

Subject: Geography Class: X Teacher: Mini Arora
Topic: CHAPTER 7: WATER RESOURCES 14.10.24

Sources Of Water:-

About 97% of the Earth's water supply is in the ocean which is unfit for human consumption and other uses due to high salt content. Of the remaining 3%, 2.3% is locked in polar ice caps. The balance 0.7% is available as fresh-water but 0.66% is groundwater and the rest 0.03% is available to us as freshwater in rivers, lakes and streams.

Rainfall is the main source of fresh water in India. (rainfall due to monsoon winds)

a) Surface water: Water on land is the result of precipitation or seepage from underground which forms streams and rivers flowing on land. India is blessed with large number of rivers about 13 rivers are classified as major rivers from which Ganga-Brahmaputra-Meghna system is the biggest with 40% of utilisable surface water.

b) Ground water: A part of rainwater percolates in the rocks and soils and is available to us as ground water. Most of the water ultimately reaches the sea. An underground water stream that is saturated with water and transmits water readily is known as an aquifer.

The alluvial track of Indo-gangetic plains has the most potential groundwater reservoir in the world. Highly productive aquifers occurs in coastal and deltaic tracts, but salinity impose quality issue.

Odisha, Kerala and West Bengal have vast surface water resources in the form of lagoons and lakes. (Lagoon is a water body cut off from larger body as sea by reef of sand or corals). Though water is brackish (saline) so it is utilised for fishing and irrigation of certain crops as paddy, coconut etc.

IRRIGATION.

Irrigation refers to the process of watering of agricultural plants through artificial means from wells, tanks, tubewells, canals etc. Presently about 92% of water is used for agriculture, 2% for Industries and 6% for drinking and domestic purposes. For farmers rainfall is still the most important source of water. In India, irrigation has been practised from ancient times, but after independence increase in irrigation potential was regarded as important for the agricultural development. This is because of:

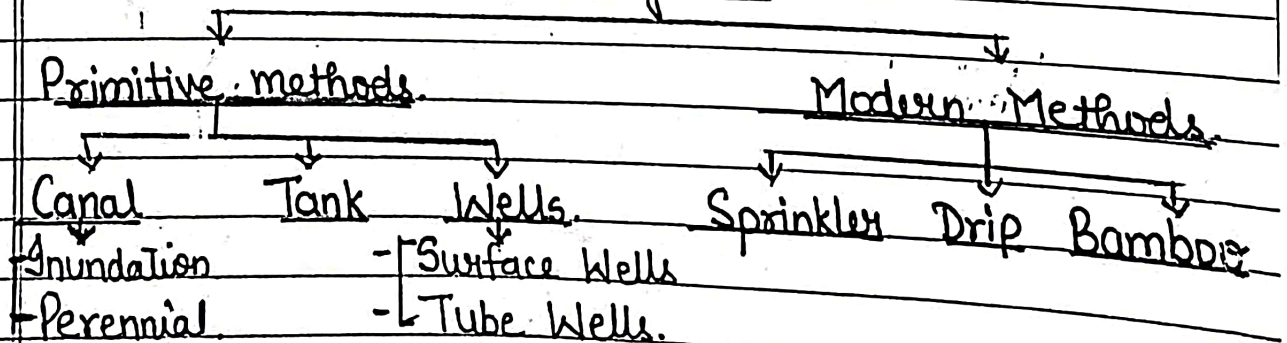
- Uncertainty of Rainfall: Rainfall in India is highly irregular in place and time. Sometimes monsoons arrive early and at times it comes late also its withdrawal is uncertain with

varying intensity.

2. Uneven Distribution of Rainfall:- In India the distribution is uneven. Western Ghats and Eastern India receive more than 250cm annual rainfall whereas Saurashtra Kutch region of Gujarat, parts of Punjab and Haryana and Western Rajasthan lie in arid zone, hence has water scarcity.
3. Crop requirements: Different crops require different quantities of water for growth. as Sugarcane needs high quantity.
4. Nature of the Soil:- Clayey soil have higher moisture holding capacity and require less irrigation. Sandy loam have less moisture retentive capacity and needs frequent watering.
5. To Utilise river water Effectively: many river are non-perennial and carry less flow during rabi season (winters)
6. To maximise Production:- Irrigation is a must, as production of irrigated crops is more than unirrigated crops in same area.

MEANS OF IRRIGATION.

Means of Irrigation.



1. CANALS:-

- Canals are waterways channels or artificial waterways for water conveyance or irrigation purposes.
- ★ - It can be effective source of irrigation in areas of low level relief, deep fertile soils, ^{and} perennial source of water. It is prevalent in northern plains in areas of Uttar Pradesh, Haryana and Punjab. The digging of canal in rocky and uneven area is difficult so canals are practically absent in Peninsula.
- i) Inundation Canals:- which are taken out from the rivers without any regulating system like barrage or dam. This type of canal provide irrigation mainly in rainy season when river is flooded.
 - Advantage:- They are easy to built and cheap also. It helps in controlling floods.
 - Disadvantage:- They are useful only during floods and irrigates only the low-land areas.
- ii) Perennial Canals:- are those which are taken off from perennial rivers by constructing a barrage across the river.
 - Advantage:- These canals provide water throughout the year so cultivation is possible in every season.
 - It carries sediments brought by river and deposit it which add fertility to soil.
 - Although initial cost involved in canal irrigation is much higher, it is quite cheap in long run.
 - DISADVANTAGE / Demerits:-
 - The canal water soaks into the ground and

Geography Class-X CH-7

leads to the problem of water-logging.

- Excessive flow of water in the fields raises the ground water level. Capillary action brings alkaline salts to the surface and make large area unfit for agriculture (eg. Punjab 'reh')
- Marshy area near canals act as breeding ground of mosquitoes.

2. TANK IRRIGATION:-

A tank consists of water storage which has been developed by constructing a small bund of Earth or stones built across a stream. It is popular in peninsular plateau area where Andhra Pradesh, Telangana and Tamil Nadu are leading states.

* - Tank irrigation is mainly practised in peninsular:-

- i) There is little percolation of rain water due to hard rock structure and ground water is not available.
- ii) Most of the rivers are seasonal in peninsular India so they cannot supply water to canals.
- iii) Scattered nature of fields also favours tank irrigation

Advantages or Merits:-

- Most of the tanks are natural and do not involve heavy cost for construction.
- Tanks are generally constructed on rocky bed and have long life span.
- In many tanks fishing is also carried on. This supplements both food resources and income of the farmers.

Disadvantage / Demerits of Tank Irrigation:-

- Many tanks dry up during dry season and fail to provide irrigation when required most.
- Tanks get silted up (fine sand, clay etc) soon and regular desilting is required.
- Much water is evaporated from large ^{expanse of} shallow water tanks.
- It covers large area of cultivable land which can be used for cultivation.
- Lifting of water from tanks and carrying to the fields is a strenuous and costly exercise which discourage use of tanks for irrigation.

Home Work:-

On the basis of the above summary, you are able to answer the following questions of Book Back Exercise on your own.

Question: _____

Last page