

❖ Irrigation

Why is Irrigation necessary?

Time and frequency of irrigation depends on:

- the variety of crop,
- the type of soil and
- the season (In summers, watering has to be done more frequently due to the increased rate of evaporation from the soil and leaves).

Irrigation is essential because:

- Plants contain 90% water and need it for proper growth and development.
- When roots absorb water, they also absorb minerals and fertilisers.
- Germination of seeds does not take place in dry conditions.
- Nutrients dissolved in water get transported to different parts of the plant.
- Water also protects crops from frost and hot air currents.

❖ Sources of Irrigation:



Wells



Tubewells



Ponds



Lakes



Rivers



Dams

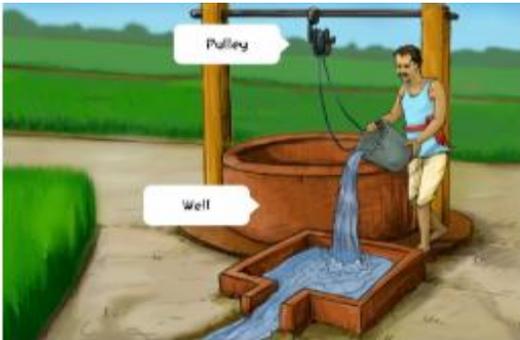


Canals

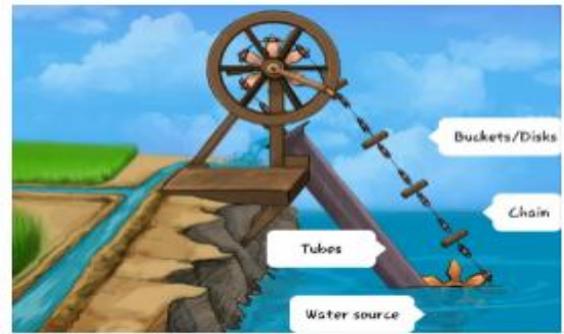
Traditional Methods of Irrigation

Traditional irrigation methods can be of two types:

- **Ones that use cattle and human labour:** They are cheaper but less efficient. These include:



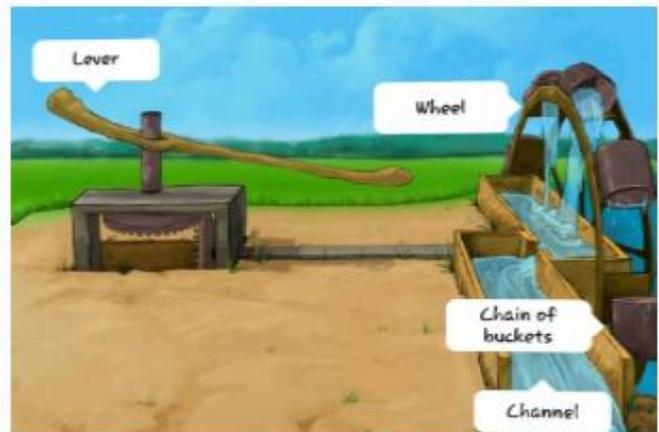
Moat (Pulley System)



Chain Pump



Dhekli



Rahat (Lever System)

- **Ones that use pumps:** To lift water, pumps can be powered by:
 - Diesel,
 - Biogas,
 - Electricity, and
 - Solar Energy.

Modern Methods of Irrigation

They are best for saving water. Two main irrigation methods in use today are:

• **Sprinkler System**



Best for places where:

- land is uneven, and
- sufficient water is not available.

It has perpendicular pipes, with rotating nozzles on top, joined to the main pipeline at regular intervals. Water flows through the main pipeline under pressure (created with the help of a pump). It escapes from rotating nozzles and sprinkles on the crop like rain.

Often used in watering:

- Lawns, and
- Coffee plantations.

• **Drip System**



Best for places where:

- availability of water is poor.

Water falls drop-by-drop directly near the roots of the crop. There is no wastage of water at all.

Often used in watering:

- Fruit Plants,

- Gardens, and
- Trees

How does over-irrigation harmful for crop production?

Like irregular or under-irrigation, excessive water can also damage crops. In a waterlogged field:

- Seeds do not germinate properly as they do not get sufficient air to respire,
- Roots do not grow properly due to lack of proper soil aeration,
- Water evaporates more which leads to accumulation of salt which in turn damages soil fertility, and
- Roots do not go deep in soil and hence, plants are not able to get full nutrients from the soil. Roots are also unable to anchor the plants properly and the crop can easily get damaged by strong winds.

❖ Next Part : Protection from Weeds