SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

DEPARTMENT OF AGRICULURAL ENGINEERING

23AGT101 – INTRODUCTION TO AGRICULTURAL ENGINEERING

I YEAR- II SEMESTER

Sources of water – Tanks – Wells & Reservoirs – Rain water Harvesting – Runoff computation

Sources of water

- a. **Surface Water**: Surface water sources include rivers, lakes, ponds, and streams. They are replenished by precipitation and are often used for drinking water supply, irrigation, industrial processes, and recreational activities.
- b. **Groundwater**: Groundwater is stored beneath the earth's surface in aquifers, porous rock formations, or underground reservoirs. Wells are drilled to extract groundwater, which is a vital source of drinking water for many communities and irrigation for agriculture.
- c. **Rainwater**: Rainwater is collected from rooftops, land surfaces, or impervious surfaces and can be stored or used directly for various purposes, such as irrigation, domestic water supply, and groundwater recharge.
- d. **Desalination**: Desalination is the process of removing salt and other impurities from seawater or brackish water to produce freshwater. Desalination plants are commonly used in coastal regions facing water scarcity.

Tanks

- Tanks are structures used to store water for domestic, agricultural, or industrial purposes. They can be constructed using various materials such as concrete, metal, plastic, or earthen materials. Tanks may be elevated for gravity-fed systems or placed at ground level with pumps for distribution.

Wells & Reservoirs

- a. **Wells**: Wells are constructed by drilling or digging into the ground to access groundwater. They typically consist of a casing to prevent collapse and contamination and a pump to extract water to the surface.
- b. **Reservoirs**: Reservoirs are artificial lakes or ponds created by damming rivers or streams. They store water for various uses such as drinking water supply, irrigation, flood control, hydropower generation, and recreational activities.

Rainwater Harvesting:

- Rainwater harvesting involves collecting and storing rainwater for later use. It can be done using simple techniques such as rooftop harvesting with gutters and downspouts directing water into storage tanks or cisterns. Rainwater harvesting reduces dependence on surface water or groundwater sources and helps recharge aquifers.

Runoff Computation:

- Runoff computation involves estimating the amount of water that flows over the land surface and into water bodies during rainfall events.
- Various methods, models, and equations are used to compute runoff, taking into account factors such as rainfall intensity,
- duration,
- soil type,
- land use,
- slope, and vegetation cover.
- **Common methods** include the Rational Method, Soil Conservation Service (SCS) Curve Number Method, and Hydrologic Models such as the Soil and Water Assessment Tool (SWAT) or Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS).

THANK YOU