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Department of Employment and Training

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MAJOR RIVERS

Drainage system of India:

Introduction:

A drainage system is an integrated system of tributaries and a trunk stream which collects and drains surface water into the sea, lake or some other body of water. The total area drained by a river and its tributaries is known as a drainage basin.

The drainage pattern of an area is the result of the geological structure of the respective areas. The river system provides irrigation, drinking water, navigation, power as well as grant livelihoods for a large number of populations.

Birth of River System

Usually, mountains receive heavy rainfall and hence a majority of rivers originate in mountainous areas. The sheet of water flows down the slope in the form of rills which, after uniting with others, form streams. A number of tributary streams develop to join the main stream at different points along its course. This main stream is known as a river and this stream together with its tributaries constitutes a river system.

The drainage system is related to a number of factors for example slope of land, geological structure, amount of volume of water and velocity of water.

The drainage system of India is broadly divided into two major groups on the basis of their location.

They are 1) The Himalayan rivers and 2) The Peninsular rivers.

1. Himalayan Rivers

These rivers are found in north India and originate from Himalayas. So, they are also called as Himalayan rivers. These are perennial rivers.

Characteristics of Himalayan Rivers

- Originate from Himalayas
- Long and wide
- Perennial in nature

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- Unsuitable for hydro power generation
 - Middle and lower courses are navigable

a. The Indus River System

- The Indus River is one of the largest rivers of the world. It originates from the northern slope of the Kailash range in Tibet near Manasarovar Lake at an elevation of about 5,150 m. Its length is about 2,880 km (Only 709 km is in India).
- The river has a total drainage area extending 11,65,500 sq.km in which 321,289 sq.km areas are drained in India.
- The river flows through the Ladakh and Zaskar ranges and creates deep gorges. The river runs through Jammu and Kashmir, turns south near Chillar and enters Pakistan.
- Its major tributaries are Jhelum, Chenab (Largest tributary of Indus), Ravi, Beas and Sutlej. It enters into with the Arabian Sea.

b. The Ganga River System

- The Ganga River system is the largest drainage system of India it extend over and area of 8,61,404 sq.km in India. The Ganga plain is the most densely populated place in India and many towns are developed on the banks of this river.
- The river Ganga originates as Bhagirathi from the Gangotri Glacier in Uttarakhand District of Uttarakhand state, at an elevation of 7,010 m. The length of the river Ganga is about 2,525 km.
- Its major tributaries from the north are Gomti, Gandak, Kosi and Ghaghra and from south, Yamuna (largest tributary of Ganga), Son, Chambal etc.
- The river Ganga is known as the River Padma in Bangladesh.
- The combined river of Ganga and Brahmaputra creates the World's largest delta known as Sundarbans in Bangladesh before joining the Bay of Bengal.

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c. The Brahmaputra River System

- The river Brahmaputra originates from the Chemayung dung Glacier of the Kailash range to the east of Lake Manasarovar in Tibet at an elevation of about 5,150 m.
- The total area is about 5,80,000 sq.km but the drainage area lying in India is 1,94,413 sq.km
- This river is known as Tsangpo (Purifer) in Tibet.
- The length of this river is about 2,900 km (900 km in India). It enters into India through a gorge in Arunachal Pradesh namely Dihang.
- It has many tributaries. Tista, Manas, Barak, Subansiri are some of them.
- This river is called as Jamuna in Bangladesh. After it joins with the river Ganga in Bangladesh, the river is called as Meghna.

DISTINCTION BETWEEN HIMALAYA AND PENINSULAR RIVERS

Himalayan Rivers	Peninsular Rivers
The Himalayan rivers like Indus, Ganga and Brahmaputra originate from the snow-covered mountains.	The Peninsular rivers like Mahanadi, Godavari, Krishna, Kaveri, Narmada and Tapti originate from the Peninsular plateau.
These rivers have large basins and catchment areas	These rivers have small basins and catchment areas.
These rivers flow through deep, nearly I-shaped valleys.	These rivers flow through broad and shallow valleys.
These rivers are perennial in nature and receive water both from the monsoons and the melting of snow.	These rivers are seasonal as they receive water only from the monsoon rains.
Due to their perennial nature, these rivers are very useful for irrigation.	Due to the seasonal nature, these rivers are not very useful for irrigation.
These rivers are suitable for navigations as they flow over plain areas.	These are not suitable for navigation as they flow over uneven land in the plateau region.
These rivers form large deltas near their mouth like the Ganga-Brahmaputra delta.	The west flowing rivers mostly form estuaries and form smaller deltas.



2. Peninsular Rivers

- ✓ The rivers in south India are called the Peninsular rivers. Most of these rivers originate from the Western Ghats. These are seasonal rivers (non-perennial).
- ✓ They have a large seasonal fluctuation in volume of water as they are solely fed by rain. These rivers flow in valleys with steep gradients.

Characteristics of South Indian Rivers

- Originate from Western Ghats
- Short and narrow
- Non perennial in nature
- Suitable for hydro power generation
- Not useful for navigation

Based on the direction of flow, the peninsular rivers are divided into the West flowing rivers and East flowing rivers.

