

### (WATERSHED PLANNING AND MANAGEMENT)

Prepared by: SONALI KUMARA Assistant Professor



### Learning Objectives

- 1. What is watershed?
- 2. Concept
- 4. Objectives



### What is Watershed?

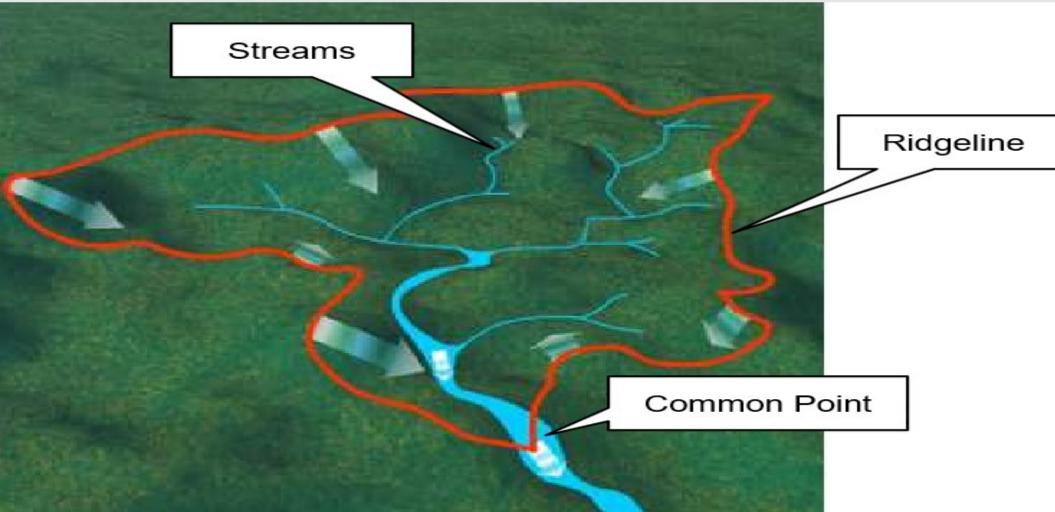
A watershed is a basin-like landform defined by highpoints and ridge that descend into lower elevations and stream valleys.

In other words, a watershed describes an area of land that contain common set of streams and rivers that all drain into a single larger b of water, such as a larger river, a lake or an ocean.

A watershed or catchments is defined as any surface (varying from a hectares to several thousand square kilometers) in which rainfa collected and conveyed to a common natural waterway

"Watershed is a geo-hydrological unit draining run-off water at a compoint and it could be demarcated based on ridge and gully lines'





IOW WATERSHEDS WORK









### Concept of Watershed

Watershed constantly undergoes the action reaction of many Hydrologic and Hydra Components or Phenomena.

Hydrologic → Precipitation, Infiltra Evaporation, Evapotranspiration

Hydraulic Components or Phenomena Flo Erosion, Sedimentation, Land slides, W Scarcity, Water Quality Degradation



### **Classification of Watershed**

The watershed are classified into a number of classes depending on the classification mode. In general, the watershed classification are based the following parameters :

The size

The shape

The land use pattern

Slope of land

Climate

Soil



Watershed classification Based on size Macro watershed (> 50,000 ha)

Sub-watershed (10,000 to 50,000 ha)

Milli-watershed (1000 to10000 ha)

Micro watershed (100 to 1000 ha)

Mini watershed (1-100 ha)

# The second secon

#### Watershed classification based on shape

Hydrologically, the shape of watershed is very important because it controls the time for runoff to concentrate at the outlet, i.e. the time of concentration; and thus affecting the watershed's hydrological behaviour. The most common shape are:

- 1. Fan shape
- 2. Fern shape

The fan shape watersheds are normally in circula shape ; and fern sape watersheds are in in elongated form.



Watershed Classification Based on Soil These are mentioned ae below:

- 1. Red soil watershed
- 2. Black soil watershed

Watershed Classification Based on Slope of land

- 1. Hilly watershed
- 2. Flat watershed

Watershed Classification Based on Climate

- 1. Humid watershed
- 2. Arid watershed

Watershed Classification Based on land use pattern

- Highland watersheds
- Settled cultivation watershed
- Trible settlement watersheds



### Watershed Management

"Watershed management is a concept which recognizes the judicious management of three basic resources of soil, water and vegetation for achieving particular objective for the well being of plant, animal, and human communities within a watershed boundary"



### Objectives

 Optimum utilization of natural resources such as water, land vegetation, etc.

- 2. Employment facility
- 3. Efficient and equal distribution of resources
- 4. Community's living standard, food security, poverty alleviating hygiene, etc. of the community
- 5. Unity, Integrity and harmony among villagers
- 6. Yield of Crop
- 7. Restoration of desert area
- 8. Maintenance of water table
- 9. Reclamation of wasteland
- 10. Recreation and Fishery Development



## Cont..

- 11. Water Harvesting
- 12. Water use control and conservation
- 13. Growing Greenery
- 14. Soil Erosion Control

15. Overall development of the community and watershed