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**INDIAN GEOGRAPHY**

**INDIA**

- India is the **seventh largest country** in the world with an area of 3287263 sq km, which is 2.42% of world's area.
- India is the **second most populous** country in the world with a population of 1.21 billion, which is 17.44% of the world.
- The Indian subcontinent is located in the Northern and Eastern hemisphere.
- India shares the **longest boundary** with Bangladesh (4096 km), followed by China (3488 km), Pakistan (3323 km), Nepal (1751 km), Myanmar (1643 km), Bhutan (699 km) and Afghanistan (106 km).
- In India, the **Tropic of Cancer** (23.5° N latitude) passes through 8 states (Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram).
- **Islands** Andaman and Nicobar Islands in the Bay of Bengal; Lakshadweep, Amindivi and Minicoy in the Arabian Sea.
- **Ocean** India lies midway between the Far East and Middle East. The trans-Indian Ocean routes connecting the industrially developed countries of Europe in the West and the underdeveloped countries of East Asia pass close to the Indian subcontinent.

It is surrounded by Arabian Sea in the South-West and Bay of Bengal in the South-East

**Indian States UTs Situated on the Border**

Country	Border
Pakistan (4)	Gujarat, Rajasthan, Punjab, Jammu and Kashmir
Afghanistan (1)	Ladakh
China (5)	Ladakh, Uttarakhand, Himachal Pradesh, Sikkim, Arunachal Pradesh
Nepal (5)	Uttar Pradesh, Uttarakhand, Bihar, West Bengal, Sikkim
Bhutan (4)	Sikkim, West Bengal, Assam, Arunachal Pradesh
Bangladesh (5)	West Bengal, Assam, Meghalaya, Tripura,

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	Mizoram
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**Highest Peaks of India**

Highest Peak	Height (in m)	State/UTs
Mt K2	8611	PoK (India)
Kanchenjunga	8586	Sikkim
Nanda Devi	7817	Uttarakhand
Kamet	7756	Uttarakhand
Saltoro Kangri	7742	Jammu and Kashmir
Kangto	7090	Arunachal Pradesh
Reo Purguil	6816	Himachal Pradesh
Saramati	3841	Nagaland
Sandakphu	3636	West Bengal
Khayang	3114	Manipur
Anamudi	2695	Kerala
Dodda Betta	2636	Tamil Nadu

**Important Facts**

Latitudinal extent	8°4' North to 37° 6' North
Longitudinal extent	68°7' East to 97° 25' East
North-South extent	3214 km
East-West extent	2933 km
Land Frontiers	15200 km
Total Coastline	7516.6 km
Number of States	28
Union Territories	8 (After bifurcation of J & K in Jammu and Kashmir and Ladakh and merger of Dadar and Nagar Haveli with Daman and Diu)
Land Neighbours	Pakistan, Afghanistan, China, Nepal, Bhutan,

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	Bangladesh and Myanmar
Longest Coastline	Gujarat
Active volcano	Barren Island in Andaman and Nicobar Islands
Southernmost point	Indira Point or Pygmalion point in Great Nicobar
Southernmost tip	Kanyakumari
Northern most point	Indira Col
Western most point	West of Ghaur Mota in Gujarat
Eastern most point	Kibithu (Arunachal Pradesh)

**Bhangar and Khadar**

<i>Bhangar</i>	<i>Khadar</i>
<ul style="list-style-type: none"> <li>• These are low plains. Formed of older alluvium</li> <li>• This belt ends in Khadar.</li> </ul>	<ul style="list-style-type: none"> <li>• The deposit of fresh alluvium every year brought by the Himalayas rivers makes this belt of Northern plains</li> <li>• This belt ends in Terai</li> </ul>

**Terai and Bhabar**

<i>Terai</i>	<i>Bhabar</i>
<ul style="list-style-type: none"> <li>• Terai is a broad long zone South of Bhabar plain.</li> <li>• It is a marshy damp area covered with thick forest.</li> <li>• It is 20-30 km wide.</li> <li>• It is suitable for agriculture.</li> </ul>	<ul style="list-style-type: none"> <li>• Bhabar is a long narrow plain along the foothills.</li> <li>• It is a pebble studded zone of porous beds.</li> <li>• It is 9-16 km wide.</li> <li>• It is unsuitable for agriculture.</li> </ul>

**South to North Doabs**

<i>Doab</i>	<i>Region</i>
<ul style="list-style-type: none"> <li>• Bist Doab</li> <li>• Bari Doab</li> <li>• Rechna Doab</li> <li>• Chaj Doab</li> <li>• Sind Sagar Doab</li> </ul>	<ul style="list-style-type: none"> <li>• Between Beas and Sutlej</li> <li>• Between Beas and Ravi</li> <li>• Between Ravi and Chenab</li> <li>• Between Chenab and Jhelum</li> <li>• Between Jhelum and Indus</li> </ul>

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**The Coastal Plains**

<i>Eastern Coast</i>	<i>Western Coast</i>
Smooth outline	Dissected outline
Occurrence of deltas	Occurrence of estuaries
Broad	Narrow
Long rivers	Small rivers

**Eastern and Western Ghats**

<i>Eastern Ghat</i>	<i>Western Ghat</i>
Located East to Deccan Plateau	Located West to Deccan Plateau.
They are parallel to Eastern Coast, i.e., Coromandal, Northern Circar, etc	They are parallel to Western Coast, i.e., Konkan, Kannad, Malabar etc
Mahanadi, Cauvery, Godavari, Krishna etc rivers are drawn in this land form.	Narmada, Tapi, Sabarmati and Mahi etc rivers are drawn in this land.
Jindhagada with an altitude of 1690 m is the highest peak	Anamudi with an altitude of 2695 m is the highest peak.

