

UPSC PATHSHALA

Indian Geography

01

India: General Introduction



Thar Desert



Himalayas



Brahmaputra valley

Area
37.87.263² km

Takes up
2.4% of
Global space

7th largest
Country

Population
2nd most
populous
China holds
the 1st position

India is unique in terms of its distinct culture. It is recognized as one of the oldest civilizations stretching its roots to the mighty Indus Valley Civilization.

The country is surrounded by the Himalayas in its north, Casa villages in the south, Brahmaputra valley in the east and the Thar Desert in the west.

India covers an area of 37.87.263 square kilometers accounting for about 2.4 percent of the global space. The country is placed on the seventh position in terms of the area. In terms of population, India holds second position next to China.

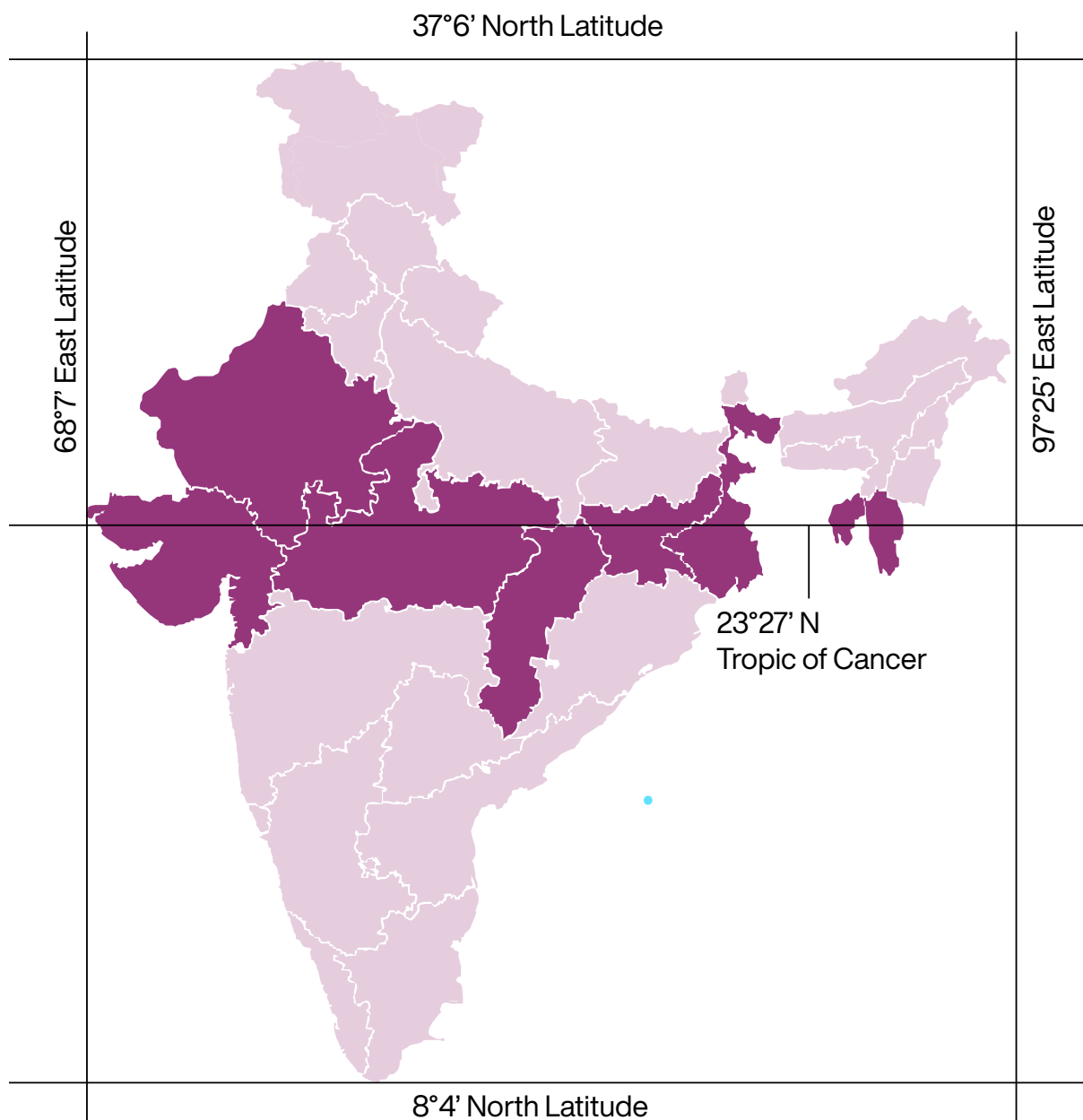
In terms of its geography, India has the mighty Himalayas in the north which are unique in their topography with its folds being perennially snow-bound. From asymmetrical folds of the Himalayas, India extends southwards covering Kanyakumari in peninsular India. And from the Tropic of Cancer, the country stretches into the Indian Ocean. The Ocean is surrounded by the Bay of Bengal on the east and the Arabian Sea on the west. The Tropic of Cancer splits India into two equal portions namely



northern and southern. The Tropic of Cancer moves through eight states in India such as Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura and Mizoram.

India lies completely in the Northern hemisphere. India's geographic mainland extends from 8°4' north to 37°6' north latitude and 68°7' east to 97°25' east longitude. It measures about 3,214 km from north to south from Indira Col (India's northernmost point) to Kanyakumari (India's southernmost point) and about 2,933 km from east to west (from the Rann of Kutch to Arunachal Pradesh).

