



Concept of Watershed Management and its Characteristic

**Ram Prakash^{1*}, Ravi
Verma²**

¹Ph.D. Scholar,

²Research Scholar

Department of Agronomy,
Acharya Narendra Deva
University of Agriculture &
Technology, Kumarganj,
Ayodhya (U.P.), India



Open Access

*Corresponding Author

Ram Prakash*

Article History

Received: 10. 05.2023

Revised: 19. 05.2023

Accepted: 27. 05.2023

This article is published under the terms of the [Creative Commons Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/).

INTRODUCTION

Watershed management is a term used to describe the process of implementing land use practices and water management practices to protect and improve the quality of the water and other natural resources within a watershed by managing the use of those land and water resources in a comprehensive manner.

Watershed management is the most important practice in agriculture, especially in dryland agriculture. It play a greater role in conserving the runoff water from various source. The rain water harvesting is the major source of water in watershed. That harvested water is used to irrigate the crops under water stress condition in the dry areas. It is also applied to the crops as a supplemental irrigation or as life-saving irrigation to different agricultural crops. Watershed management become most important and a necessary thing to save the crops from various stresses occurring during the crop period. Now a days the environment is degrading due to reduction in forest area, soil erosion has increased, soil ground water table is down, severity of the drought in increasing and degradation of dryland soils.

Main purpose of watershed management

Watershed management aims to identify, analyse and implement the strategies and objectives.

The main purposes objectives of watershed management

- To attempt to halt Land Degradation and adopt a Holistic process for getting maximum production out of the land
- To manage, control and utilize the water runoff for useful
- To rationalize the land utilization and water resources for optimum and sustained production with minimum hazards to the natural resources and environment

- To ensure optimum infiltration and percolation to solve the problem of soil erosion
- To reduce the impact of rain on the soil and check its speed at various intervals to reduce the effect of sediment yield on watershed
- To protect and enhance the water resources alongside moderating floods and reducing the splitting up of tanks and reservoirs
- To increase irrigation and rainwater conservation for crops and mitigating droughts

Principles of watershed management

Watershed management can only be successful when it is executed through proper planning, objectives, implementation, methods and staff attitudes.

- The watershed planned for management should be in its natural form.
- The approach adopted for watershed management should be multi-disciplinary.
- To execute the task of watershed management, there should be the support of a strong framework in a proper way.
- The approach adopted should be flexible for better adoption of tasks.
- The most appropriate technology and the finest team of personnel shall be involved.
- The land resource utilization should be based on its capacity and the top fertile soil depth should be protected.
- There should be provisions for protecting the vegetative cover and rainwater harvesting.
- The overall aim of watershed management should be focused to

enhance the socio-economic condition of the population living in the watershed.

Factors affecting watershed management

The task of watershed management is prone to be affected by several factors.

- The watershed characteristics such as shape, size, topography, soils and relief
- The soil characteristics such as intensity and amount of rainfall and precipitation
- The social status of the people living in the watershed
- The watershed operation and land use patterns such as the density of population, vegetative cover and the type and quality of the state.
- The availability of water resources and their capabilities

The steps in watershed management?

The steps involved in watershed management to achieve the solution of different objectives.

- Recognizing the problems/ issues
- Analysing and determining the causes of watershed problems
- Developing alternative solutions for the formulated objectives aimed to solve the issue
- Ascertaining the best suitable solution
- Protecting and improving the already implemented and existing work in the watershed

Recognition Phase

The problems of the watershed, their causes, and alternatives development is carried on by conducting by:-

- Soil survey
- Land capability survey
- Agronomic survey
- Engineering survey
- Socio-economic survey
- Forestlands under permanent vegetation survey

Based on resource conservation, generation and utilisation are:

- Land utilisation based on land capability
- Top soil protection
- Reducing the silting of water resources
- Keep vegetative cover whole the year
- Rain water conservation
- Proper drainage facility for excess water
- Practicing the soil conservation measures like grassed waterways etc.
- Construction of check dams
- Increasing ground water storage
- Inter and sequence cropping
- Efficient use of marginal lands
- Water harvesting for life-saving irrigation
- Maintaining sustainability of ecosystem
- Increasing farm income through integrated farming system
- Increase in basic fundamental facilities like transport and agricultural marketing
- Practicing alternate land use systems
- Establishment of small agro-industries
- Improving farmers status through socio-economic changes

Objectives of watershed management:

Watershed management is primarily synonymous with the soil and water conservation with the basic concept is to reduce the floods and sediment control besides increasing agricultural food production. The basic objective of watershed management is to meeting the problems of land and water use. Not in the sense of single resource but on the basis of all resources are independent and most valuable. The ultimate aims of watershed management is the improvement in the living

standard of common person particularly farmers family. It is possible by increasing the earning capacity, by offering facilities likewise rural electrification, water supply for daily use, water for the purpose of irrigation, free from all the abnormalities like floods and drought.

The main objectives of watershed development programmes are given below -

- Recognition of watershed on unit basis for improvement and proper use of
- lands by following the land capability classification
- Control of floods by constructing the reservoirs like multi-purpose reservoirs
- Water dams at head water of streams and in problem areas
- Adequate water supply for agriculture
- Proper source water for drinking purpose
- Supply sufficient amount of water for industrial needs
- Management of various agricultural pollutions
- Reducing the environmental pollution
- Abatement of organic and inorganic pollution

REFERENCES

- Govindan, K. and Thirumurugan, V. (2003), principles and practices of dryland agriculture. Kalyani publishers, Ludhiana, Punjab, India.
- Radder, G. D., Belgaumi, M. I. and Itnal, C.J. (1995), water harvesting proceedings for dryland area. In: Singh, RP (ed) sustainable development of dryland agriculture in India, Scientific Publisher, Jodhpur