**Important Indian Towns on Rivers**

<b>Town</b>	<b>River</b>
Jamshedpur	Subarnarekha
Delhi	Yamuna
Kanpur	Ganga
Surat	Tapti
Ferozepur	Sutlej
Prayagraj	At the confluence of the Ganga, Yamuna and Saraswati
Varanasi	Ganga
Haridwar	Ganga

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Badrinath	Alaknanda
Ludhiana	Sutlej
Srinagar	Jhelum
Ayodhya	Saryu
Ahmedabad	Sabarmati
Patna	Ganga
Kota	Chamba
Jabalpur	Narmada
Panji	Mandavi
Ujjain	Kshipra
Guwahati	Brahmaputra
Kolkata	Hooghly
Cuttack	Mahanadi
Hyderabad	Musi
Nasik	Godavari
Lucknow	Gomti

**Some of the Important Waterfalls of India**

Waterfall	Height (km)	River	State
Kunchikal	455	Varahi	Karnataka
Jog/Gersoppa	260	Sharavati	Karnataka
Rakim Kund	168	Gaighat	Bihar
Chachai	127	Bihad	Madhya Pradesh
Kevti	98	Mahana	Madhya Pradesh
Sivasamudram	90	Cauveri	Karnataka

**Important Lakes of India**

Name of Lake	State/UTs	Important Fact
Chilka Lake	Odisha	It is the largest brackish water lake of India.
Kolleru Lake	Andhra Pradesh	It is a freshwater lake.
Loktak Lake	Manipur	It is a freshwater lake having inland drainage in Manipur.
Lonar Lake	Maharashtra	It is a meteorite crater lake in Buldhana area of Maharashtra. The water is highly charged with Sodium carbonates and Sodium chloride.
Pangong Lake	Jammu and Kashmir	It is a salty lake.
Pulicat Lake	Tamil Nadu & Andhra Pradesh border	It is a saline and lagoon lake.
Sambhar Lake	Rajasthan	It is a shallow lake which is saline, located near Jaipur.
Tso Moriri Lake	Jammu & Kashmir	It is a salty lake.
Vembanad Lake	Kerala	It is a lagoon lake and largest lake by surface area.
Wular & Dal Lakes	Jammu and Kashmir	Wular lake was created due to tectonic activities and is largest fresh water lake of India.

**Important Rivers of India**

Name	Originates from	Falls into
Ganges	Gangotri Glacier	Bay of Bengal
Sutlej	Mansarovar Rakas Lakes	Chenab
Indus	Near Mansarovar Lake	Arabian Sea
Ravi	Kullu Hills near Rohtang Pass	Chenab
Beas	Near Rohtang Pass	Sutlej

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Jhelum	Verinag in Kashmir	Chenab
Yamuna	Yamunotri Glacier	Ganga
Chambal	Singar Chouri Peak, Vindhyan escarpment	Yamuna
Ghaghara	Matsatung Glacier	Ganga
Kosi	Near Gosain Dham Peak	Ganga
Betwa	Vindhyachal	Yamuna
Son	Amarkantak	Ganga
Brahmaputra	Near Mansarovar Lake	Bay of Bengal
Narmada	Amarkantak	Gulf of Khambat
Tapti	Betul District in Madhya Pradesh	Gulf of Khambat
Mahanadi	Raipur District in Chhattisgarh	Bay of Bengal
Luni	Aravallis	Rann of Kachchh
Ghaggar	Himalayas	Near Fatehabad
Sabarmati	Mewar hill, Aravallis	Gulf of Khambat
Krishna	Western Ghats	Bay of Bengal
Godavari	Nasik district in Maharashtra	Bay of Bengal
Cauvery	Brahmagiri Range of Western Ghats	Bay of Bengal
Tungabhadra	Western Ghats	Krishna

**Important River Projects and their Beneficiary States**

Project	River	Purpose	Beneficiary States
Bhakra Nangal Project	Sutlej	Power and irrigation	Punjab, Himachal Pradesh, Haryana and Rajasthan
Damodar Valley	Damodar	Power, irrigation and flood control	Jharkhand and West Bengal, shared by Madhya Pradesh