The northernmost point of India is Indira Cole in Jammu & Kashmir. The southernmost point



Northernmost Point

Indira Cole in Jammu & Kashmir

Southernmost Point

Pygmalion point /Indira Point in Andaman and Nicobar islands

Coastline
7,516.6 km

Longitude

30° difference between Eastern and Western longitudes

The Standard Meridian- 82'30' East longitude

Indian Standard Time (IST)- UTC+05:30

of the country is the Pygmalion point or Indira Point in the Union Territory of Andaman and Nicobar islands.

There is a difference of 30 degrees between the Western and Eastern longitudes which is a reason that India has a time difference of about two hours between the westernmost and easternmost part of the country.

The Standard Meridian lies on 82'30' East longitude, which falls in the middle of the country longitudinally. It determines the Indian Standard Time for the entire nation. Moreover, the Indian Standard Time is five and a half hours ahead of Greenwich Mean Time (GMT).

The Standard Meridian passes through Mirzapur, a city approximately 84 kilometers from Allahabad in north-Indian state of Uttar Pradesh, and it moves through five states of Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha, and Andhra Pradesh.(not orderly para's-time & land mixed)

The total length of India's coastline is 7,516.6 kilometers. This length also comprises the island territories of Lakshadweep Islands and Andaman and Nicobar Islands. Due to its massive size and huge diversity, India is regarded as a subcontinent for it comprises all the features and components of a continent. Still, India falls short in terms of size to be called a continent. Politically speaking, the Indian subcontinent consists of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

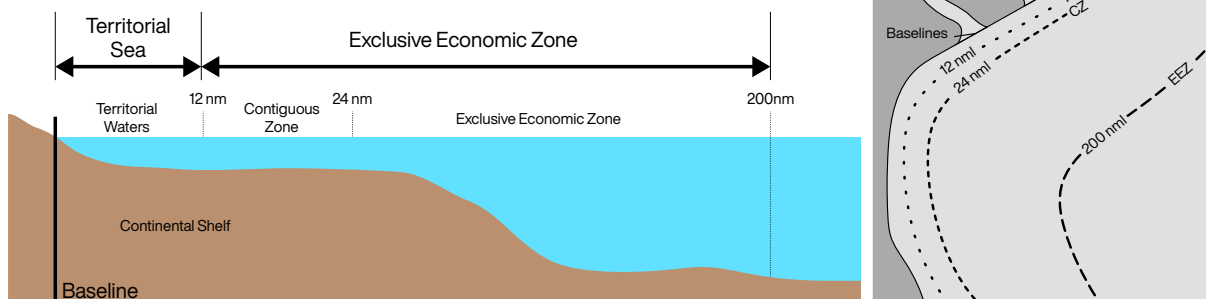
| Continent | Subcontinent |
|---|---|
| <i>Definition</i> | |
| A continent has a massive landmass and is surrounded by oceans. | A subdivision of a continent which has distinct geographical, political, and cultural identity. |
| <i>Examples</i> | |
| There are seven continents: Asia, Australia, Antarctica, Africa, North America, South America and Europe. Australia is an exception as it is considered a country as well as a continent. | India, Greenland, Middle East, etc. |

INDIAN SOVEREIGNTY RIGHTS IN INDIAN OCEAN

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) lays down a new order of the oceans that provided a comprehensive framework of governing the sovereign rights of a nation in terms of its use of oceans and seas keeping in view of its sovereignty, national security, promotion of trade and development and protection of the marine environment and its natural resources. The UNCLOS elucidates ocean zones and the rights and duties of the nations within those ocean zones.

Ocean Zones: Rights and Responsibilities

In accordance with the UN Convention on the Law of the Sea, the ocean is divided into eight zones:



Territorial Sea:

The coastal states have a sovereign right of seas stretching to 12 nautical miles from shore. The states are mandated to recognize the right of foreign vessels of “innocent passage” through the water lying in their jurisdiction of 12 nautical miles.

Contiguous Zone:

This is an area that extends 12 miles beyond the territorial sea. This is a zone in which the coastal state is entitled to exercise its own laws pertaining to monetary policies as well as laws dealing with immigration, sanitation and security-related measures.

Exclusive Economic Zone (EEZ):

This area of sea extends beyond the territorial sea stretching to 200 nautical miles, in which the coastal state is fully free to exploit and utilize the mineral and living resources and carry out certain economic activities. These freedoms are however subject to granting rights of free navigation and overflight to other states in these exclusive zones. Similarly, other states are entitled to lay down submarine cables and maintain pipelines.

Continental Shelf:

This refers to the seabed of the Exclusive Economic Zone and the areas of the seabed beyond the Exclusive Economic Zone that fulfill geological requirements mentioned in the laws of the seas. The coastal states are free under UNCLOS to explore and exploit the continental shelf. The coastal states are supposed to share with the international community part of the revenue obtained from exploiting resources from any part of their shelf beyond 200 miles.

High Seas:

The waters lying beyond the Exclusive Economic Zone in which ships and activities are under the jurisdiction of the flag state and subject to a limited number of international restrictions such as steps banning piracy and the slave trade.

The Area:

This refers to the portion of the ocean floor that lies beyond the limits of national jurisdiction. Mineral resources of the Area are governed by the International Seabed Authority, as set forth by the Law of the Sea Convention.

International Straits:

They are a narrow passage of water that is used in international navigation. These are subject to innocent passage. International straits are governed by the laws of Transit Passage, in which vessels may pass through without any hindrance imposed on innocent passage.

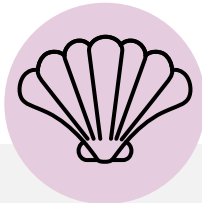
Archipelagic Waters:

These are referred to those waters which are surrounded by archipelagic baselines drawn in line with the Law of the Sea Convention. Passage through archipelagic waters is determined to conditions laid down in Transit Passage in designated sea lanes and innocent passage in other areas of the waters.

