Drainage | Easy Notes of Geography for class 9th

socialsciencesimplified.com

Introduction:

In this chapter we will learn about the river system or Drainage system of India. This chapter will also help you to know the importance of water and some conservation methods for such a precious resource. So, letâ??s began with some important terms**.**

- **Drainage:** It describes the river system of an area.
- **Basin:** It is *a low area of land where water collects*. It usually has higher land or mountains around it.
- **Drainage basin:** The area drained by a single river system is called a drainage basin.
  - *For Example:* Amazon basin (Amazon basin is the largest river basin in the world.
- **Water Divide:** The mountain or an upland which separates two drainage basins is known as a water divide.
  - *For Example:* Ambala water divide between Indus and Ganga waterway.
  - Also, The Sahyadri Range serves as a water divide between the Arabian Sea and the Bay of Bengal.

Drainage Systems in India:

Drainage System: It refers to the way water flows across land through rivers, streams, and lakes.

- Or, Drainage/river system is *a set of interconnected streams, rivers, and lakes that flow through various topographies*, such as mountains, plateaus, and plains.
    - These channels connect or diverge due to differences in relief, creating different patterns.
    - It includes all the rivers and their tributaries (smaller streams that join a larger river).

The classification of the drainage system :

- On the **basis of relief features**, the Indian river system is divided into two major groups.
    1. The Himalayan rivers
    2. The Peninsular rivers.

The Himalayan Rivers	The Peninsular Rivers
1. Most of the Himalayan rivers are **perennial** (flows throughout the year).	1. A Large number of the Peninsular rivers are **seasonal.**
2. There source of water is rain as well as melted snow.	2. Whereas, they receive water only from rainfall.
3. They have long courses from the source to the sea.	3. They have shorter and shallower courses.
4. *For Example:* The Indus, Brahmaputra and Ganga.	4. *For Example:* The Mahanadi, the Godavari, the Krishna and the Kaveri.

Socialsciencesimplified.com

- Indian Drainage system **on the basis of flow patterns:-**
    - These patterns guide how rivers and streams flow.
        1. **Dendritic Drainage:** Rivers and streams branch out like tree roots. This happens on flat land.
            - *Example:* The Ganga river system shows this pattern.
        2. **Trellis Drainage:** Rivers flow between ridges and valleys in straight lines, like a garden trellis. This occurs in folded mountain areas.
            - *Example:* The rivers in the Chambal region display this pattern.
        3. **Radial Drainage:** Rivers flow outward from a high point, like a hill or mountain.
            - *Example:* The rivers around Amarkantak, like the Narmada and Son, follow this pattern.
        4. **Centripetal Drainage:** Rivers flow inward towards a central point, like a basin.
            - *Example:* The rivers in the Loktak Lake region show this pattern.
        5. **Rectangular Drainage:** Rivers and streams flow in a pattern that resembles a grid or rectangle, often due to fractures in the underlying rock.
            - *Example:* The drainage system in the region around the Western Ghats displays this pattern.

The Himalayan Rivers:

- The major Himalayan rivers are **the Indus, the Ganga** and **the Brahmaputra**.
- These rivers are long, and a joined by many tributaries.

The Indus River System:

- The river Indus rises in **Tibet**, **near Lake Mansarowar.**
- It flows westward and **enter India** from the **Ladakh district** of Jammu and Kashmir.
- In Ladakh, it forms a **picturesque gorge.**
    - **Gorge:-** It is a narrow, deep valley. It usually has steep, rocky sides.
- It has **several tributaries** which join it in the Kashmir region.
    - These tributaries are:- the **Zaskar,** the **Nubra**, the **Shyok**, and the **Hunza.**
- The **Satluj, Beas, the Ravi, the Chenab and the Jhelum** join together to enter the Indus near **Mithankot in Pakistan.**
- Furthermore, the total length of Indus river is **3,120 km.** (**Note:** Acc. to NCERT it is 2900 km)
- Lastly, the Indus river drains into the **Arabian Sea** near the port city of Karachi.

Do you know about Indus Water Treaty?