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Hirakud	Mahanadi	Power and irrigation	Odisha
Tungabhadra Project	Tungabhadra	Power and irrigation	Andhra Pradesh and Karnataka
Nagarjunasagar Project	Krishna	Power and irrigation	Andhra Pradesh and Telangana
Gandak River Project	Gandak	Power and irrigation	Bihar, Uttar Pradesh, Nepal (joint venture of India and Nepal)
Kosi Project	Kosi	Flood control, Power and irrigation	Bihar
Farakka Project	Ganga, Bhagirathi	Power, irrigation, avoid accumulation of silt to improve navigation	West Bengal
Beas Project	Beas	Irrigation and power	Rajasthan, Haryana, Punjab and Himachal Pradesh
Indira Gandhi Canal Project (Rajasthan Canal Project)	Sutlej, Beas and Ravi	Irrigation	Rajasthan, Punjab and Haryana
Chambal Project	Chambal	Power and irrigation	Madhya Pradesh and Rajasthan
Kakrapar Project	Tapti	Irrigation	Gujarat
Ukai Project	Tapti	Power and irrigation	Gujarat
Tawa Project	Tawa (Narmada)	Irrigation	Madhya Pradesh
Poochampad Project	Godavari	Irrigation	Telangana
Malaprabha Project	Malaprabha	Irrigation	Karnataka
Durgapur Barrage	Damodar	Irrigation and navigation	West Bengal and Jharkhand
Mahanadi Delta Project	Mahanadi	Irrigation	Odisha
Idukki Project	Periyar	Hydroelectricity	Kerala
Koyna Project	Koyna	Hydroelectricity	Maharashtra
Ramganga Multipurpose Project	Chisora stream near Kala	Power and irrigation	Uttar Pradesh and Uttarakhand
Matatila Project	Betwa	Multipurpose power	Uttar Pradesh and

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		and irrigation	Madhya Pradesh
Tehri Dam Project	Bhilangana, Bhagirathi	Hydroelectricity	Uttarakhand
Rihand Scheme	Rihand	Hydroelectricity	Uttar Pradesh
Kundah Project	Kundah/Bhavani	Hydroelectricity and irrigation	Tamil Nadu

**Natural Vegetation of India**

<i>Name</i>	<i>Climatic Requirement</i>	<i>Feature</i>	<i>Important Species</i>	<i>Found in Area</i>
<i>Tropical Wet Evergreen</i>	Rainfall > 250 cm Temperature 25-27°C Humidity 80% or more	Dense forest, tall trees	Mesa, Dhup, White cedar, Jamun, Bamboo, Agar and Hopea	<i>North-East India, Western slopes of Western Ghats, Andaman and Nicobar Islands</i>
<i>Tropical Semi-Evergreen</i>	Rainfall > 200-250 cm, Temperature 24-27°C Humidity 80%	Evergreen mixed with deciduous, Height 24-36 m	Semul, Rosewood, Indian Chestnut, Kusum, Mesua	Lower slopes of Eastern Himalayas, Odisha Coast
<i>Tropical Dry Evergreen</i>	Areas receive rain from North-East Monsoon, Temperature 28°C, Humidity 74%	Presence of canopy, low height, about 9-12 m	Khirni, Jamun, Tamarind, Neem, Cane	<i>Coromandel Coast of Tamil Nadu</i>
<i>Tropical Moist Deciduous</i>	Moderate rainfall of 150-200 cm, Temperature 26-27°C, Humidity 60-80%	Trees shed their leaves in the dry season	Sal, Teak, Sandalwood, Ebony, Mahua, Shisham	<i>Western Ghats, Eastern coastal plains, Eastern Plateau</i>
<i>Tropical Dry Deciduous</i>	Rainfall < 150 cm, Dry season	Undergrowth is shrubby and grassy, trees shed their leaves in the dry season	Sal, Teak, Khair, Palash, Tendu, Laurel	<i>Uttar Pradesh, Tamil Nadu, Western Ghats, Rajasthan and West Bengal</i>
<i>Tropical Thorny</i>	Rainfall 50-70	Trees are	Babul, Acacia,	<i>South-Western</i>

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	cm, Temperature 25-27°C, Humidity < 47%	stunted (6-9 m), trees have long roots, sharp spines and glossy leaves to conserve water	Khair, Khejri	<i>Punjab, Western Haryana and Uttar Pradesh, Western Madhya Pradesh, Kachchh and Saurashtra, Rajasthan</i>
<i>Tidal/Littoral Mangrove</i>	Rainfall > 200 cm, high water salinity and areas are flooded regularly	Trees are evergreen, breathing roots called pneumatophores	Keora, Amur, Sundari, Agar, Bhendi, Nipa	<i>Delta regions of Ganga, Mahanadi, Godavari and Krishna</i>

**Soils in India**

<i>Types</i>	<i>States where Found (Occurrence)</i>	<i>Composition</i>	<i>Crops Grow</i>
<i>Alluvial</i>	Punjab, Haryana, Uttar Pradesh, Bihar and Jharkhand	Rich in potash and lime but deficient in nitrogen and phosphorus.	Large variety of rabi and kharif crops such as wheat, rice, sugarcane, cotton and jute etc.
<i>Black soil (Regur soil)</i>	Deccan Plateau, Valleys of Krishna and Godavari, Andhra Pradesh, Madhya Pradesh and Tamil Nadu.	Rich in iron, lime, aluminium, magnesium, calcium, but lacks in nitrogen, phosphorus and humus.	Cotton, sugarcane, jowar, tobacco, wheat and rice.
<i>Red</i>	Eastern parts of Deccan Plateau, Tamil Nadu, Goa, Odisha and Meghalaya.	Rich in iron and potash, but deficient in lime, nitrogen, phosphorus and humus.	Wheat, rice, cotton, sugarcane and pulses.
<i>Laterite</i>	Summits of Eastern and Western Ghats, Assam hills, Andhra Pradesh, Karnataka, West Bengal and Odisha.	Rich in iron but poor in silica, lime, phosphorus, potash and humus.	Tea, coffee, rubber, cashew and millets.
<i>Desert</i>	West and North-West India, Rajasthan, North Gujarat and	Rich in soluble salts, but deficient in organic matter.	Generally unsuitable for cultivation, but with irrigation useful for