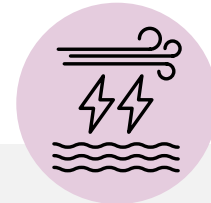
Exclusive Economic Zone (EEZ)

The concept of Exclusive Economic Zone (EEZ) has been expounded and established by the 1982 United Nations Convention on the Law of the Sea. It describes an EEZ as an area of the sea that extends 200 nautical miles from a country's shore. This is an area where a coastal state has the right to explore, exploit and manage both living and non-living resources. For instance, India enjoys rich maritime heritage and has an EEZ of about 2.37 million sq. km. wherein India is completely entitled to enjoy the exclusive legal privilege to exploit all living and non-living resources.

The Law of the Sea Convention explains territorial waters as a belt of coastal waters stretching to 12 nautical miles (around 22 kilometers) from the baseline (generally the mean low-water mark) of a coastal state. The Exclusive Economic Zone is differentiated from territorial sea in the sense that the former entitles the coastal nation to an exclusive right of below the surface of the sea, whereas the latter grants full sovereignty over the waters.



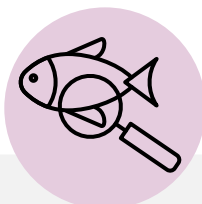
Exploitation and conservation of natural resources. Natural resources include both living and non-living things found in Exclusive Economic Zone.



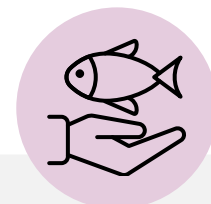
Right to produce power from wind and currents.



Creation and utilization of artificial islands as well as structures and installations.



Conducting research in marine science.



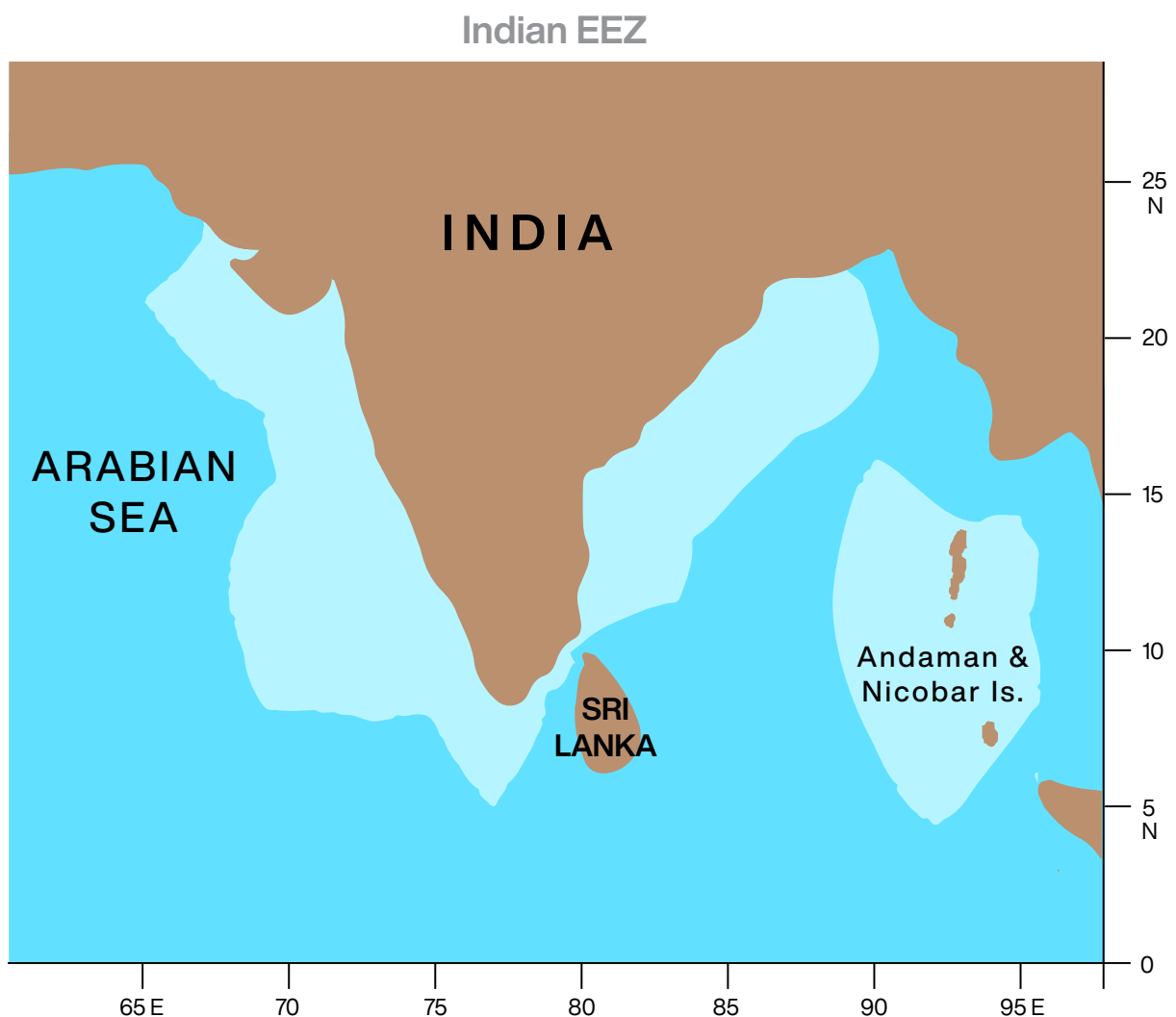
Measures to protect and preserve marine environment.

