

SOIL & WATER CONSERVATION – AN OVERVIEW

Dr. G. M. SUJITH

**UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
KARNATAKA**

SOIL & WATER CONSERVATION – AN OVERVIEW

- ❖ **Soil and water are the most important natural resources on which survival of humans depend**
- ❖ **Depletion of these resources in tune with meeting the demands of ever increasing population**

**Water is the biggest eroding agent
wind is the next most significant**

Drylands are far more prone to erosion since they are devoid of vegetative cover for longer periods of time

SOIL EROSION

Process of detachment of soil particles from the top soil and transportation of the detached soil particles by wind and / or water. Surface run off will be the resultant process.

On-site effect

Loss of agricultural production through reduced rainfall infiltration

Off-site effect

Increased sedimentation through downstream siltation of irrigation canals, farm lands, water bodies, reservoirs..etc

FORMS OF WATER EROSION



Splash Erosion



Sheet Erosion



Rill Erosion



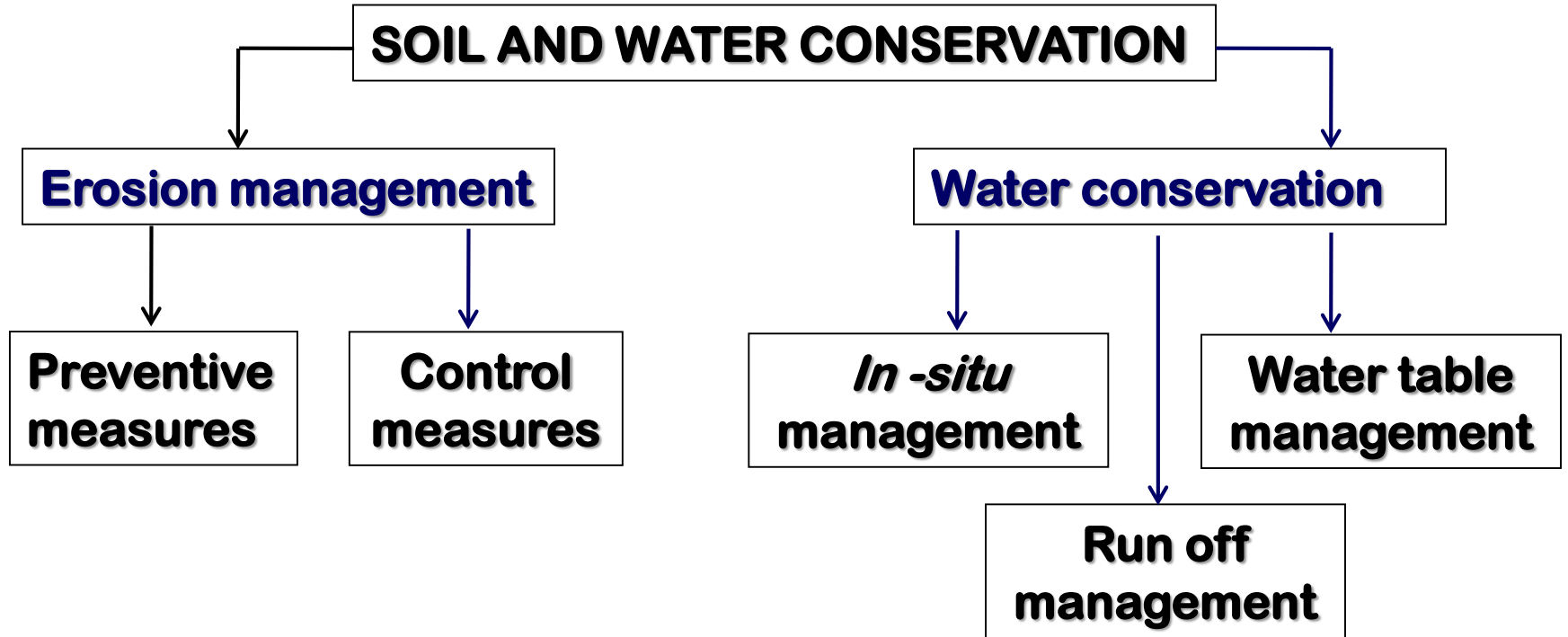
Gully Erosion



Ravines



Landslides



SOIL AND WATER CONSERVATION

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graph TD; A[SOIL AND WATER CONSERVATION] --> B[Soil fertility management]; A --> C[Vegetation management]; B --> D[Balanced nutrients]; B --> E[Nutrient recycling]; B --> F[Integrated Nutrient management]; C --> G[Crops]; C --> H[Trees]; C --> I[Pasture];
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The diagram is a hierarchical flowchart. At the top is a box labeled 'SOIL AND WATER CONSERVATION'. Two arrows point down from this box to 'Soil fertility management' on the left and 'Vegetation management' on the right. From 'Soil fertility management', three arrows point down to 'Balanced nutrients', 'Nutrient recycling', and 'Integrated Nutrient management'. From 'Vegetation management', three arrows point down to 'Crops', 'Trees', and 'Pasture'.

Soil fertility management

Balanced nutrients

Nutrient recycling

Integrated Nutrient management

Vegetation management

Crops

Trees

Pasture

Principles of soil and water conservation practices

- ❖ **Rain water management – reduction of splash erosion, detachment and transport of soil particles**
- ❖ **Control of run off – to check sheet, rill and gully erosion**

Factors on which soil & water conservation measures designed
Soil, land slope, rainfall and wind characteristics

Classification of Soil and water conservation measures adopted

- ❖ **Agronomical measures**
- ❖ **Engineering measures**

ARABLE LAND MANAGEMENT

Soil and water conservation measures

Agronomical measures

Wind erosion control measures

Vegetative cover
Strip cropping
Stubble mulching
Tillage practices
Wind breaks & shelter belts

Water erosion control measures

Contour farming
Ley farming
Crop residue management
Vegetative barriers/live bunds
Ridges and furrows

Engineering measures

***Contour bunds**
***Stone wall terrace**

*** Water ways**
*** Gully plugging**

NON - ARABLE LAND MANAGEMENT

Soil and water conservation measures

- ❖ ***In - situ* moisture conservation measures**
- ❖ **Drainage lines**
- ❖ **Trench and mound fencing**
- ❖ **Barbed wire fencing**
- ❖ **Vegetative cover – pastures &afforestation**

Soil and water conservation measures are best needed for maintaining an **balanced ecosystem for sustainable crop production in drylands**

Efficient management of rain water can boost agricultural production from drylands