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	Southern Punjab.		cultivation of drought-resistant lime, millets, barley, cotton, maize and pulses.
<i>Mountain</i>	Hills of Jammu and Kashmir, Uttarakhand and Assam hills.	Rich in iron and humus, but deficient in lime.	with fertilisers, tea, fruits and medicinal plants can be grown.
<i>Saline (Reh, Kallar, Usar, Thur, Rukar) and Alkaline</i>	Drier parts of Bihar, Jharkhand, Uttar Pradesh, Haryana, Punjab, Rajasthan and Maharashtra	Many salts such as sodium, magnesium and calcium.	Unfit for agriculture.
<i>Peaty and Marshy</i>	Kerala, coastal regions of Odisha, Tamil Nadu and Sunderbans of West Bengal.	Contain large amounts of soluble salts and organic matter, but lack in potash and phosphates.	Useful for rice and jute cultivation.

**Forests of India**

<i>Forest Type</i>	<i>Distribution</i>	<i>Climatic Conditions</i>	<i>Characteristics</i>	<i>Species</i>
<b><i>Tropical Evergreen Forests</i></b>	Rainy slopes of Western Ghats.  NE India except Arunachal Pradesh.  Eastern part of West Bengal and Odisha.  Andaman and Nicobar Islands.	Rainfall > 200 cm Relative  Humidity > 70% Average temperature is about 24°C.  Hot and humid climate.	Height of the trees is 40 to 60 m.  Leaves are dark green and broad.	Mahogany, Mahua, Bamboo, Cones,  Ironwood, Kadam, Irul, Jamun, Hopea, Rubber tree, Toon, Telsur etc.
<b><i>Tropical Moist Deciduous Forests</i></b>	Eastern parts of Sahyadris (Western Ghats)  North Eastern part of Peninsula  Middle and lower Ganga valley.	100 to 200 cm rainfall per annum.  Moderate temperature.	30 to 40 m high trees.  Due to deficiency of water, they shed their leaves in spring (onset of summer).	Sal, Teak, Arjun, Mulberry, Kusum, Sandalwood, Siris, Haldi, Khair, Mango, Banyan tree etc.

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	<p>Foothills of Himalayas in Bhabar and Terai region</p> <p>These cover about 20% of India's forest area.</p>			
<b>Tropical Dry Deciduous Forests</b>	<p>Large parts of Maharashtra and Andhra Pradesh.</p> <p>Parts of Punjab, Haryana and Eastern parts of Rajasthan.</p> <p>Northern and Western parts of Madhya Pradesh.</p> <p>Tamil Nadu.</p> <p>Southern parts of Uttar Pradesh.</p>	<p>50 to 100 cm rainfall.</p> <p>Moderate humidity</p>	<p>6 to 15 m high.</p> <p>Roots are thick and long.</p>	<p>Teak, Sal, Bamboo, Mango, Acacia, Neem, Shisham etc.</p>
<b>Dry Forests or Arid Forests</b>	<p>Rajasthan and adjoining areas of Haryana, Gujarat and Punjab.</p> <p>Rainshadow area of peninsular India.</p>	<p>Low rainfall (less than 50 cm per annum).</p> <p>Relative humidity is less.</p>	<p>Thorny vegetation.</p> <p>Roots are very long.</p> <p>Leaves are small.</p>	<p>Cactus, Thorny bushes, Kikar, Babool, Date palm, Acacia, Khair, Euphorbias etc.</p>

**CLIMATE**

**Monsoon**

A type of wind system, in which there is almost complete reversal of prevailing wind direction.

**Types**

1. South West Monsoon (June and July)
2. North East Monsoon (Sept. to Dec.)

### Seasons of India

- ❖ Winter Season Mid December to Mid March
- ❖ Summer Season Mid March to May
- ❖ Rainy Season June to September
- ❖ Season of Retreating Monsoon October to Mid December

### Climatic Regions of India

Type	Area	Characteristic
Tropical Rain Forests	Western Ghats, West Coastal Plains, Parts of Assam	High temperature throughout the year, heavy seasonal rainfall, annual rainfall 200 cm annually (May to November)
Tropical Savanna Climate	Most of Peninsular region (except leeward side of Western Ghats)	Dry winters, annual rainfall varies from 76 cm to 150 cm.
Tropical Semi-Arid- Steppe Climate	Rainshadow belt running Southward from Central Maharashtra to Tamil Nadu	Low rainfall varies from 38 cm to 80 cm and temperature from 20° to 30°C.
Tropical and Subtropical Steppes	Punjab, Haryana and Kachchh region	Temperature varies from 12°-35°C.
Tropical Desert	Western parts of Barmer, Jaisalmer and Bikaner districts of Rajasthan and parts of Kachchh	Scanty rainfall (mostly in form of cloud bursts), high temperature.
Humid Subtropical Climate with dry winters	South of Himalayas	Mild winters and extremely hot summers
Mountain Climate	Mountainous region (above 6000 m or more)	Rainfall varies from 63.5 cm to 254 cm. (Mostly during South-West Monsoon)

### AGRICULTURE

India is essentially an agricultural land. Two-thirds of its population still lives on agriculture. It includes farming, animal rearing and fishing .