The convention enumerates the rights and obligations of other States in the EEZs:

1. All states whether they are coastal or land-locked are entitled to move freely in the oceans and seas as well as over-flight. They are permitted to lay down submarine cables and pipelines. The laws set forth in the UN Convention on the laws of the seas are applicable in the operation of vessels, aircraft and submarine cables and pipelines.
2. All States are under obligation to respect the rights and duties of the coastal States and shall oblige the laws and regulations employed by the coastal State in tune with the provisions of this Convention and other set of international laws.

In 1976, India introduced the Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Acts. The legislation was incorporated in Article 297 of Chapter III, Part XII of the Indian Constitution with the provision of the exclusive Economic Zone.

By June 1997, the Republic of India had signed the UNCLOS III segment of the treaty, which marked its agreement with the region specific agenda of the convention. The legislation accords between 2.2 to 2.8 million square kilometers of the sea under India's authority and its jurisdiction.



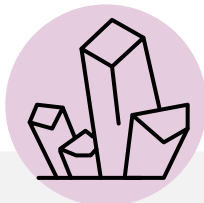
Activities in the EEZ for India

According to a report put forth by the National Institute of Oceanography (NIO) in 2018, India has a coastline of approximately 7,500 kilometers, and the India's Exclusive Economic Zone, as per the UNCLOS, spans an area of 2.172 million square km.

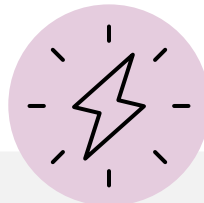
The Exclusive Economic Zone of India allows the country to have an exclusive jurisdiction over the resources found in this zone together with movement and navigation of seafaring trade and transport ships in this portion.

However, geo-scientific mapping of the EEZs of India has not yet been thoroughly applied. This is crucial in terms of systematic scientific research on the EEZs for India. The research should be coupled with practical knowledge and preparedness for environmental hazards as well as taking into account the socio-economic well-being of people dwelling along India's coastline.

Importance of EEZ to India:



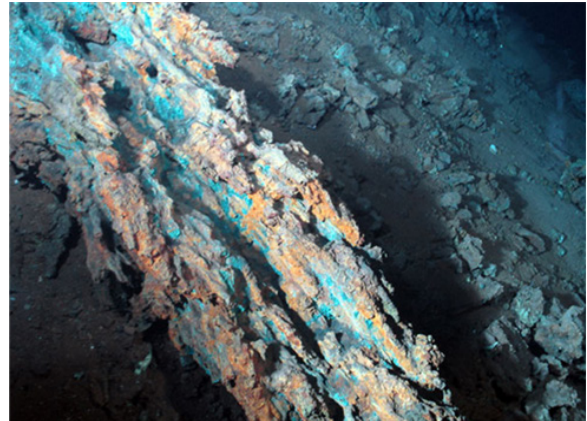
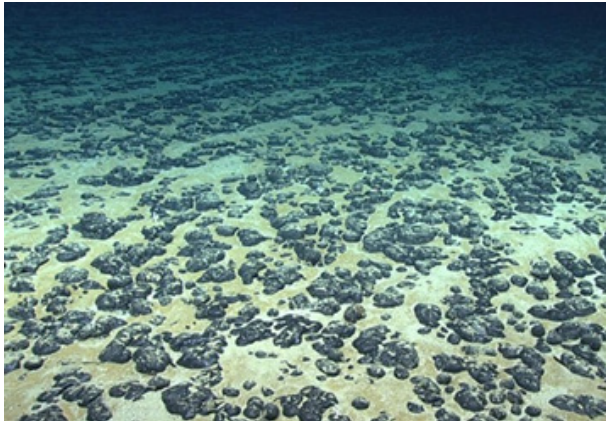
Source of minerals is a vast Polymetallic Nodules (PMN) and Polymetallic Sulphide (PMS). The resources that are found on the Indian Ocean seafloor are within the exclusive domain of India's EEZ. The International Seabed Authority has accorded exploration rights to the country for Polymetallic Nodules and Polymetallic Sulphide. It will allow India to better its Rare Earth Mineral security.



The Oceans are considered as the future of energy for new technologies such as Wave energy, Tidal energy, Ocean Thermal energy is in research mode. Extensive Exclusive Economic Zone will grant India much-needed opportunity to harness and tap the Ocean energy and preserve its energy security.

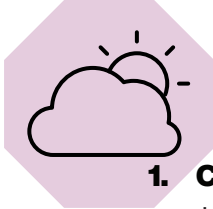


Gas hydrates which are a crystalline form of methane and water. They exist in shallow sediments of outer continental margins. They are seen as a potential energy resource for the future. An assessment of geological condition of India discloses the fact that the country has high possibility of occurrence of large quantity of gas hydrates within the Exclusive Economic Zone of India.