East Flowing Rivers

a) Mahanadi

- The river Mahanadi originates near Sihawa in Raipur district of Chattisgarh and flows through Odisha. Its length is 851 km. Seonath, Telen, Sandur and Ib are its major tributaries.
- The main stream of Mahanadi gets divided into several distributaries such as Paika, Birupa, Chitartala, Genguti and Nun.
- All these distributaries form the Delta of Mahanadi which is one of the largest deltas in India. The Mahanadi empties its water in Bay of Bengal.

b) Godavari

- **Godavari** is the longest river (1,465 km) with an area of 3.13 lakh kms among the Peninsular rivers. It is also called Vridha Ganga.
- It originates in Nasik district of Maharashtra, a portion of Western Ghats. It flows through the states of Telangana and Andhra Pradesh before joining Bay of Bengal.

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- Purna, Penganga, Pranitha, Indravati, Tal and Salami are its major tributaries.
 - The river near Rajahmundry gets divided into two Channels called Vasistha and Gautami and forms one of the largest deltas in India.
 - Kolleru, a fresh water lake is located in the deltaic region of the Godavari.

c) Krishna

- The river Krishna originates from a spring at a place called Mahabaleshwar in the Western Ghats of Maharashtra. Its length is 1,400 km and an area of 2.58 lakh sq.km. It is the second longest Peninsular river.
- Bhima, Peddavagu, Musi, Koyna and Tungabhadra are the major tributaries of this river.
- It also flows through Andhra Pradesh and joins in Bay of Bengal, at Hamasaladeevi.

d) Kaveri

- The river Kaveri originates at Talakaveri, Kudagu hills of Karnataka. Its length is 800 km.
- The river kaveri is called Dhakshin Ganga or Ganga of south
- Harangi, Hemavati, Kabini, Bhavani, Arkavathy, Noyyal, Amaravathi etc are the main tributaries of the river Kaveri.
- In Karnataka the river bifurcates twice, forming the sacred islands of Srirangapatnam and Sivasamudram. While entering Tamil Nadu, the Kaveri continues through a series of twisted wild gorges until it reaches Hogenakkal Falls and flows through a straight, narrow gorge near Salem.
- The Kaveri breaks at Srirangam Island with two channels, river Coleroon and Kaveri. At last, it empties into the Bay of Bengal at Poompuhar.



West Flowing Rivers

a) Narmada

1. This river rises in Amarkantak Plateau in Madhya Pradesh at an elevation of about 1057 m and flows for a distance of about 1,312 km it covers an area of 98,796 sq.km and forms 27 km long estuary before out falling into the Arabian Sea through the Gulf of Cambay.
2. It is the largest among the west flowing rivers of Peninsular India.
3. Its principal tributaries are Burhner, Halon, Heran, Banjar, Dudhi, Shakkar, Tawa, Barna and Kolar.

b) Tapti

1. The Tapti is one of the major rivers of Peninsular India with the length of about 724 km. It covers an area of 65,145 sq.km.
2. Tapti river rises near Multai in the Betul district of Madhya Pradesh at an elevation of 752 m.
3. The major tributaries are Vaki, Gomai, Arunavati, Aner, Nesu, Buray, Panjhra and Bori. It outfalls into the Arabian Sea through the Gulf of Cambay.

Tamilnadu Rivers:

- The Northern rivers of Tamil Nadu are Araniyar, Kotralaiyar, Palar, Cheyyar, Kedilam, Manimuthar and Thenpennar. Cheyyar and Agaram are two tributaries of Palar.
- The main river of the state is Kaveri which originates in Kodagu district of Karnataka. Kaveri and its tributaries in its lower course drain the districts of Nagapattinam, Thanjavur, Thiruvarur and Thriucharapalli. The Kaveri, the Kollidam and the Vellar jointly drain central part of the Tamil Nadu. Srirangam is located between Kaveri and its tributary Kollidam.
- In the Kaveri delta, the distributaries such as Kollidam, Manniyar, Vennar, Vettar, Arasalar, Nattar, Mudikondan, Kudamuruti and Veera Cholanar have formed a alluvial plain in a quadrangle shape. Kaveri along with its tributaries,

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Bhavani, Noyyal, Moyar and Amaravathi, is the most important source of canal irrigation.

- Towards the south of Tamilnadu, there are few rivers like Vaigai (Madurai), Vaippar (Virudhunagar), Thamirabarani (Thirunelveli), Gundar (Thoothukudi, Ramanathapuram), Chittar (Thirunelveli) and Kothaiyar (Kanyakumari).
- Most of the soils of the plains of Tamil Nadu are alluvial, formed by these rivers flowing east. In the southwest of Tamil Nadu is the Suruliyar river that drains a part of Madurai district.

Back waters: The part of a river which are stagnant and do not reach the sea as they are pushed by the current.

Distributary: A branch or outlet which leaves a main river and does not rejoin it, carrying its water to the sea or a lake.

Doab: A land between the two converging rivers.

Estuary: Mouth of a river where it enters the sea through a single channel with a hollow.

Perennial Rivers: The rivers which flow throughout the year and have permanent source of water.

Pass: A narrow gap through the mountains providing a route or passage way.

Tributary: A river or stream which contributes its water to main river.

Questions

1. What are the distinction between Himalaya & Peninsular Rivers?
2. Explain about the East flowing rivers.
3. Describe the drainage system of India.