### Agricultural Seasons in India

There are three major crop seasons in India

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**Kharif**

<b>Important Links for Judiciary Free Resources (Click on Each to Open Respective Pages)</b>	
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Sown in June/July, harvested in September/October, e.g., rice, jowar, bajra, ragi, maize, cotton and jute.

**Rabi**

Sown in October/December, harvested in April/May e.g., wheat, barley, peas, rapeseed, mustard, sesame.

**Zaid**

Sown in February/March harvested in May/June, e.g., urad, moong, melons etc.

**Green Revolution**

It is the phrase generally used to describe the spectacular increase that took place during 1968 and is continuing in the production of foodgrains in India.

The components of Green Revolution are High Yield Variety Seeds, Irrigation, Use of Fertilisers, Use of Insecticide and Pesticide, Command Area Development, Programme Consolidation of Holdings etc.

It was introduced by MS Swaminathan, who is also known as Father of Green Revolution.

**Chief Crops and Producing States**

Type	Name	Major Producers
Cereals	Wheat Rice	Uttar Pradesh, Punjab and Madhya Pradesh West Bengal

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	Gram Barley Bajra	and Uttar Pradesh Madhya Pradesh, Maharashtra and Rajasthan Maharashtra, Uttar Pradesh and Rajasthan Rajasthan, Maharashtra and Gujarat
Cash Crops	Sugarcane Poppy	Uttar Pradesh and Maharashtra Uttar Pradesh and Himachal Pradesh
Oil Seeds	Coconut Linseed Groundnut Rape seed and mustard Sesame Sunflower	Kerala and Tamil Nadu Rajasthan, Madhya Pradesh and Haryana Gujarat, Andhra Pradesh and Tamil Nadu Rajasthan, Madhya Pradesh and Haryana Gujarat, West Bengal and Karnataka Karnataka, Andhra Pradesh and Maharashtra
Fibre Crops	Cotton Jute Silk Hemp	Maharashtra and Gujarat West Bengal and Bihar Karnataka and Kerala Madhya Pradesh and Uttar Pradesh
Plantations	Coffee Rubber Tea Tobacco	Karnataka and Kerala Kerala and Karnataka Assam and Kerala Gujarat, Maharashtra and Madhya Pradesh
Spices	Pepper Cashew Nuts Ginger Turmeric	Kerala, Karnataka and Tamil Nadu Kerala, Tamil Nadu and Andhra Pradesh Kerala and Uttar Pradesh Andhra Pradesh and Odisha

## MINERAL RESOURCES

### Types of Minerals

**Metallic** Iron ore, copper, aluminium, tin, lead, gold and silver.

**Non-metallic** Coal, mica, manganese, petroleum and sulphur.

**Radioactive** Uranium and thorium

Gondwana rocks (Chhotanagpur Plateau) are the richest mineral deposits in India.

### Mineral Resources of India

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Mineral	States
Coal	West Bengal, Jharkhand, Odisha, Madhya Pradesh and Chhattisgarh
Copper	Madhya Pradesh, Rajasthan, Jharkhand, Karnataka
Gold	Karnataka, Andhra Pradesh
Iron	Karnataka, Chhattisgarh and Jharkhand
Bauxite	Odisha, Jharkhand, Gujarat and Madhya Pradesh
Mica	Jharkhand, Andhra Pradesh and Rajasthan
Petroleum	Assam, Gujarat, Mumbai High, Bassein (South of Mumbai High)
Uranium	Jharkhand, Rajasthan, Andhra Pradesh and Karnataka
Thorium	Kerala Coast, Rocks of Aravalli in Rajasthan
Silver, Zinc and Lead	Rajasthan, Andhra Pradesh, Karnataka (Kolar mines)
Diamond	Panna (Madhya Pradesh), Banda (Uttar Pradesh)

**TRANSPORTATION IN INDIA**

### Railways

- ❖ The Indian Railway system is the second largest in Asia and the 3rd largest in the world.
- ❖ The longest railway platform in India and world is now **Hubli** with a stretch of around **1.5 km**

Railway Zone	Headquarters
Central	Mumbai (CST)
Eastern	Kolkata
Northern	New Delhi
North-Eastern	Gorakhpur

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North-East Frontier	Maligaon-Guwahati
Southern	Chennai
South Central	Secunderabad
South-Eastern	Kolkata
Western	Mumbai Churchgate
East Coast	Bhubaneswar
East Central	Hajipur
North Central	Prayagraj
North-Western	Jaipur
South-Western	Hubli
West Central	Jabalpur
South- East Central	Bilaspur
Kolkata Metro	Kolkata
South Coast Railway	Visakhapatnam

- **The first train** ran in India between Bombay and Thane, a stretch of 34 km on 16th April, 1853.
- **The second train** ran between Howrah and Hooghly in 1854.
- The first electric train in India was the **Deccan Queen**. It was introduced in 1929 between Bombay and Poona.
- **The longest train** route is 'Vivek Express' from Dibrugarh in Assam to Kanyakumari in Tamil Nadu. It covers a distance of 4273 km (2655 miles).
- The first Metro train was introduced in Kolkata (West Bengal) on **24th October, 1984**. The two stations connected were Dumdum and Belgachia.
- In 1990, Konkan Railway was started between Goa, Maharashtra and Karnataka.
- Delhi metro rail was started in 2002 on 25th December between Shahdara and Tees Hazari.
- Rapid metro train service started in Gurgaon (Haryana) on 14th November 2013.