The Ganga River System:

socialsciencesimplified.com

- The Ganga River originate from the Gangotri Glacier.
- The headwaters of the Ganga, called the â??Bhagirathiâ??.
- Bhagirathi joins with Alaknanda at Devaprayag in Uttarakhand.
- At Haridwar, the Ganga emerges from the mountains on to the plains.
- Ganga flows eastward and mainly pass through Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal.
- It has tributaries from right as well as left banks.
    - **Right Bank tributaries:** Yamuna, Son, Damodar, and Punpun.
        - *Yamuna* is one of the major rivers. It originates from the Yamunotri Glacier. It flows parallel to the Ganga and meets it (Ganga) at Allahabad. **(Note:** Chambal and Betwa joins Yamuna from the right bank.)
    - **Left Bank tributaries:** Ghaghara, Gandak, Kosi and Gomati.
- Moreover, Ganga and its tributaries provide fertile soil and perennial source of irrigation for agricultural purposes.

Since the Ganga river plays significant role, it needs to be conserved. Thus, in June 2014, the central government initiated â??The Namami Gange Programmeâ?? in this regard.

The Brahmaputra River System:

- The Brahmaputra rises **in Tibet east of Mansarowar lake** (near Mount Kailash).
- It is **slightly longer** than the Indus, and most of its course **lies outside India.**
- It **flows eastwards** parallel to the Himalayas.
- On reaching the **Namcha Barwa** (7757m), it takes a â??Uâ?? turn and **enters India in Arunachal Pradesh** through a gorge. (**Note:** Brahmaputra is also known as Dihang in the plains of India)
- In Addition to that, Brahmaputra is known as the **Tsang Po i**n Tibet and **Jamuna** in Bangladesh.
- The **main tributaries** of Brahmaputra in Arunachal Pradesh are:- **the Lohit, the Dibang, the Teesta.**
- Besides, its volume of water and amount of silt increases when it passes through a region of high rainfall in India.

- Due to this, **Assam** and **Bangladesh** faces devastating **floods** every year.
- **Note:** Brahmaputra river forms the worldâ??s largest river island called Majuli in India. (It is due to frequent shifts in its channel.)

The Peninsular Rivers:

- The Drainage basins of the peninsular rivers are comparatively smaller in size.
- The major eastward flowing Peninsula rivers are:- **the Mahanadi, the Godavari, the Krishna** and **the Kaveri.**
  - They drain into the Bay of Bengal.
  - These rivers make *deltas* at their mouths.
- And, the westward flowing Peninsula rivers are:- **The Narmada**, **the Tapi** and numerous other small streams.
  - These rivers drain into the Arabian Sea and make *estuaries.*

socialsciencesimplified.com

The Narmada Basin:

- The River â??Narmadaâ?? rises in the **Amarkantak hills in Madhya Pradesh**.
- It flows towards the west in a rift valley formed due to faulting.
- Moreover, it creates **picturesque locations**.
  - Such as, â??Marble rocksâ?? and Dhuadhar falls in Jabalpur District, Madhya Pradesh.
- Its tributaries are very short and most of them join the main stream at **right angles.**
- Lastly, the Narmada basin covers parts of **Madhya Pradesh** and **Gujarat.**

Do you know Madhya Pradesh government started a conservation mission of river Narmada through **Namami Devi Narmade** Scheme.

The Tapi Basin:

- The River â??Tapiâ?? rises in the Satpura ranges, in the **Betul district of Madhya Pradesh.**
- Like Narmada, it flows in a **rift valley.** (**Note:** It flows parallel to Narmada)
- However, lengthwise it is **shorter than Narmada.**
- Tapi Basin covers parts of **Madhya Pradesh**, **Gujarat** and **Maharashtra**.

The main west flowing rivers are **Sabarmati, Mahi, Bharathpuzha** and **Periyar.**

The Godavari Basin:

- The Godavari is the **largest Peninsular river** and also known as the **Dakshin Ganga.**
- Unlike other peninsular rivers, it has **largest drainage basin.**
- It rises from the slopes of the Western Ghats in the **Nasik district of Maharashtra.**
- Its length is about **1500 km.**
- Furthermore, it drains into the **Bay of Bengal.**
- The basin covers parts of **Maharashtra, Madhya Pradesh, Odisha** and **Andhra Pradesh.**
- Moreover, it has several **tributaries.**
  - **Purna,** the **Wardha,** the **Pranhita,** the **Manjra**, **the Wainganga** and **the Penganga.**

The Mahanadi Basin:

- The Mahanadi rises in the **highlands of Chhattisgarh.**
- It flows through Odisha and drain into **the Bay of Bengal.**
- The length of the river is about **860 km.**
- Its drainage basin has been spread over four states. These are **Maharashtra, Chhattisgarh, Jharkhand,** and **Odisha.**

The Krishna Basin:

- The Krishna river rises from a spring **near Mahabaleshwar**, Maharashtra.
- It flows for about **1400 km** and drain in the **Bay of Bengal.**
- Its tributaries are:- the T**ungabhadra, the Koyona, the Ghatprabha, the Musi** and **the Bhima.**
- Lastly, its drainage basin is shared by **Maharashtra, Karnataka, Andhra Pradesh** and **Telangana**.

socialsciencesimplified.com

The Kaveri Basin:

- The Kaveri rises in the **Brahmagri range** of the Western Ghats and reaches **the Bay of Bengal** in the south of Cuddalore in Tamil Nadu.
- The total length of the river is about 760 km.
- Its main tributaries are **Amravati, Bhavani, Hemavati** and **Kabini.**
- In addition to that, the river Kaveri makes the second biggest waterfall (*Shivasamudram Falls*) in India.
- Lastly, it flows in the parts of **Karnataka, Kerala** and **Tamil Nadu.**

There are some smaller rivers too which flows towards the east. These are:- **The Damoder**, **the Brahmani, the Baitarni** and **the Subarnrekha.**

Lakes:

- **Lakes** in many parts of India **attracts tourists.**
- These are **useful to human beings** in many ways.
- They **differ** from each other **in size** and other **characteristics**.
- Most lakes are **permanent**; some contain water only **during the rainy season.**
- Lakes can be **natural** or **artificial.**
- Moreover, Lakes are formed by wind, river action, human activities and through the action of glaciers and Ice sheets.
    - Dal Lake, Chilika Lake, Pulicat Lake, the Kolleru Lake, Sambhar Lake are some of the **examples** of Lakes.

Examples of different Lakes:

- **Fresh Water Lakes:** Dal Lake, the Wular Lake (Srinagar) , Bhimtal (Uttarakhand), Nainital (Uttarakhand), Loktak (Manipur), Barapani (Meghalaya) and Kolleru Lake (Andhra Pradesh).
    1. **Glacial Lakes:** Lonar Lake (Sikkim) and Devtal Lake (Uttarakhand).

2. **Tectonic Lakes:** Wular Lake (J&K). **Note:** *It is largest fresh water Lake in India.*

- **Saline Lakes:** Chilika Lake (Odisha), Pulicat Lake (Andhra Pradesh).
  - **Note:** Lake Chilika is the worldâ??s second largest Lagoon.
- **Ox-bow Lakes:** Vynthala Lake (Kerala) and Karwar Lake (Bihar).
- **Artificial Lakes:** Guru Gobind Sagar Lake (Himachal Pradesh) and Kodaikanal Lake (Tamil Nadu).

Importance of Lakes:

- **Lakes regulate the flow of a river:** During heavy rains, it prevents flooding and during the dry season, it helps to maintain an even flow of water.
- **Useful in generating electricity:** Water in the Lakes can be used for developing hydel power.
- They **moderate the climate** of the surroundings.
- Moreover, they **maintain the aquatic ecosystem** and **enhance natural beauty.**
- In addition, Lakes help **develop tourism** and **provide recreation.**

socialsciencesimplified.com

Role of Rivers in the Economy:

- Rivers are one of the main sources of water.
- They are essential for **various human activities.**
  - Such as, *irrigation, navigation, hydro-power generation*.

River Pollution:

- The growing domestic, municipal, industrial and agricultural demand for water from rivers naturally affects the quality of water.
  - For Instance, Industries often throw untreated wastes into the rivers and make the water unfit for drinking.
- Due to increase in urbanization and industrialization, the self-cleansing capacity of rivers have reduced and the pollution level has increased in recent days.

Since the rivers are of great significance, the government of India took initiative for conserving rivers. In 1985, the government launched the Ganga Action Plan with the aim of cleaning the sacred river. Later, in 1995, another plan (NRCP â?? **National River Conservation Plan**) was implemented. Its objective was to improve the quality of other important rivers.

Category

1. Class 9th

Date
2025/11/13