

WATERSHED MANAGEMENT

Dr. G. M. SUJITH

**UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
KARNATAKA**

WATERSHED MANAGEMENT

- ❖ **Soil, water and vegetation basic natural resources**
- ❖ **Inappropriate technologies have led to over exploitation of these resources resulting into problems like soil erosion, nutrient loss and water scarcity.**

**Decline in crop yield and
food security problems**

**Watershed management – for optimum development of land, water
and plant resources**

CONCEPT

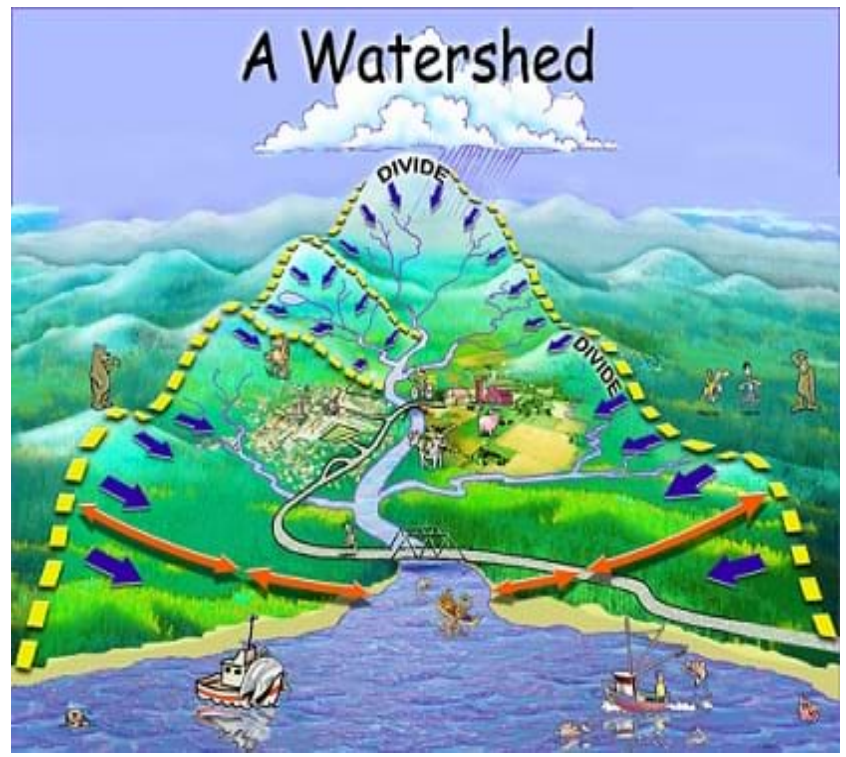
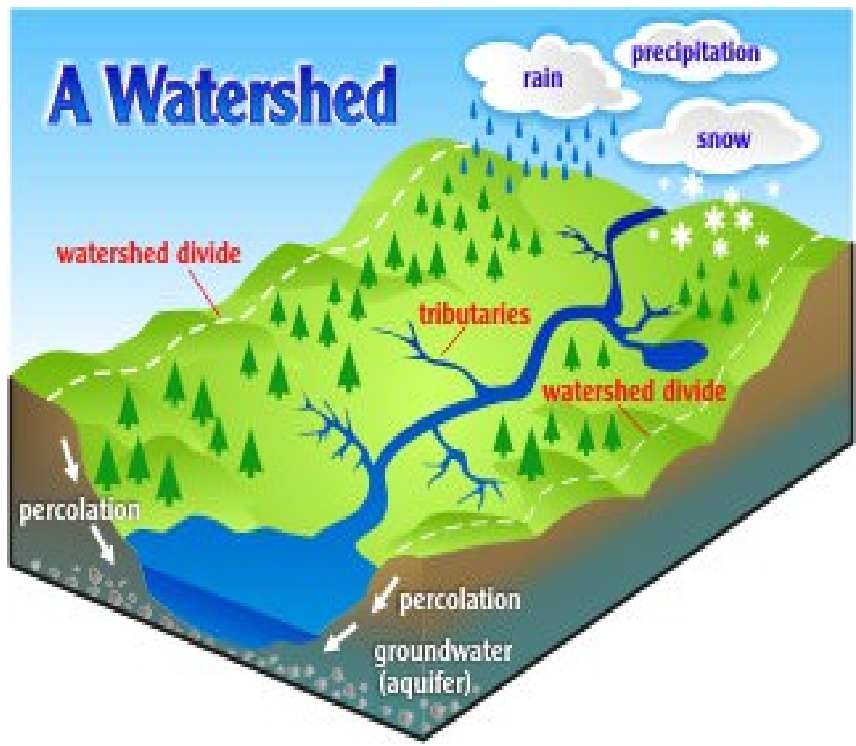
Watershed is defined as any surface area from which rainfall is collected and drained through a common point. It is synonymous with drainage basin or catchment area.