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- The newest metro opened is Kanpur Metro in December 2021.
- Vande Bharata Express also known as Train 18, is an Indian semi-high speed electric (India's fastest train) train made by Integral Coach Factory, Chennai, under make in India Programme.
- Delhi-Meerut Regional Rapid Transit System (RRTS) is an 82.15 km long, under-construction, semi-high speed rail corridor connecting Delhi, Ghaziabad and Meerut.
- The Lucknow-New Delhi Tejas Express is the first Indian train operated by private operators, IRCTC, a subsidiary of Indian Railway.
- As of January, 2021 there are 13 operational rapid transit (Metro rail) in India. Delhi Metro is the largest and busiest metro in India.
- The Indian Railways operate in three different gauges i.e. Broad Gauge (distance between rails is 1.676 m), Metre Gauge (distance between rail is 1.00 mm) and Narrow Gauge (distance between rails is 0.762 or 0.610 m).

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### Road Transport

- India has one of the largest road networks in the world (48 lakh km approx). It consists of National highways, State highways; major/other district roads and rural roads.
- **NH 44** (3745 km) is the longest highway of India (Srinagar to Kanyakumari).
- **NH 548** is the shortest National Highway with a length of 5 km.

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### GS Notes for Judiciary

- The **North-South** and **East-West Corridor** (NS-EW) is the largest ongoing expressway project in India. It is the **second phase** of the National Highways Development Project (NHDP) and involves building **7300 km** of six lane expressway connecting Srinagar, Kanyakumari, Porbandar and Silchar.
- **Maharashtra** has the maximum length of surfaced roads in India.
- Eastern Peripheral Expressway or Kundli-Ghaziabad-Palwal Expressway is a 6-lane expressway passing through the states of Haryana and Uttar Pradesh.
- India's longest greenfield 6 lane expressway, named as Agra-Lucknow expressway has been inaugurated in Uttar Pradesh.

#### Bharat Mala

It is a major highway, economic corridor and expressway development scheme of Government of India, launched in 2015, it is the biggest road Construction Plan in the country (approximately 83,677 km). The Government of India has decided to construct a greenfield major port at Wadhwan in Gujarat under Sagarmala Project.

#### Important National Highways

(New numbering)

NH	Connects
NH 1	Uri-Baramulla-Srinagar-Kargil-Leh
NH 4	Mayabandar-Port Blair-Chidiya Tapu
NH 7	Fazilka-Patiala-Rudraprayag-Mana
NH 10	Siliguri-Gangtok
NH 21	Jaipur to Bareilly
NH 32	Chennai-Puducherry-Tuticorin
NH 40	Kurnool-Chittoor-Ranipet
NH 44	Srinagar-Ludhiana-Agra-SagarHyderabad-Kanyakumari

#### Water Transport

As per the National Waterways Act, 2016, 111 Waterways have been declared as National Waterways including the 6 existing NWs given below:

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NW1	Allahabad to Haldia on Ganga river	1620 km
NW2	Sadia to Dhubri on Brahmaputra river	891 km
NW3	Kollam to Kottapuram (along Champakara and Udyogamandal Canal)	168 km
NW4	Kakinada to Marak-kanam along Godavari and Krishna river	1095 km
NW5	Mangalgarhi to Paradeep and Talcher to Dhamara along Mahanadi and Brahmani	623 km
NW6	Lakhipur to Bhanga on Barak river	121 km

**13 Major Ports in India**

Western Coast	Eastern Coast
<b>Kandla</b> (child of partition) Gujarat	<b>Paradip</b> (exports raw iron to Japan) Odisha
<b>Mumbai</b> (busiest and biggest) Maharashtra	<b>Visakhapatnam</b> (deepest port) Andhra Pradesh
<b>JL Nehru</b> (fastest growing) Maharashtra	<b>Chennai</b> (oldest and artificial) Tamil Nadu
<b>Mormugao</b> (naval base also) Goa	<b>Ennore</b> ( <i>most modern in private hands</i> ) Tamil Nadu
<b>Mangalore</b> (exports Kudremukh iron-ore) Karnataka	<b>Tuticorin</b> (Southernmost) Tamil Nadu
<b>Cochin</b> (natural harbour) Kerala	<b>Port Blair</b> (strategically important) Andaman and Nicobar Islands
	<b>Enayam Port</b> (Tamil Nadu)

**Note** Kandla port was renamed as Pt. Deen Dayal Upadhyay port in 2017.

**Air Transport**

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- In 1935, the 'Tata AirLines' started its operation between Mumbai and Thiruvananthapuram and in 1937 between Mumbai and Delhi.
- In 1953, all the private airline companies were nationalised and Indian Airlines and Air India came into existence.
- Vayudoot Limited started in 1981 as a private air carrier and later on it merged with Indian Airlines
- The International Airports Authority of India and National Airports Authority were merged in 1995 to form the Airports Authority of India.
- The Authority manages the Civil Aviation Training College at Allahabad and National Institute of Aviation Management and Research at Delhi.
- Air India will be transferred to its new owner Tata group by Jan 2022.

