Salient features of physical geography of India and the world

Distribution of key natural resources

NATURAL RESOURCES OF INDIA

What are natural resources ?

Natural resources are useful raw materials that we get from the Earth. They occur naturally, which means that humans cannot make natural resources. Instead, we use and modify natural resources in ways that are beneficial to us. The materials used in human-made objects are natural resources. Some examples of natural resources and the ways we can use them are:

Natural resources	Products and services
Air	Wind energy
Animals	Foods (Milk, Steak, Bacon etc.),
Clothing (wool, silk etc.	
Coal	Electricity
Minerals	Coins, wire, Steel, Aluminium etc.
Natural gas	Electricity and Heating
Oil	Electricity, Fuel for vehicles
Plants	Wood, Paper, Cotton etc.
Sunlight	Solar power, Photosynthesis
Water	Hydroelectricity, Drinking, Cleaning

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INDIA : NATURAL RESOURCES

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 favourable because of the huge population size.

Land utilisation figures are available for about 92.9% of total geographical area, that is, for 3,287.3 lakh hectare. Forest constitutes 24.01 % 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 is 78.92 million hectare which is 24.01 % of the geographical area of the country. 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. **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 tonnes of haematite and 10,619 million tonnes of magnetite. Haematite iron is mainly found in Chbattisgarh, Jharkhand, Odisha, Goa and Karnataka. The major deposit of magnetite iron is available at western coast of Karnataka. Some deposits of iron ore arc also found in Kerala, Tamil Nadu and Andhra Pradesh.

Coal reserves : India has the fifth largest coal reserves in the world. As on 31 March 2015, India had 306.6 billion metric tons (338.0 billion short tons) of the resource. The known reserves of coal rose 1.67% over the previous year, with the discovery of an estimated 5.04 billion metric tons (5.56 billion short tons). The estimated total reserves of lignite coal as on 31 March 2015 was 43.25 billion metric tons (47.67 billion short tons). The energy derived from coal in India is about twice that of the energy derived from oil, whereas worldwide, energy derived from coal is about 30% less than energy derived from oil. Coal deposits are primarily found in eastern and south-central India. Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, Telangana and Maharashtra accounted for 99.08% of the total known coal reserves in India. As on 31 March 2015, Jharkhand and Odisha had the largest coal deposits of 26.44% and 24.72% respectively .

The top producing states are:

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- Odisha
- Chhattisgarh
- Jharkhand

Other notable coal-mining areas are as follows :

- Singareni collieries in Bhadradi district (Old Khammam District), Telangana
- Jharia mines in Dhanbad district, Jharkhand
- Nagpur & Chandrapur district, Maharshtra
- Raniganj in Bardhaman district, West Bengal
- Neyveli lignite mines in Cuddalore district, Tamil Nadu
- Singrauli Coalfield and Umaria Coalfield in Madhya Pradesh

Bauxite:

Bauxite is a main source of metal like aluminium. It is not a specific mineral but a rock consisting mainly of hydrated aluminium oxides. It is clay-like substance which is pinkish whitish or reddish in colour depending on the amount of iron content.

The total reserves of bauxite in India are estimated at 27.40 crores tonnes. The major bauxite producing states in India are Orissa, Jharkhand, Gujrat, Maharashtra, Madhya Pradesh, Karnataka, Tamil Nadu, Uttar Pradesh and Goa in a descending order of importance.

Large amount of bauxite comes from:

Orissa : Sambalpur, Koraput, Kalahandi and Ganjam,

Jharkhand : Lohardaga near Ranchi and Palamau districts,

Maharashtra: Ratnagiri and Kolaba, Thane, Satara of Kolhapur district,

Madhya Pradesh: Chhattisgarh – Balaghat, Rajgarh and Bilashpur,

Gujarat : Bhavanagar, Junagarh and Amreli,

Karnataka: Belgaum and Bababudan hills,

Tamil Nadu: Salem.

