

Drainage System of India

The **Drainage System of India** refers to a complex network formed by the group of Indian rivers and their tributaries. Drainage is the channel of a river system in an area. Drainage Basin refers to an area drained by one river system, i.e. Important river of India along with its tributaries. An Indian drainage system is a group of drainages, i.e. channels of the main (original) river and its tributaries.

The function of the geological period's time determines the drainage pattern's characteristics. Candidates preparing for the [UPSC exam](#) are advised to read all about the drainage system of India. The major characteristics of drainage patterns are – topography, slope, amount of water flow, and nature and structure of rocks.

Types of Drainage System in India

Classification of a drainage system depends on various factors such as origin, catchment area, and much more. These classifications are an important part of the [IAS syllabus](#). The drainage system of India can be classified into four different categories, which are:

- Based on the size of the Catchment Area
- Drainage Systems Based on Origin
- Based on the Type of Drainage
- Based on Orientation to the Sea

Drainage Systems Based on the Size of the Catchment Area

The size of the catchment area of a river is directly proportional to the size of the river. The catchment area is where the river water is collected. It is different from the river basin. The [difference between the catchment area and river basin](#) is also essential for the UPSC exam.

Let us see the drainage systems based on the size of the catchment area:

- Major river: 20,000 (catchment area in sq km)
- Medium river: 20,000 – 2,000 (catchment area in sq km)
- Minor river: 2,000 and below (catchment area in sq km)

Drainage System Based on Origin

The origin of the rivers is important because the drainage system depends on it. The drainage system based on the origin is as follows:

- The Himalayan Rivers Drainage System
- The Peninsular Rivers Drainage System

Drainage Systems Based on the Drainage

Drainage system can also be classified based on the type of drainage of the river such as sea, inland, etc. The different types of drainage based on the drain:

- Rivers that drain into the sea.
- Rivers with the inland drainage basin.

Drainage Systems Based on Orientation to the Sea

The drainage systems can also be classified into two categories based on the sea. The majority of the rivers in India drain into the Bay of Bengal, and a few of the rivers drain into the Arabian

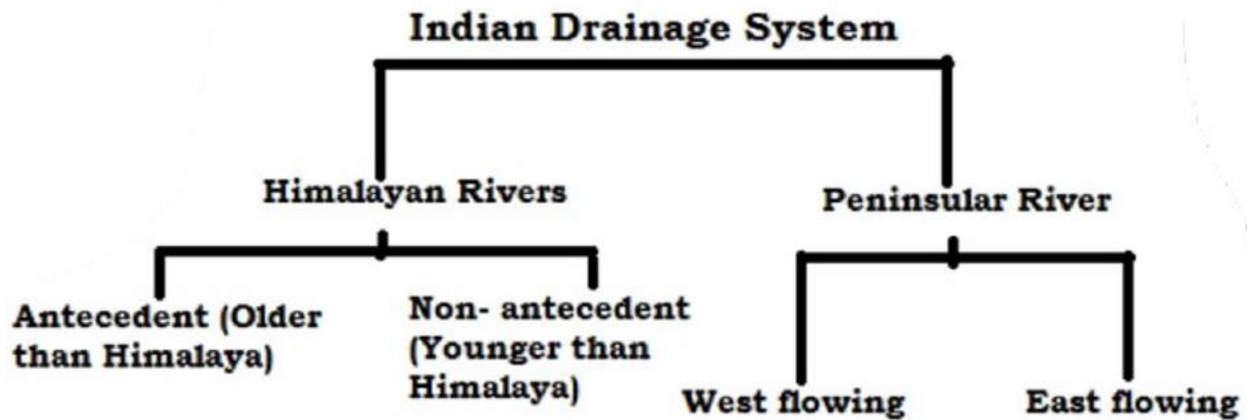
sea. The Bay of Bengal receives 77% of the country's drainage. Whereas 23% goes to the Arabian sea. The major classification based on the orientation of the sea is:

- The Bay of Bengal drainage
- Arabian sea drainage

Major River System or Drainage System in India

The river system or drainage system of India can be majorly divided into three parts based on the rivers and their tributaries. The major drainage systems are listed below:

- Himalayan River Systems
- Peninsular River Systems



Himalayan Drainage System of India

The upliftment of the Himalayas in the different geological periods resulted in the present drainage system of Himalayan rivers. The water divide, watershed and channel of these rivers have changed at different times, and the folding leads to the creation of many rivers. There are three major [river systems](#) in the Himalayas:

- [Indus River System](#)
- [Brahmaputra River System](#)
- [Ganga River System](#)

The following table shows the complete description of the rivers in the Himalayan drainage system along with their tributaries:

RIVER	SOURCE	TRIBUTARIES	MOUTH

Indus	Near Bokhar Chu Glacier, Tibetan Plateau	Left: Jhelum, Sutlej, Chenab, Ravi, Zaskar, Beas Right: Shyok, Gilgit, Tochi, Kabul, Hunza, Khurram, Gomal, Sangar, Viboa	Arabian Sea (near Karachi, Pakistan)
Ganga	Confluence of R. Bhagirathi and R. Alaknanda at DevPrayag	Left: Ramganga, Gomati, Gandak, Kosi, Ghaghara, Mahananda Right: Yamuna, Son, Chambal, Betwa	Sagar Island, Bay of Bengal (Bangladesh)
Jhelum	Verinag, J & K	Right: Neelum, Sind	R. Chenab (in Pakistan)
Chenab	Tandi, Himachal Pradesh (formed by two rivers Chandra and Bhaga)	Right: Marusadar river	R. Indus (in Pakistan)
Ravi	Rohtang Pass, Himachal Pradesh		R. Chenab
Sutlej	Raksas Tal, near Mansarovar, Tibet	Left: Baspa Right: Spiti, Beas	R. Chenab, Pakistan
Beas	Beas Kund, near Rohtang pass, Himachal Pradesh		R. Sutlej
Chambal	Mhow, Malwa plateau	Left: Banas Right: Parbati, Shipra	R. Yamuna, Madhya Pradesh
Mahananda	Darjeeling Hills		R. Ganga, West Bengal

Gandak	Mustang, Nepal	Left: Trisuli Right: Kali Gandak	R. Ganga, Sonpur, Bihar
Ramganga	Pauri Garhwal, Uttarakhand		R. Ganga, Uttar Pradesh
Ghagra	Mapchachungo, Tibet	Left: Rapti Right: Sarda, Budhi Ganga	R. Ganga, Bihar
Kosi	Tribenighat, Nepal		R. Ganga, Bihar
Son	Amarkantak Plateau		R. Ganga, Bihar (near Patna)
Brahmaputra	Chemayungdung Glacier, Kailash Range, Tibet	Left: Burhi Dihing, Dhansri, Lohit Right: Subansri, Manas, Kameng, Sankosh	Bay of Bengal
Yamuna	Yamunotri Glacier	Left: Rishiganga Right: Chambal, Betwa, Ken, Sind	R. Ganga, Allahabad (UP)

Peninsular Drainage System of India

The course and channel of Peninsular rivers are evolved by passing through various geological events like subsidence, Upheaval of Himalayas, the tilt of Peninsular India. The Western Ghats acts as a water divide. Thus, most of the peninsular [rivers of India](#) flow towards the east and few flow through the west, reaching the Arabian Sea with few exemptions which flow northwards. The characteristics of river channels of these rivers, like the fixed course, absence of meanders, etc., indicate that these rivers are older than Himalayan rivers.

- Godavari River System
- Krishna River System
- Cauvery River System
- Mahanadi River System

Check out the brief description of the Peninsular rivers and their tributaries in the table below:

PENINSULAR RIVER	SOURCE	TRIBUTARIES	MOUTH
Narmada	Amarkantak Hills, Madhya Pradesh	Left: Tawa, Shakkar Right: Hiran, Kolar, Dindori	Gulf of Khambat, Arabian Sea
Godavari	Brahmagiri Hills, Nasik, Maharashtra	Left: Prahnita, Indravati Right: Manjira, Pravara, Manair	Bay of Bengal, Andhra Pradesh (East Godavari district)
Mahanadi	Sihawa, Chattisgarh	Left: Seonath, Mand, Ib Right: Ong, Jonk, Telen	Bay of Bengal (False Point, Odisha)
Krishna	Mahabaleshwar, Maharashtra	Left: Bhima, Musi, Munneru Right: Tungabhadra, Koyna, Dudhganga, Ghataprabha	Krishna district, Andhra Pradesh, Bay of Bengal
Cauvery	Brahmagiri Hills, Karnataka	Left: Hemavathi, Arkavathy Right: Kabini, Bhavani, Noyyal, Amaravati	Poompuhar, Tamil Nadu, Bay of Bengal
Tapi	Betul District, Madhya Pradesh		Gulf of Khambat, Surat, Arabian Sea

Comparison between Himalayan and the Peninsular Rivers of India

There exists differences between the Himalayan and peninsular rivers based on aspects such as nature of the flow, drainage type, etc., which makes them distinguished. Here is the comparison of the Himalayan and the Peninsular Rivers of India:

S. No.	Aspect	Peninsular River	Himalayan River
1.	Place of origin	Peninsular plateau and central highland	Himalayan Mountains
2.	Nature of flow	Seasonal	Perennial
3.	Nature of river	Smaller course	Long course
4.	Type of drainage	Trellis, Rectangular and Radial pattern	Dendritic pattern
5.	Catchment area	Smaller basin	Larger basin
6.	Age of the river	Old rivers	Young rivers

Different Drainage Patterns

The Drainage patterns are formed based on the channel and shape of rivers which forms a part of the drainage basin. There are various [drainage patterns](#) in India; a few important ones are mentioned below:

- Dendritic: The flow pattern of the original river and its tributaries looks like tree branches in the Dendritic Drainage pattern. E.g., R. Indus, R. Mahanadi, R. Godavari, etc.,
- Radial: In Radial Drainage Pattern, the rivers originate from a common area and flow in all directions from the source region. E.g., Amarkantak Plateau
- Trellis: In Trellis Drainage Pattern, the tributaries (Subsequent rivers) join the original river at right angles, and the tributaries flow parallel to each other.
- Centripetal: In Centripetal Drainage Pattern, rivers from different directions drain into a common area. Eg: Loktak Lake, Manipur.