**Major International Airports in India**

<b>International Airports</b>	<b>City</b>
Rajiv Gandhi International Airport	Hyderabad
Calicut International Airport	Calicut
Chhatrapati Shivaji International Airport	Mumbai
Kempe Gowda International Airport	Bengaluru
Goa Airport in Vasco da Gama City	Goa
Netaji Subhash Chandra Bose International Airport	Kolkata
Thiruvananthapuram International Airport	Thiruvananthapuram
Lokpriya Gopinath Bordoloi International Airport	Guwahati
Sardar Vallabhbhai Patel International Airport	Ahmedabad
Indira Gandhi International Airport	Delhi
Chennai International Airport	Chenna
Shri Guru Ram Dass Jee International Airport	Amritsar
Pakyong Airport (First greenfield airport in Northeast region)	Sikkim

**ENVIRONMENT AND ECOLOGY**

**Environment** All external conditions, factors, matter and energy living and non-living that affect any living organism or other specified system.

**Ecology** Biological science that studies the relationships between living organisms and their environment; study of the structure and functions of nature.

**Ecosystem** It is defined as a unit which includes all the organisms (biological components) in a given area interacting with the environment (physical component), so that the flow energy leads to a clearly defined trophic structure, biotic diversity and material cycles.

**Biome** Terrestrial regions characterised by certain types of vegetation and other forms of life. Examples include various types of deserts, grasslands and forests.

**Wetland** Land that is covered all part of the time with saltwater or freshwater, excluding streams, lakes and the open ocean.

**Important Links for Judiciary Free Resources  
(Click on Each to Open Respective Pages)**

<a href="#">Subject Wise Mains PYQ Solution</a>	<a href="#">Essay for Judiciary</a>
<a href="#">Subject Wise Notes</a>	<a href="#">Legal Doctrines</a>
<a href="#">Landmark Judgements</a>	<a href="#">GS Notes</a>
<a href="#">Weekly Current Affair</a>	<a href="#">Subject Wise Prelims PYQ Solution</a>
<a href="#">Free Answer Writing Course</a>	<a href="#">Judgement Writing</a>
<a href="#">Telegram Link</a>	<a href="#">Youtube Link</a>

**Biodiversity** Variety of different species (species diversity), genetic variability among individuals within each species (genetic diversity), variety of ecosystems (ecological diversity) and functions such as energy flow and matter cycling needed for the survival of species and biological communities (functional diversity).

**Biosphere** Zone of the Earth where life is found. It consists of parts of the atmosphere (the troposphere), hydrosphere (mostly surface water and groundwater) and lithosphere (mostly soil and surface rocks and sediments on the bottoms of oceans and other bodies of water) where life is found.

**Wildlife** All free, undomesticated species. Sometimes the term is used to describe animals only.

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**Threatened Species** Wild species that is still abundant in its natural range but is likely to become endangered because of a decline in numbers.

**Ozone** (  $O_3$  ) Colourless and highly reactive gas and a major component of photochemical smog. Also found in the ozone layer in the stratosphere and protects us from ultraviolet rays.

**Smog** Originally, a combination of smoke and fog but now used to describe other mixtures of pollutants in the atmosphere .

**Acid Rain** When fossil fuel is burnt, oxides are formed in the atmosphere. The oxides formed of sulphur and nitrogen get dissolve in water and cause acid rain.

**Global Warming** Warming of the Earth's lower atmosphere (troposphere) because of increases in the concentrations of one or more greenhouse gases. It can result in irreversible climate change that can last for decades to thousands of years.

**Ecomarks** The Ministry of Environment Forest and Climate change, Government of India instituted a scheme that is operating on a national basis and provides accreditation and labelling for household and other consumer products which meet certain environmental criteria.

**Coral Bleaching** Coral bleaching occurs when the relations between the coral host and zooxanthellae, which give coral much of their colour, breaks down. Without the zooxanthellae, the tissue of the coral animal appears transparent and the coral's bright white skeleton is revealed.

**Sustainability** Ability of Earth's various systems, including human cultural systems and economies, to survive and adapt to changing environmental conditions indefinitely.

**Important Sanctuaries and National Parks**

Name	Location	Reserve For
Kaziranga National Park	Assam	One-horned rhinoceros, gaur, elephant, leopard and wild buffalo
Sonai Rupai Wildlife Sanctuary	Assam	Elephant, sambhar, wild boar and one-horned rhinoceros
Namdapha National Park	Arunachal Pradesh	Elephant, panther, sambhar, tiger, cheetal and king cobra
Gautam Buddha Sanctuary	Bihar	Tiger, leopard, sambhar, cheetal and barking deer (Indian Muntjac)
Achanakmar Sanctuary	Chhattisgarh	Tiger, boar, cheetal, sambhar and bison