Uranium deposits : Jaduguda in Singhbhum Thrust Belt (in the state of Jharkhand, formerly part of Bihar) is the first uranium deposit to be discovered in the country in 1951. The Singhbhum Thrust Belt (also known as Singhbhum Copper belt or Singhbhum shear Zone) is a zone of intense shearing and deep tectonization with less than 1km width and known for a number of copper deposits with associated nickel, molybdenum, bismuth, gold, silver etc. It

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extends in the shape of an arc for a length of about 160 km. This discovery of uranium at Jaduguda in this belt paved the way for intensive exploration work and soon a few more deposits were brought to light in this area. Some of these deposits like Bhatin, Narwapahar and Turamdih are well known uranium mines of the country. other deposits like Bagjata, Banduhurang and Mohuldih are being taken up for commercial mining operations. Some of the other areas like Garadih, Kanyaluka, Nimdih and Nandup in this belt are also known to contain limited reserves with poor grades. Apart from discoveries in the Singhbhum Thrust Belt, several uranium occurrences have also been found in Cuddapah basin of Andhra Pradesh. These include Lambapur-Peddagattu, Chitrial, Kuppunuru, Tumallapalle, Rachakuntapalle which have significantly contributed towards the uranium reserve base of India. In the Mahadek basin of Meghalaya in NorthEastern part of the country, sandsyone type uranium deposits like Domiasiat, Wahkhyn, Mawsynram provide near-surface flat orebodies amenable to commercial operations. Other areas in Rajsthan, Karnataka and Chattishgarh hold promise for developing into some major deposits.

Thorium

The IAEA's 2005 report estimates India's reasonably assured reserves of thorium at 319,000 tonnes, but mentions recent reports of India's reserves at 650,000 tonnes. A government of India estimate, shared in the country's Parliament in August 2011, puts the recoverable reserve at 846,477 tonnes. The Indian Minister of State V. Narayanasamy stated that as of May 2013, the country's thorium reserves were 11.93 million tonnes (monazite, having 9-10% ThO_2, with a significant majority (8.59 Mt; 72%) found in the three eastern coastal states of Andhra Pradesh (3.72 Mt; 31%), Tamil Nadu (2.46 Mt; 21%) and Odisha (2.41 Mt; 20%). Both the IAEA and OECD appear to conclude that India may possess the largest share of world's thorium deposits.

Iron reserves : Iron ore is a metal of universal use. It is the backbone of modern civilisation. It is the foundation of our basic industry and is used all over the world**. four varieties of iron ore are generally recognized.**

(i) Magnetite: This is the best quality of iron ore . It possesses magnetic property and hence is called magnetite. It is found in Andhra Pradesh, Jharkhand, Goa, Kerala, Tamil Nadu and Karnataka.

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(ii) Haematite:

It contains 60 % to 70 % pure iron and is found in Andhra Pradesh, Jharkhand, Orissa, Chhattisgarh, Goa, Karnataka, Maharashtra and Rajasthan.

(iii) Limonite:

It contains 40 per cent to 60 per cent pure iron. It is of yellow or light brown colour. Damuda series in Raniganj coal field, Garhwal in Uttarakhand, Mirzapur in Uttar Pradesh and Kangra valley of Himachal Pradesh.

(iv) Siderite:

It contains many impurities and has just 40 to 50 per cent pure iron. However, due to presence of lime, it is self fluxing.

(4) Oil reserves : India had about 750 Million metric tonne of proven oil reserves as April 2014 or 5.62 billion barrels as per EIA estimate for 2009, which is the second-largest amount in the Asia-Pacific region behind China. Most of India's crude oil reserves are located in the western coast (Mumbai High) and in the northeastern parts of the country, although considerable undeveloped reserves are also located in the offshore Bay of Bengal and in the state of Rajasthan. The combination of rising oil consumption and fairly unwavering production levels leaves India highly dependent on imports to meet the consumption needs. In 2010, India produced an average of about 33.69 million metric tonne of crude oil as on April 2010 or 877 thousand barrels per day as per EIA estimate of 2009. As of 2013 India Produces 30% of India's resources mostly in Rajasthan.

India's oil sector is dominated by state-owned enterprises, although the government has taken steps in past recent years to deregulate the hydrocarbons industry and support greater foreign involvement. India's state-owned Oil and Natural Gas Corporation is the largest oil company. ONGC is the leading player in India's upstream sector, accounting for roughly 75% of the country's oil output during 2006, as per Indian government estimates. As a net importer of all oil, the Indian Government has introduced policies aimed at growing domestic oil production and oil exploration activities. As part of the effort, the Ministry of Petroleum and Natural Gas crafted the New Exploration License Policy (NELP) in 2000, which permits foreign companies to hold 100% equity possession in oil and natural gas projects. However, to date, only a handful of oil fields are controlled by foreign firms. India's downstream sector is also dominated by state-owned entities, though private companies have enlarged their market share in past recent years.

The Indian Strategic Petroleum Reserve (ISPR) is an emergency fuel store of total 5 MMT (million metric tons) or 36.92 MMbbl of strategic crude oil enough to provide 10 days of consumption which are maintained by the Indian Strategic Petroleum Reserves Limited.

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