Watershed size vary from few hactares to thousands of hectares

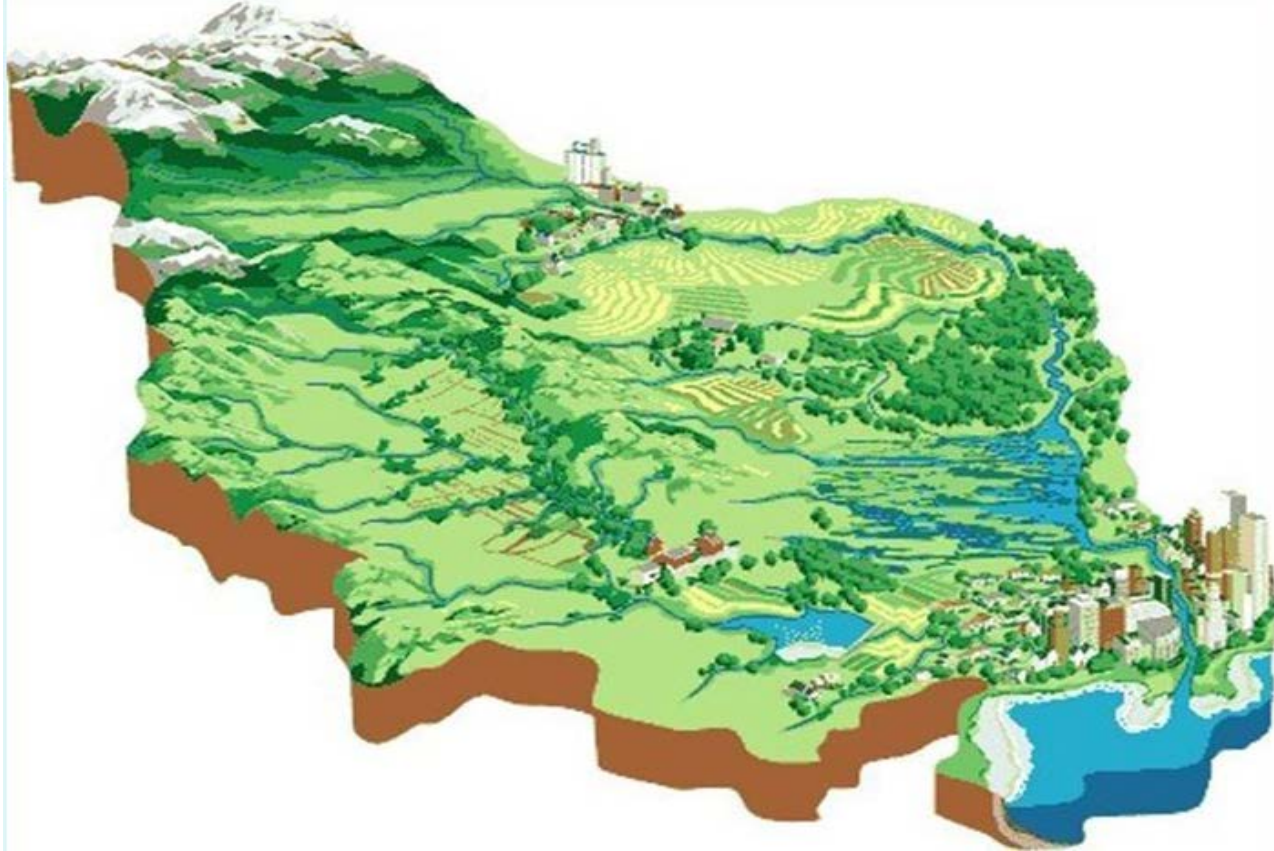
Micro watershed	Mini watershed	Macro watershed
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Watershed management is the **integration of technologies within the natural boundaries for optimum development of land, water and plant resources to meet the basic needs of people and animals in a sustainable manner**

HOW A WATERSHED LOOK LIKE ?



HOW A WATERSHED LOOK LIKE ?



HOW A WATERSHED LOOK LIKE ?



Objectives

- ❖ **Effectively conserve soil, rainwater and vegetation & harvest the surplus water in addition to ground water recharge**
- ❖ **Promote sustainable farming and stabilize crop yields by adopting suitable cropping and crop management systems**
- ❖ **Cover the non-arable area effectively through afforestation, horticulture and pasture development based on land capability**
- ❖ **Enhance the income of the individuals by adopting alternative enterprises**
- ❖ **Restore the ecological balance**

WATERSHED MANAGEMENT – LAND CAPABILITY CLASS

Land Capability Class		Increased intensity of use →								
		Wild life	Forestry	Limited grazing	Moderate grazing	Intensive grazing	Limited cultivation	Moderate cultivation	Intensive cultivation	Very Intensive cultivation
Increasing limitations & hazards ↓	I									
	II									
	III			Suitable						
	IV			for use						
	V									
	VI						Not suitable for use			
	VII									
	VIII									

Fig. 22.3. Chart showing the limitations of different LUCCs and their intensity of use.

