

# Water Resource Engineering



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# Introduction

## Definitions,

**Water resources engineering** is the quantitative study of the hydrologic cycle -- the distribution and circulation of **water** linking the earth's atmosphere, land and water bodies. ...

Applications include the **management** of the urban **water** supply, the design of urban storm-sewer systems, and flood forecasting.

# Functions And Advantages Of Irrigation

**Definitions-**Irrigation may be define as science of artificial application of water to the land with the crop requirement throughout the crop period.

## Advantages Of Irrigation-

- To increase food production.
- It improves the yields of crops .
- It improves the groundwater storage as water lost due to seepage adds to groundwater storage.
- We use it to help the growth of crops during the period of inadequate rainfall.

# DISADVANTAGES OF IRRIGATION

- Excessive seepage and leakage of water create marshes and ponds all along the channels. The marshes and the ponds in some time become breeding areas for mosquitoes.
- It lowers the temperature and makes the locality damp due to the presence of irrigation water.
- Excessive seepage into the ground raises the water, hence causing water logging of the area.

# classification for irrigation

1. Surface irrigation - flow, lift
2. Subsurface irrigation -

# 1 Surface irrigation

In surface irrigation, water moves over and across the land by simple gravity flow to wetland and infiltrate the soil.



## 2. Sprinkler irrigation

It is a popular method. Pipes carry some amount of water to the fields and then sprays it directly over the crops with high-pressure sprinklers.



### **3. Drip irrigation**

With this type, the drip lines take water near the root zone of plants and release it drop by drop.





## 4. Center pivot irrigation

It involves a self-propelled system in which a single pipeline moves on wheeled towers in a circular pattern.



# Indian crop seasons

The Kharif crops are rice, bajra, jowar, maize, cotton, tobacco, groundnut, e.tc.

Summer crops

Rabi crops are wheat, barley, gram, linseed, mustard, potatoes, etc

Winter crops

**Zaid Crops** pumpkin, cucumber, bitter groud.

# Categories of Crops in India

- Food Crops (**Wheat**, Maize, Rice, Millets and Pulses etc.)
- Cash Crops-a crop which has to be encashed in the market for processing, etc. as it cannot be consumed directly by the cultivators.  
(Sugarcane, Tobacco, Cotton, Jute and Oilseeds etc.)
- Plantation Crops (Coffee, Coconut, Tea, and Rubber etc.)

# References

1. Madeeasy notes
2. <https://www.nptel.ac.in › courses › 105 › 104 › 105104103>

## Books name

1 Hydrology and Water Resources Engineering

(Santosh kumar garg , pub.-**Khanna Publishers**)

2. Irrigation Engineering and Hydrology

(by-DR. V.C. Agarwal pub-S.K. Kataria & sons)

3 Irrigation and Water Resources Engineering.(G. L. Asawa)

4 Irrigation and Water Power Engineering (B.C.Punmia, )

5 water supply Engineering

(Dr. Archana Sharma pub- Ashirwad)

Thank you