# Indian Rivers And Water Resources

**Question** 1. Draw a table to describe the major river systems in India with the following items:

the direction of flow, countries or regions through which they pass and relief features of the areas.

**Answer:**

| River System | Direction of Flow | Origin | Relief feature |
|---|---|---|---|
| Indus System | North West direction | Kailash Range, Tibet | Its tributaries are Ravi, Chenab, Jhelum, Beas, and Satluj in India. It discharges into the Arabian Sea. |
| Ganga System | North West Direction | Two sources, Gangotri Glacier and Naturopath Glacier, India | Its tributaries are Yamuna, Gandak, Gomati, Ghaghara, Kosi, Chambal, Son. It flows through several states and finally discharges into the Bay of Bengal. |
| Brahmaputra System | Eastward | Chemyandung Glacier, Tibet | Enters India through Arunachal Pradesh, known as Siang. Then joined by Dibang and Lohit in Assam and known as the Brahmaputra. |
| Godavari | East to West | Nasik, Maharashtra | Largest peninsular river, it discharges into the Bay of Bengal and forms a large delta. |
| Krishna | East To West | mahabaleshwar | Koyna, Tungabhadra, Bhima are tributaries flows through Maharashtra, Karnataka and Andhra Pradesh. |
| Kaveri | East To west | Brahmagiri Hills, Karnatka | Flows through Kerala, Karnatka, Tamil Nadu. |
| Narmada | West to East | Amarkantak | Flows through rift valley of Satpura and Vindhyan and discharges into the Arabian Sea. |

**Question** 2. Identify and list arguments that would support or oppose the use of groundwater in various contexts such as agriculture, industry etc.

**Answer:** Groundwater is located below the earth surface. Over time water from rain and river migrate through the land and gets stored in the soils.

a. The tremendous usage of it has reduced the groundwater level.

b. The borewells are dug deeper for irrigation and domestic purpose.

c. The groundwater has been majorly used for irrigation purpose and has heavily increased consumption.

d. The excessive use of groundwater has reduced the level of water, and seawater intrusion in coastal areas has also led to the contamination of groundwater.

To prevent further depletion:

a. Digging of bore wells for irrigation purpose has to be stopped and to be used only for drinking.

b. Cultivating sugarcane should be prohibited as it is a water-intensive crop.

c. Trees must be planted in forest land and roadsides.

**Question** 3. What are the different inflow and outflow processes in the context of water resources? Which of the inflow or outflow processes has the most impact in the context of groundwater resources?

**Answer:** There are three types of inflow process:

1. Precipitation: This includes snow, dew, hails etc.

2. Surface flow: These are rivers, streams, canals etc.

3. Ground flow: Consistent percolation of water into deep soil, creates an abundance of water storage. The water that we obtain through tube well.

**Outflow process is:**

a. Evaporation: The process of turning water into the vapor of water bodies.

b. Transpiration: the living things give off water into the atmosphere through the breathing process.

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The aquifers are not available for immediate use. It takes time in accumulation and then it is available.

Evaporation and transpiration are major contributors while evaporation has the most impact on groundwater resources.

**Question** 5. Make a list of challenges faced in the water resources in the Tungabhadra basin.

Identify the solutions that have been discussed in the context of these problems either is a chapter or elsewhere in different classes.

**Answer:** Tungabhadra is a river that flows in the southern region of India mainly through the state of Karnataka to Andhra Pradesh.

Challenges faced in the basin are:

a. The rise of industries has increased consumption of water.

b. The major population of the region is dependent upon agriculture and water is heavily consumed for irrigation purpose.

c. The consumption of water by the higher portion of the region has led to drought condition in the lower regions.

d. Green cover has decreased, and water runoff has been at a faster rate.

Solutions to the problems:

a. A forestation must be promoted, and mass awareness should be raised.

b. Water management system to control and regulate the wastage of water.

c. The cropping pattern must be changed, and water extensive crops must be brought into practice.

**Question** 6. There have been various ways in which changes occurred in the context of water resources the positive as well as negative social changes that got reflected in this chapter.

**Answer:** Water is a basic need for survival and though present in abundance, but extensive usage of water has led to its depletion.

Planning for water use for domestic, agricultural and other purpose is the utmost demand of the time.

**The positive changes are:**

a. Inducting advanced technology in agriculture has made farming easier and productivity has also increased.

b. The industrial wastes that were earlier disposed of are now recycled.

c. Construction of irrigation dams and hydel projects, etc

The negative changes are:

a. Urbanization has led to an influx of people and heavy burden on the cities.

b. Deforestation has been done on a large scale for setting up of factories, building public places etc.

c. Industrialization has increased the level of pollution in air and water.

**Question** 7. Which aspects of farming practices were regulated in the context of Hiware Bazaruto improve water conservation?

**Answer:** Innovation was brought in the farming practices and conservation by the people of Hizware bazaar.

d. To prevent the soil erosion Continuous Contour trenches were dug in the hilly regions by harvesting water and planting grass.

e. The villager's built check dams, percolation tanks and loose boulder structure to prevent water from being wasted.

f. Deforestation was completely banned. They named it kurhad bandi meaning axe ban.

g. Digging of borewells for irrigation purpose was stopped and to be used only for drinking.

h. Cultivating sugarcane was prohibited as it is a water-intensive crop.

i. Trees were planted in forest land and roadsides.

**Question** 8. How significant are the laws and people's actions, in the context of water resources?

Write a short note based on the ideas discussed in the last two sections of the chapter.

**Answer:** The groundwater, which has been getting accumulated for years has become the main source especially for agriculture and domestic use. The tremendous usage of it has reduced the groundwater level. Similarly, there are other water resources like a river which is being contaminated with the release of pollution into the water bodies.

People's awareness and laws by the government are very important to prevent the depletion of water resources.

1. The people need to control or limit the usage of water. There could be fewer borewells and mainly to be used for drinking purposes.

2. Water is a collective of a pool of resources and it is not possible to regulate the resources as the consumption of each source is interlinked.

3. The laws at present are not as absolute as they are limited to the owners.

**Question** 9. If you have access to the internet, visit www.aponline.gov.in and learn more about Andhra Pradesh WALTA Act.

**Answer:** The Andhra Pradesh water, land and trees act 2002 has been framed to promote water conservation, enhance tree cover and regulate ground and surface water in the state.

**Under this act, authority is set to promote the notion.**

**The functions of the authority are:**

1. Promote water conservation and tree cover in the state.

2. Regulate exploitation of groundwater.

3. Advise the government on taking measures for the conservation.

4. Strengthen public participation.

**Question** 10. In what ways is water bought and sold in your area and for what purposes? Do you think there should be some checks and balances for this? Discuss.

**Answer:** a. The drinking water in the area is supplied by the municipality through reservoir, pumps or bore well.

b. Monthly payment is done for the water supply at homes.

c. In farmlands, the farmers or the owners dig the pumps and provide the water supply for irrigation to the nearby farmers.

d. Companies sell bottles filled with water for drinking purposes at public places.

There should be some type of checks and balances in this system. This would help in determining the person or organisation wasting more water and they could be punished so as to discourage misuse.