gujarat, Rajasthan, West Bengal, Kerala, Haryana, Odisha and Andhra Pradesh are kaolin producing states.

Lead and Zinc:

The main deposits of lead and zinc are found mostly in Rajasthan, Meghalaya, Gujarat, West Bengal, Uttar Pradesh, Andhra Pradesh, Tamil Nadu, Odisha and Sikkim, but 95% of known reserves are centralized in Rajasthan and Gujarat.

As per UNFC, the total resources of lead and zinc in India as on April 1, 2005 were estimated at 522.58 million tons with 7,207 thousand tons of lead metal and 24,260 thousand tons of zinc metal.

Nickel:

Nickel is mostly available in Cuttack, Khyasarpur and Mayurbhanj districts of Odisha. Sukinda region of Cuttack district contains maximum deposits of nickel. As per UNFC, the total resources of nickel ore have been estimated at 189 million tons. About 92% resources are in Odisha and remaining 8% are distributed in Jharkhand, Nagaland and Karnataka.

Phosphate Minerals:

Phosphate minerals are of different types—phosphorite deposits are available in Chhattarpur, Sagar and Jhabua districts of Madhya Pradesh, Udaipur, Jaisalmer and Banswara districts of Rajasthan, Dehradun and Tehri districts of Uttarakhand and Lalitpur district of Uttar Pradesh.

Bihar, Andhra Pradesh, Rajasthan, West Bengal and Tamil Nadu possess ample reserves of apatite. As per UNFC as on April 1, 2005, the total resources of rock phosphate were placed at 305 million tons, and of apatite at 26.86 million tons.

Tungsten:

As per UNFC, the total resources of tungsten ore in the country have been estimated at 87.39 million tons. The main deposits are at Degana, Rajasthan it is also found in Haryana, Maharashtra, West Bengal, Andhra Pradesh, Karnataka, Tamil Nadu and Uttarakhand.

Magnesite:

India possesses abundant reserves of magnesite. Magnesite is an important refractory metal which is used in making fire bricks. It contains magnesium carbonate, magnesium is also obtained from its processing. The total known deposits of magnesite in India as per UNFC as on April 1, 2005, were about 338 million tons.

Fireclay:

It is used in making bricks. As per UNFC, as on April 1, 2005, the total reserves of fire clay in India were about 705 million tons. These reserves are mostly available in Gondwana coal regions and basins of Jharkhand, Gujarat, Madhya Pradesh, Odisha, Tamil Nadu, West Bengal and Chhattisgarh are the states where fire clay is abundantly available.