Components

- ❖ **Treatment of arable and non-arable land for effective in situ and ex situ moisture conservation**
- ❖ **Implementation of programmes like afforestation, horticulture, agro-forestry, pasture production in stored water/moisture**
- ❖ **Identification of a sound crop production systems and its implementation through the involvement of developmental and input agencies**
- ❖ **Developing suitable infrastructural facilities and people's organizations to maintain the developed services**

WATERSHED MANAGEMENT

Principles

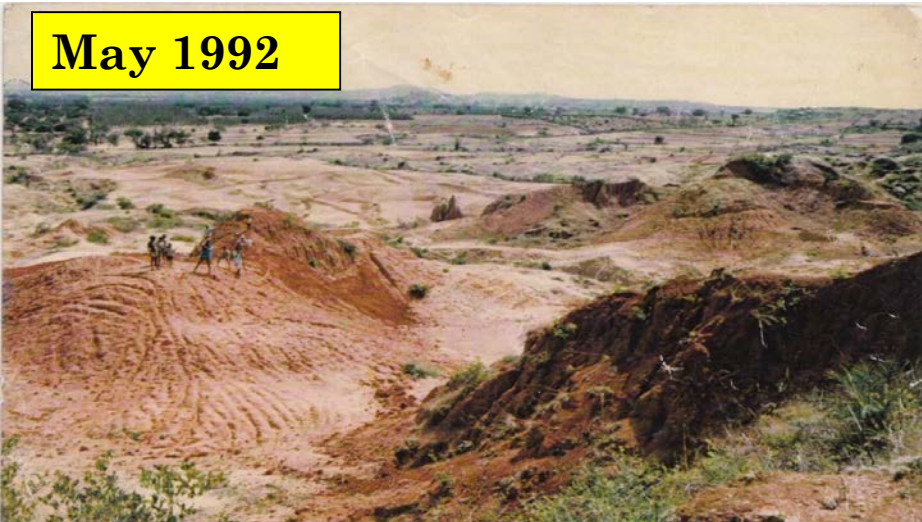
- ❖ **Utilizing the land according to its capability**
- ❖ **Conserving as much rain water as possible at the place where it falls**
- ❖ **Draining out excess water with a safe velocity and diverting it to storage ponds for future use**
- ❖ **Avoiding gully formation & checking at suitable intervals to control soil erosion & recharge ground water**
- ❖ **Increasing cropping intensity & land equivalent ratio through intercropping and sequence cropping**

WATERSHED MANAGEMENT

Principles

- ❖ **Safe utilization of marginal lands through alternative land use systems**
- ❖ **Ensuring the sustainability of the ecosystem benefiting the man-animal-plant-land-water complex in the watershed**
- ❖ **Maximizing the combined income from the interrelated and dynamic crop-livestock components over the years**
- ❖ **Stabilizing total income and cutting down risks during aberrant weather situations**
- ❖ **Improving infrastructural facilities with regard to storage, transportation and marketing**

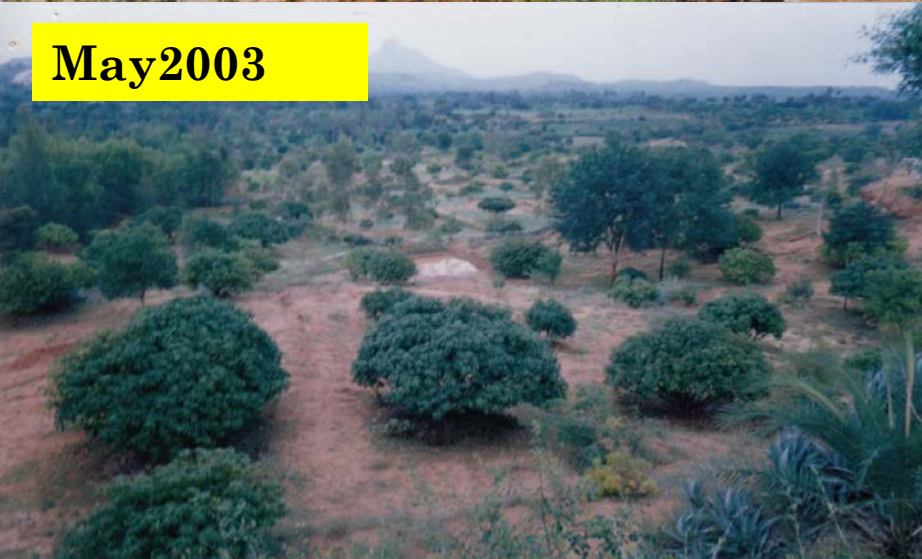
May 1992



May 1998



May 2003



May 2013



Planning for watershed

- ❖ Characterization of natural resources (land, water, vegetation and interrelationship between them) through the imaginary maps through the remote sensing techniques**
- ❖ Estimate of the area covered by major crops can be obtained**
- ❖ Location of structures like check dams, farm ponds can be obtained**
- ❖ Comprehensive planning of various activities is then carried out
Mechanical, agronomical, agro-ecological and forestry measures
of soil and water conservation are then planned and implemented**

Integrated watershed management is the key to efficient use of natural resources – soil, water and vegetation particularly in rainfed areas where water is the most limiting factor