IMPACT OF LARGE LATITUDINAL AND LONGITUDINAL EXTENT

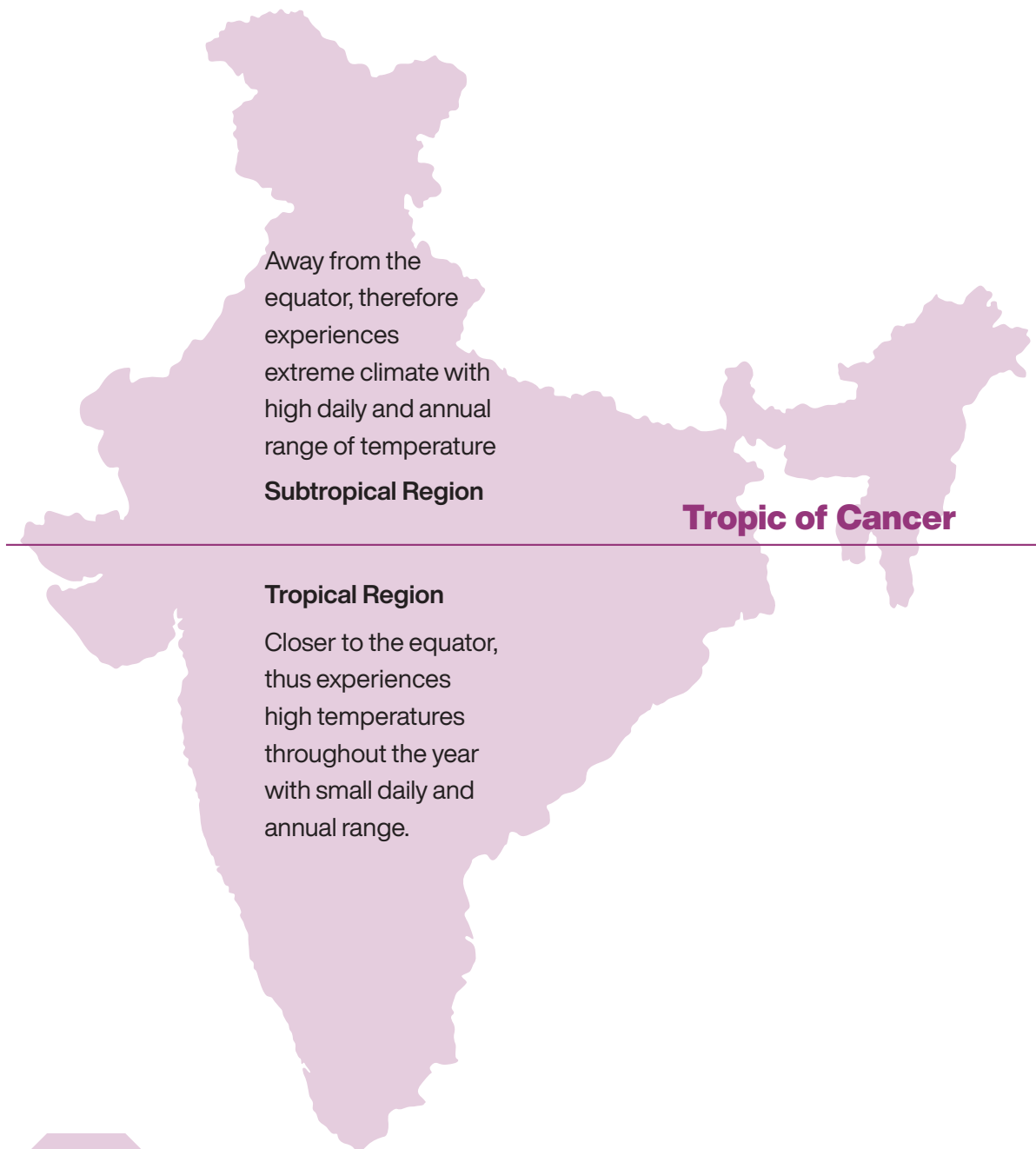
India has a huge geographical length. With its diversity and uniqueness, India is considered to be a subcontinent as it has all the features, qualities and characteristics of a continent.



1. Climatic diversity:

Large latitudinal and longitudinal extent gives diversity in climatic conditions in the country.

- a. The portion of the land lying south of Tropic of Cancer is referred to as southern half of India. The area has a tropical climate for the rays of the sun hit the Earth's surface almost vertically at noon. The oceans located on both the sides of the Indian peninsular landmass help in moderating the temperature through land and sea breezes.
- b. Towards the north of the Tropic of Cancer, India witnesses subtropical climate for the Sun's rays hit here comparatively obliquely. As a result, this part of the country gets a lesser amount of insolation than the southern part. Besides, the continentality effect due to the distance from sea accords high annual range of temperature in northern part of India where summer and winter seasons are more prominent.



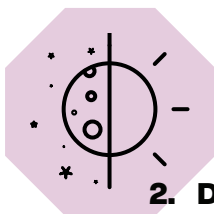
Away from the equator, therefore experiences extreme climate with high daily and annual range of temperature

Subtropical Region

Tropic of Cancer

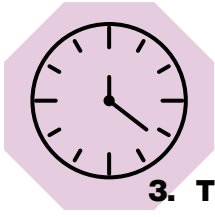
Tropical Region

Closer to the equator, thus experiences high temperatures throughout the year with small daily and annual range.



2. Duration of day and night:

The difference between day and night hours increases from the equator towards the poles. The day and night in most parts of southern India are approximately of equal length with a gap of only about 45 minutes. Similarly, in northern parts of India, the difference between day and night gradually increases till it becomes as much as 5 hours in Union Territory of Ladakh.



3. Timelines:

The planet Earth takes 24 hours to move on its axis. The Earth's longitudinal stretch of 360° is thus covered in one day meaning 24 hours. This implies that the Earth covers 15 degrees of longitudes in one hour. As the longitudinal length of India stands at 30° , it takes nearly two hours to cover India from its eastern side to its western side. Since the Earth rotates from west to east, the Sun appears to come out first on the eastern horizon. As the north-eastern state of Arunachal Pradesh is towards the east, it will witness the first sunrise in India while Saurashtra, a peninsular region of Gujarat, will experience sunrise two hours later.

INDIA AS A POLITICAL UNIT

Geographically and culturally, any region cannot be strictly demarcated. Such delineation happens when a country is organised politically, i.e. into different regional units having a standard administrative structure and a common sovereign rule. There are 29 states and seven union territories in India. States and Union Territories are the administrative units in our country. They are further subdivided into districts for administrative convenience.