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Velvadore National Park	Gujarat	Wolf and black buck
Wild Ass Sanctuary	Gujarat	Wild ass, wolf, nilgai and chinkara
Gir Forest	Gujarat	India's biggest wildlife sanctuary famous for Gir lions
Dachigam National Park	Jammu and Kashmir	Kashmiri stag, Long tailed marmot, Himalayan serow
Bannerghatta National Park	Karnataka	Elephant, cheetal, deer and grey partridge and green pigeon
Bhadra Sanctuary	Karnataka	Elephant, cheetal, panther, sambhar and wild boar
Bandipur National Park Dandeli Sanctuary	Karnataka and Tamil Nadu	Elephant, tiger, panther, sambhar, deer and birds
Tungabhadra Sanctuary	Karnataka	Tiger, panther, elephant, cheetal, sambhar and wild boar
Nagarhole National Park	Karnataka	Panther, cheetal, sloth bear and four-horned antelope
Pachmarhi Sanctuary	Madhya Pradesh	Tiger, leopard, wild bear, cheetal, sambar rhesus macaque
Gandhi Sagar Sanctuary	Madhya Pradesh	Tiger, panther, boar, sambar, nilgai and barking deer
Bandhavgarh National Park	Madhya Pradesh	Cheetal, sambhar, chinkara and wild birds
Similipal Sanctuary	Odisha	Tiger, panther, cheetal, nilgai and wild boar
Ghana Bird Sanctuary	Rajasthan	Water birds, black buck, chital and sambar
Khangchendzonga National Park	Sikkim	Snow leopard, musk deer and Himalayan boar
Vedanthangal Bird Sanctuary	Tamil Nadu	Important bird sanctuary
Chandraprabha Sanctuary	Uttar Pradesh	Gir lions, chital and sambhar
Dudhwa National Park	Uttar Pradesh	Tiger, panther, sambar, cheetal, nilgai and barking deer

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Corbett National Park	Uttarakhand	Tiger, leopard, elephant and sambhar (named in memory of Jim Corbett)
Jaldapara Sanctuary	West Bengal	Rhinoceros, Elephant
Sunderban Tiger Reserve	West Bengal	Tiger, deer, wild boar, crocodile and Gangetic dolphin

**Biosphere Reserves of India**

Name	States	Type	Area (km <sup>2</sup> )
Manas	Assam	East Himalayas	2837
Dibru-Saikhowa	Assam	East Himalayas	765
Seshachalam Hills	Andhra Pradesh	Eastern Ghats	4755.997
Great Nicobar (UNESCO)	Andaman and Nicobar Islands	Islands	885
Dihang-Dibang	Arunachal Pradesh	East Himalayas	5112
Great Rann of Kachchh	Gujarat	Desert	12454
Cold Desert	Himachal Pradesh	Western Himalayas	7770
Agasthyamalai (UNESCO)	Kerala, Tamil Nadu	Western Ghats	1828
Pachmarhi (UNESCO)	Madhya Pradesh	Semi-Arid	4926
Achanakmar-Amarkantak (UNESCO)	Madhya Pradesh, Chhattisgarh	Maikal Range	3835
Nokrek (UNESCO)	Meghalaya	East Himalayas	820
Simlipal (UNESCO)	Odisha	Deccan Peninsula	4374
Khangchendzonga (UNESCO)	Sikkim	East Himalayas	2620
Nilgiri (UNESCO)	Tamil Nadu, Kerala and Karnataka	Western Ghats	5520
Gulf of Mannar (UNESCO)	Tamil Nadu	Coasts	10500

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Nanda Devi (UNESCO)	Uttarakhand	West Himalayas	5860
Sunderbans (UNESCO)	West Bengal	Gangetic Delta	9630
Panna (UNESCO)	Madhya Pradesh	Semi-Arid	2998

**Environment Related Important International Agreement/Conference**

<b>UN Conference on the Human Environment</b>	<b>Stockholm (1972)</b>
Convention on Migratory Species	Bonn (1979)
Convention for the Protection of the Ozone Layer	Vienna (1985)
Protocol on Substances that Deplete the Ozone Layer	Montreal (1987)
Convention on the Transboundary Movement of Hazardous Wastes	Basel (1989)
Earth Summit (UN Conference on Environment and Development)	Rio-de-Janeiro (1992)
Convention on Prior Informed Consent	Rotterdam (1998)
UN Conference on Sustainable Development	Rio-de-Janeiro (2012)
Nagoya Protocol on Genetic Resources (Nagoya Protocol)	Nagoya (2010)
Convention on Biological Diversity (CBD-CoP-11)	Hyderabad (2012)
Lima Climate Change Conference (CoP-20)	Lima Climate Change Conference (CoP-20)
Paris Agreement (CoP-21)	Paris (2015)
Marrakech Conference (CoP-22)	Marrakech, Morocco (2016)
Bonn Conference (CoP-23)	Bonn (2017)
Katowice Conference (CoP-24)	Katowice, Poland (2018)
Madrid Conference (CoP-25)	Madrid, Spain (2019)
CoP-26	Glasgow (2021)

**Wildlife Conservation in India**

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Project	Year
Project Hangul	1970
Project Gir	1972
Project Tiger	1973
Project Olive Ridley Turtles	1975
Crocodile Breeding Scheme	1975
Project Manipur Thamin	1977
Project Rhino	1987
Project Elephant	1992
Project Red Panda	1996
Project Sea Turtle	1999
Project Vulture	2006
Project Snow Leopard	2009
Project Dolphin	2020
Project Asiatic Lion	2020

**Endangered Species of India**

Birds	Great Indian Bustard, Forest Owlet, Vulture, Bengal Florican, Himalayan Quail, Siberian Crane
Mammals	Flying Squirrel, Red Panda, Pygmy Hog, Kondana Rat, Snow Leopard, Asiatic Lion, One-Horned Rhinoceros
Reptiles	Gharial, Hawksbill Turtle, River Terrapin, Sispara Day Gecko
Amphibians	Flying Frog, Tiger Toad