

## 5. Indian Rivers and Water Resources

### Improve your learning

#### 1. Question

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 Sianq. 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.

#### 2. Question

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.

**3. Question**

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 in 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.

#### 4. Question

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.

- a. To prevent the soil erosion Continuous Contour trenches were dug in the hilly regions by harvesting water and planting grass.
- b. The villager's built check dams, percolation tanks and loose boulder structure to prevent water from being wasted.
- c. Deforestation was completely banned. They named it kurhad bandi meaning axe ban.
- d. Digging of borewells for irrigation purpose was stopped and to be used only for drinking.
- e. Cultivating sugarcane was prohibited as it is a water-intensive crop.
- f. Trees were planted in forest land and roadsides.

#### 5. Question

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.

#### 6. Question

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.

## **7. Question**

Availability of water is decreasing day by day. Groundwater level is decreasing. How will it affect our lives, if this situation continues? Discuss the preventive measures and our responsibility?

## **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. This groundwater is now, 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.

### **Effects of groundwater depletion are:**

1. The depletion will force the humans to go deeper within the earth and as a result, the future generation would be facing an acute water crisis.
2. Water bodies will become shallower and will hit the aquatic life.
3. Lack of groundwater effects the biodiversity.
4. Shortage of food, as the agricultural process would be hit by the shortage of water.

### **Preventive measures:**

1. Less use of water, meaning the wastage of water while doing household chores, etc. must be reduced.
2. Addressing the alternative sources and letting aquifers to be refilled.
3. The pumping of groundwater must be regulated.
4. The government should frame groundwater policies and norms should be made stringent.