Area wise the four largest states in descending order are:
Rajasthan > Madhya Pradesh > Maharashtra > Uttar Pradesh

Goa is the smallest state of India

The
Easternmost
State:
Arunachal
Pradesh



The
Westernmost
State:
Gujarat

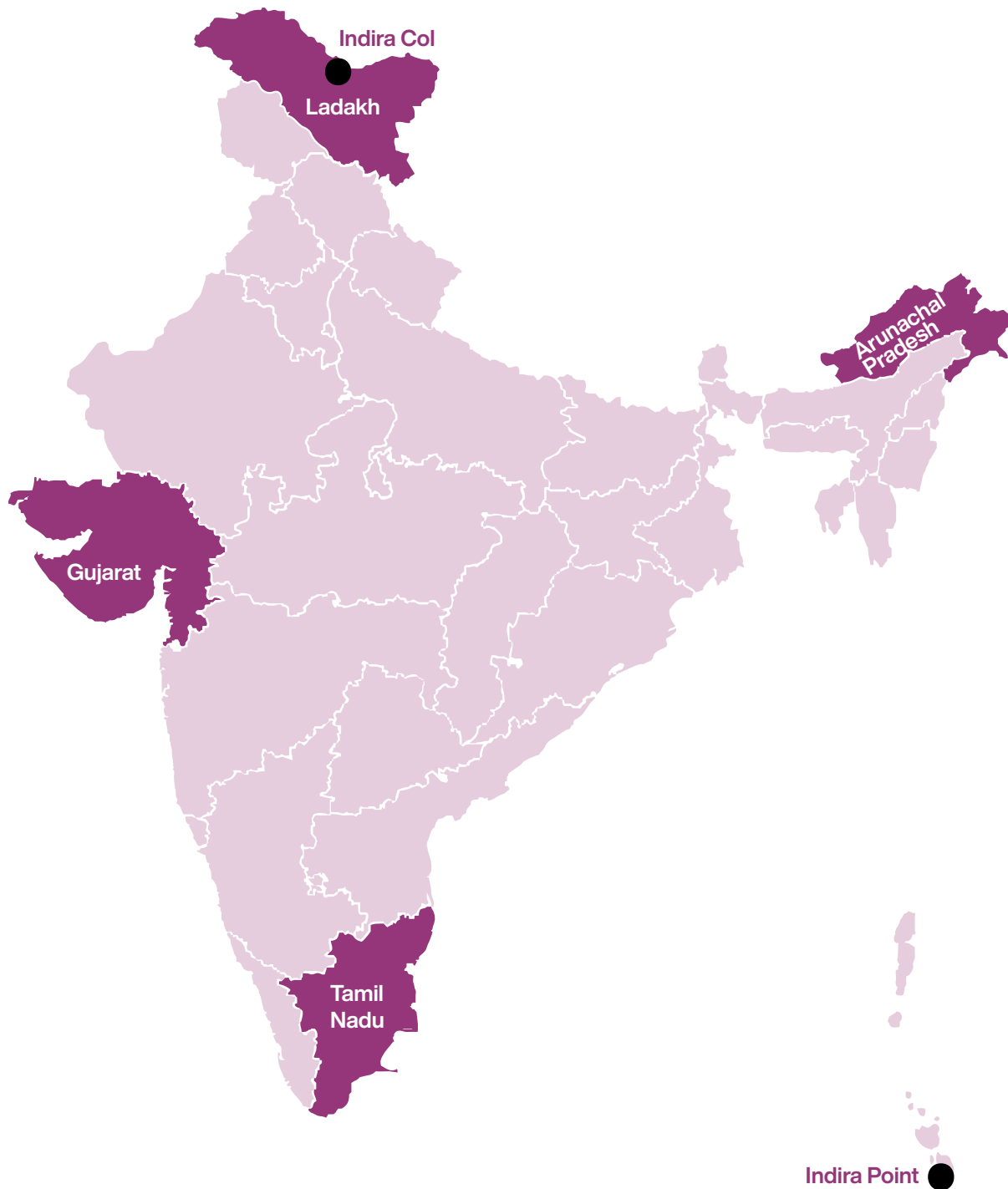


The
Northernmost
State:
Jammu & Kashmir



The
Southernmost
State:
Tamil Nadu





ISLAND TERRITORIES OF INDIA

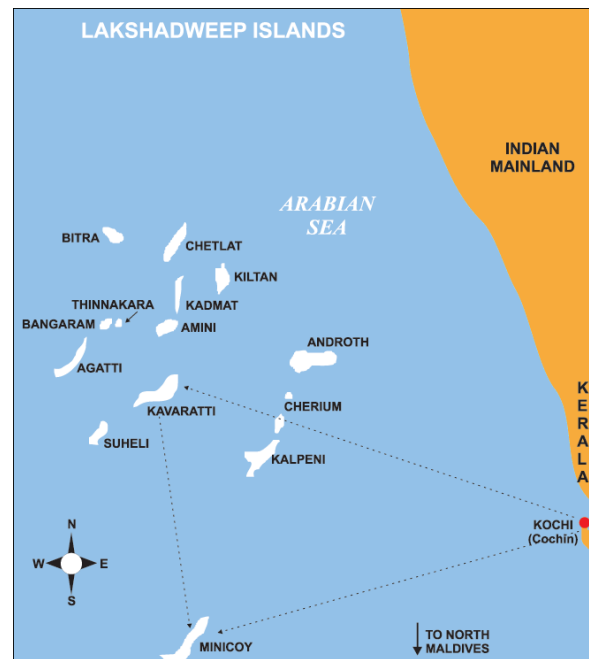
Lakshadweep Islands:

They are located in the Arabian Sea, west of Kerala. They are entirely Coral in origin. This archipelago consists of 36 islands. The islands have a total area of 32 sq. kms. Few islands are shown in the adjacent diagram. As per Census 2011, there are 64000 inhabitants on islands. More than 90 per cent of population follows Muslim religion. The entire indigenous population has been classified as Scheduled tribe.

