

Drainage

- Drainage describes the river system of an area.
- The area drained by a single river system is called a drainage basin.
- Any upland or a mountain separating two adjoining drainage basins is known as water divide.

Drainage Systems in India

- The Indian rivers are divided into two major groups:
 - the Himalayan rivers
 - the Peninsular rivers
- Features of Himalayan rivers
 - These are perennial (flow all years).
 - These rivers receive water from rain as well as from melted snow from the lofty mountains.
 - The Himalayan rivers have long courses from their source to the sea.
 - The Himalayan rivers form meanders, oxbow lakes, and many other depositional features in their floodplains.
- Features of Peninsular rivers:
 - They are seasonal.
 - Their flow is dependent on rainfall.
 - The Peninsular rivers have shorter and shallower courses as compared to their Himalayan rivers.
 - Most of the rivers of peninsular India originate in the Western Ghats and flow towards the Bay of Bengal.

Drainage Patterns

- The streams within a drainage basin form certain patterns, depending on the slope of land, underlying rock structure as well as the climatic conditions of the area.

- Types of Drainage Patterns:

- Dendritic drainage

- Trellis drainage

- Rectangular drainage

- Radial drainage

The Himalayan Rivers

- The Indus, the Ganga and the Brahmaputra are major Himalayan rivers.

- A river alongwith its tributaries may be called a river system.

The Indus River System

- Source: The river Indus rises in Tibet, near Lake Mansarowar.

- It enters India in the Ladakh district of Jammu and Kashmir flowing west.

- Tributaries of Indus:

- The Zaskar, the Nubra, the Shyok and the Hunza join it in the Kashmir region.

- The Satluj, the Beas, the Ravi, the Chenab and the Jhelum join together to enter the Indus near Mithankot in Pakistan.

- The Indus plain has a very gentle slope.

- Total length: 2900 km

- A third of the Indus basin is located in India in the states of Jammu and Kashmir, Himachal Pradesh and the Punjab and the rest is in Pakistan.

The Ganga River System

- Source: The headwaters of the Ganga, called the 'Bhagirathi' is fed by the Gangotri Glacier.

- Tributaries of Ganga:

- Alaknanda joined at Devaprayag in Uttarakhand.

- The Yamuna rises from the Yamunotri Glacier in the Himalayas joins at Allahabad.

- the Ghaghara, the Gandak and the Kosi rise in the Nepal Himalaya.

- the Chambal, the Betwa and the Son rise from semi-arid areas.

- The river bifurcates Farakka in West Bengal.

- The Bhagirathi-Hooghly (a distributary) flows southwards through the deltaic plains to the Bay of Bengal.

- The mainstream, flows southwards into Bangladesh and is joined by the Brahmaputra.

- Total length: 2500 km

Sunderban Delta: The delta formed by the rivers the Ganga and the Brahmaputra is known as the Sunderban delta.

The Brahmaputra River System

- Source: The Brahmaputra rises in Tibet east of Mansarowar lake very close to the sources of the Indus and the Satluj.

- Tributaries of Brahmaputra:

- Dibang, the Lohit

- Flows eastwards parallel to the Himalayas. it takes a 'U' turn on reaching the Namcha Barwa and enters India in Arunachal Pradesh through a gorge.

- Here, it is called the Dihang and it is joined by the Dibang, the Lohit and many other tributaries.

- In Tibet, the river carries a smaller volume of water and less silt as it is a cold and a dry area.

- In India, it passes through a region of high rainfall, and the river carries a large volume of water and considerable amount of silt

- It forms many riverine islands.

- Every year during the rainy season, the river overflows its banks, causing widespread devastation due to floods in Assam and Bangladesh.

Majuli is the world's largest riverine island formed by the Brahmaputra.

The Peninsular Rivers

- The main water divide in Peninsular India is formed by the Western Ghats.

- Major rivers of the Peninsula such as the Mahanadi, the Godavari, the Krishna and the Kaveri flow eastwards and drain into the Bay of Bengal.

- The Narmada and the Tapi are the only long rivers, which flow west and make estuaries.

The Narmada Basin

- Source: It rises in the Amarkantak hills in Madhya Pradesh.

- It flows towards the west in a rift valley formed due to faulting.

- All the tributaries of the Narmada are very short and most of these join the main stream at right angles.

- The Narmada basin covers parts of Madhya Pradesh and Gujarat.

The Tapi Basin

- Source: It rises in the Satpura ranges, in the Betul district of Madhya Pradesh.

- It also flows in a rift valley parallel to the Narmada but it is much shorter in length.

- Its basin covers parts of Madhya Pradesh, Gujarat and Maharashtra.

Other West flowing rivers: Sabarmati, Mahi, Bharathpuzha and Periyar.

The Godavari Basin

- Source: It rises from the slopes of the Western Ghats in the Nasik district of Maharashtra.
- It is the largest Peninsular river.
- Tributaries of Godavari:
→ the Purna, the Wardha, the Pranhita, the Manjra, the Wainganga and the Pengang.
- The basin covers parts of Maharashtra, Madhya Pradesh, Odisha and Andhra Pradesh.
- It drains into the Bay of Bengal.
- Total length: 1500 km
- Because of its length and the area it covers, it is also known as the 'Dakshin Ganga'.

The Mahanadi Basin

- Source: The Mahanadi rises in the highlands of Chhattisgarh.
- It flows through Odisha to reach the Bay of Bengal.
- Its drainage basin is shared by Maharashtra, Chhattisgarh, Jharkhand, and Odisha.
- Total length: 860 km

The Krishna Basin

- It rises from spring near Mahabaleshwar.
- Tributaries of Krishna:
→ The Tungabhadra, the Koyana, the Ghatprabha, the Musi and the Bhima.
- Total length: 1400 km
- Its drainage basin is shared by Maharashtra, Karnataka and Andhra Pradesh.