Andaman & Nicobar Islands:

The main islands that come under the Andaman & Nicobar Islands are: North Andaman, Middle Andaman, South Andaman, Little Andaman and Great Nicobar. It is the largest union territory of India. Andaman and Nicobar Islands group have 572 islands. These islands are an elevated portion of submarine mountains having volcanic origin.

Port Blair, the capital of Andaman and Nicobar Islands, is situated in South Andaman. The Indira Point, the southernmost point of India, is situated in Great Nicobar Island. The Barren Island, which is India's only active volcano, is situated in the east of Middle Andaman. Narcondam Island is a dormant volcanic island.





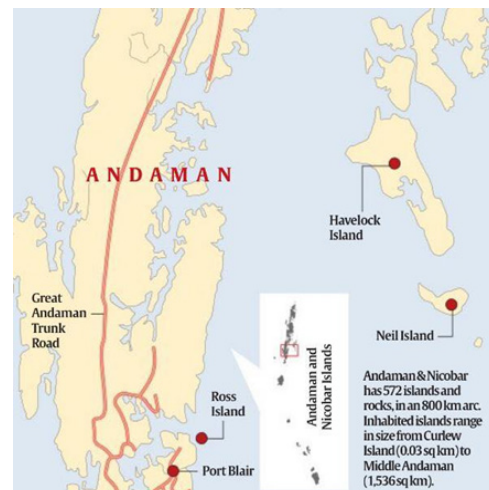
IMPORTANT CHANNELS AND PASSAGE FOR PRELIMS

| | |
|-------------------|--|
| 10-degree channel | Andamans are separated from Nicobar by a 10-degree channel (10-degree latitude). |
| Duncan Passage | South Andaman and Little Andaman are separated by Duncan Passage. |
| Grand Channel | The Grand Channel is between the Great Nicobar islands and the Sumatra islands of Indonesia. |
| Coco Strait | The Coco Strait is between the North Andaman islands and the Coco Islands of Myanmar. |
| Barren Island | Barren Island, located in the east of Middle Andaman is India's only active volcano. |

| | |
|------------------|---|
| Narcondam Island | The Narcondam Island, located in the north-east of North Andaman is also a volcanic island. |
| 8 Degree Channel | 8 Degree Channel (8 degrees north latitude) separates the islands of Minicoy and Maldives. |
| 9 Degree Channel | 9 Degree Channel (9 degrees north latitude) separates the island of Minicoy from the main Lakshadweep archipelago. |
| Pitti Island | Pitti Island is an important breeding place for sea turtles and for a number of pelagic birds such as the brown noddy, lesser crested tern and greater crested tern. The Pitti island has been declared a bird sanctuary. In the Lakshadweep region, there is an absence of forests. |

Islands in Andaman and Nicobar Group which have been renamed recently are:-

| No. | Old name | New Name |
|-----|-----------------|---------------|
| 1 | Neil island | Shaheed dweep |
| 2 | Ross island | Bose island |
| 3 | Havelock island | Swaraj dweep |



Other Important Islands of India

Sriharikota Island-

It is located between Pulicat Lake and the Bay of Bengal in the Nellore district of the state of Andhra Pradesh. Sriharikota is one of the satellite launching stations of the Indian Space Research Organisation.

Abdul Kalam Island/ Wheeler Island-

The Abdul Kalam Island is located off the Odisha coast. It is India's most advanced missile testing site. The island was earlier named after an English commandant Lieutenant Wheeler.

Pamban Island-

It is located between India and Sri Lanka in the Gulf of Mannar and in the Ramanathapuram district of the state of Tamil Nadu. It is also known as Rameswaram Island. Most of Pamban Island is covered with white sand and hence is not suitable for

Majuli Island-

It is located in the state of Assam. It is a large river island in the Brahmaputra river. It is the world's largest river island. The livelihoods of people on the island are dependent on agriculture. The island is under severe ecological threat due to the extensive soil erosion on its banks.

Phumdis/Floating Islands-They are located in the state of Manipur. It is part of the Keibul Lamjao National Park. It is famous for the Eld's deer/ Sangai.

Diu Island-

It is located off the south coast of Kathiawar. Diu Island is famous for the historical Diu fort and beautiful beaches.

Sagar Island-

It is located in the Ganga delta in the Bay of Bengal. It is a large island. It is also an important place of Hindu pilgrimage.

Halliday Island-

It is located in the state of West Bengal and is part of the Sunderbans region. It is located in the river Malta. It is also designated as a wildlife sanctuary.

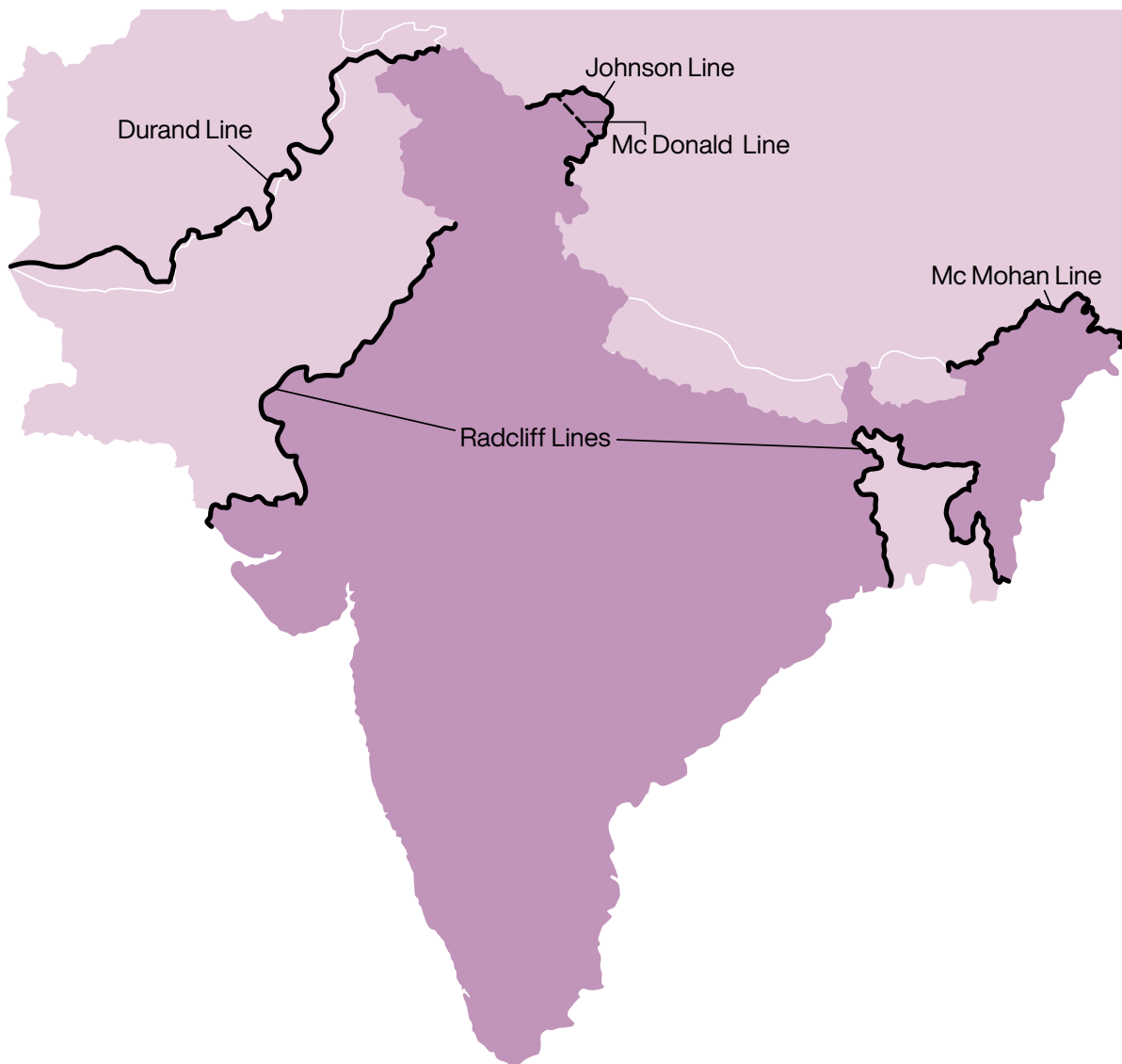
FRONTIERS OF INDIA

Countries having a land border with India are Afghanistan and Pakistan in the north-west, China, Bhutan and Nepal in the north, Myanmar in the Far East and Bangladesh in the east. Sri Lanka is separated from India by a narrow channel of sea formed by the Palk Strait and the Gulf of Mannar

Boundary

It implies the physical limit of sovereignty and jurisdiction of a state. It is a manifestation of integration and is oriented inwards.

Seventeen states of India have Neighbouring Countries Common borders with neighbouring countries. Barring Madhya Pradesh, Chhattisgarh, Jharkhand, Delhi and Haryana, all other States in the country have Bangladesh West Bengal, Mizoram, Meghalaya, Tripura and Assam one or more international borders or a coastline.



Radcliffe Line –

It is the boundary of India and Bangladesh. The border between India and Pakistan and West Bengal was decided by Sir Cyril Radcliffe in 1947. Since Bangladesh was an East Pakistan at that time, the border between India and Bangladesh is still decided by the Radcliffe Line.

McMahon Line-

It is the boundary line between India and China. Sir Henry McMahon in 1914 decided this line.

Durand Line –

It is the boundary line between India and Afghanistan. Sir Henry Mortimer Durand decided this line in 1896. Since India and Pakistan both were called India at that time, the border between Pakistan and Afghanistan, at present is decided by the same line, i.e. Durand Line. The border between India and Afghanistan is very short. At present this line is between Pakistan Occupied Kashmir (Pok) and Afghanistan.

The nearest neighbour of India across the sea is Sri Lanka which is separated by the narrow Palk Strait from the mainland of India.

Maldives Island is another neighbouring country situated to the south of Lakshadweep island. Myanmar (i.e. Burma) is our immediate neighbour across the Purvanchal Hills. The extended neighbourhood of India in the east includes Malaysia, Indonesia, Thailand, Laos and Vietnam.

India's location in South Asia is such that it practically commands the whole of the Indian Ocean. Thus, it enjoys a strategic position especially concerning the international trade route connecting the eastern and the western hemispheres. i.e. the trans-Indian Ocean routes which connect the countries of Europe in the West and countries of East Asia.

Practice Mains Exam Questions:

1. Discuss India's space relation concerning its neighbouring countries.
2. India's boundary disputes are multidimensional as well as multcentred . Discuss. Also suggest measures to solve them.
3. There were many factors for post-independence reorganization of states in India. Elucidate.