



# **WATERSHED MANAGEMENT**

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## PREFACE

Water is life. It originates in water possibly if at all it ends, will end with water, we guess. The role of water is felt every where, Its scarcity causes droughts famines, its excess causes the flood and deluge. The mission of many public and private water resources organization its to manage and conserve existing water supplies.

Water will continue to play a crucial role in enhancing agricultural production irrigated as well as rainfed areas, but this natural resource is limited and is going to be comescare infuture for agricultural sector in terms of both quantity and quality in the wake of intense competitive depends fromhousehold,indistrialisation urbanization and population growth. The paramaent importance of efficient economic and scientific conservation, utilization and management of this precious resource has assumed manifold dimentions these days for most optimum uses and undertaking of the various processesphenomena and principles involved imprudent management of the diminishing water resource for sound implementation of research and development progrommes related to irrigation drainage and watershed development. The book presents an integrated approach to watershed planning and management. Various aspects of watershed planning and management have been throughly discussed. The book deals not only with technical aspects of watershedmanagement but alsowith environmental socio-economic and policyissues sovitafllyneeded for sustainables administryators, planners, policy makers, NGO's SHGSand These involved in watershed planning andmanagements.

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## **ABOUT THE BOOK**

Government of India launched a Watershed Development Programme during the year 1983-84 with an objective to develop natural resources, viz., land, water, vegetation and productivity of crops in addition to improvement of standard of living of the people. Based on the experience gained during 1983-90, the Watershed Development Programme has been expanded further to cover larger areas. Government of India through its Ministries of Agriculture, Rural Development, Forestry managed the Watershed Development Programme in India. Further, it was allotted even to Non-Governmental Organizations under the policy of Government and private partnership so as to execute the works more effectively. However, NGOs concentrated on water resource development so as to improve the irrigated area for improving the livelihood security of rural people on watershed basis unlike Government departments, which concentrated on overall development of natural resources and agriculture production. There are number of books covering Watershed Development Programmes written by many authors. Hence, an attempt is made to cover all aspects of watershed so as to observe and judge the effectiveness and efficiency of the watersheds based on the development of natural resources, agriculture and socio-economic conditions. Thus, many points are covered in this book.

# Chapter - 1

## INTRODUCTION

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Water is an essential resource for the development of agriculture and living organisms including human beings. The importance of water has been known since the existence of this planet/human beings. It is prime necessity for all activities. Thus, land, water, air, fire and sky (*Panchabhoothas*) are very important for the development of mankind. The importance and scarcity of water has been identified with an increase of human population who are responsible for industrialization, urbanization, exploitation of natural resources to the maximum advantage of human resources. Any resource will not yield till it is protected, developed, conserved and utilized. Hence, the improved utility of water needs efforts, time, space and money for balancing, improving, conserving, retaining, *etc.* In the process of development, industrialization, urbanization, the quality and quantity of water and its accessibility tend to diminish leading to scarcity. It is a fact that this planet may accommodate 11 billion human population and the present human population is about 7.56 billions. Hence, water will become a scarce product/resource in course of time. Hence, there is a need to conserve moisture/water by practicing age-old practices like construction of tanks, reservoirs, water harvesting structures etc. This process only supply the food to meet ever growing population failing which social conflicts are likely to lead to misery in the society. Hence, there is a need to improve



water resources so as to harvest and utilize effectively and judicially. Hence, development of water as a prime natural resource has occupied a leading place in the efforts of all societies for survival and better living. Water has been sustaining every agrarian economy, urbanization and industrialization. The utility of water has been increasing. Tata Energy Research Institute reported that the steady fall of per capita availability of water and the per capita water availability in India fell from 6008 cubic metres a year in 1947 to 2266 cubic metres at present. The report indicated the exploitation of groundwater is as high as 98 per cent in Punjab, 80 per cent in Haryana, 60 per cent in Tamil Nadu, 55 per cent in Rajasthan, etc. The average loss of flood irrigation followed by farmers is expected to be 50 to 70 per cent through evaporation, transpiration, movements, etc. The problem of water availability and utility is compounded by increasing the cost of exploitation as the easy methods of exploitation adopted successfully and economically in the past has no longer suffice. Moreover, expansion of economic activities of water bodies has also not improved the judicious water management. Even construction of reservoirs/dams, etc. created imbalance between irrigated and dryland regions farmers in terms of values in assets, food production, per capita income, standard of living, etc. There is a need for a multi-disciplinary approach to water resource management which will be the 'corner stone' to take national/state policy. In this process, Watershed Development Programme was identified and scheme was developed to conserve and protect natural resources. Nevertheless, Watershed Development Programme, per cent, is associated with technology and it is for collective action for harnessing the natural resource as against an approach based on property rights of individuals. About 65 per cent of cultivated land is under dryland conditions which is under mercy of Rainy God as rainfall and its distribution is highly fluctuating which reflects in agricultural crops growth and production. Government of India or Governments of different states allocated substantial programmes, viz., Drought Prone Area Programme, Desert Development, Wasteland Development, Employment Programmes, Integrated

Watershed Development, *etc.* However, these schemes left only impact in agriculture production. Nevertheless, dryland agriculture showed no sustained improvement in all states.

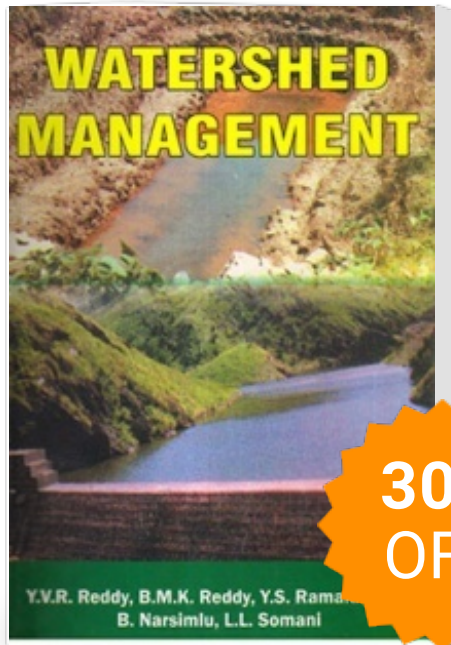
Hence, Watershed Development Programme was initiated during 1983-84 by Government of India with following objectives.

## **Objectives**

The objectives of each Watershed Development Project will be:

1. To promote the economic development of the village community, which is directly or indirectly dependent on the watershed through
  - Optimum utilization of the watershed's natural resources like land, water, vegetation, *etc.* that will mitigate the adverse effects of drought and prevent further ecological degradation
  - Employment generation and development of the human and other economic resources of the village in order to promote savings and other income-generation activities
2. To encourage restoration of ecological balance in the village through
  - Sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed.
  - Simple, easy and affordable technological solutions and institutional arrangements that make use of and build upon, local technical knowledge and available materials.
3. Special emphasis to improve the economic and social condition of the resources-poor and the disadvantaged sections of the Watershed Community such as the asset less and the women through
  - More equitable distribution of the benefits of land and water resources development and the consequent bio mass production. Greater access to income generating

# Watershed Management



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Watershed management has developed significantly in recent decades. In the mid-twentieth century, the focus was mainly on agricultural land drainage and reclamation schemes and the development of infrastructure for water resources and hydropower schemes in uplands in the name of economic and social development. The environmental movement that arose in some countries in the 1970s brought with it growing recognition of upstream–downstream linkages, the socioeconomic effects of Watershed Management Group (WMG) develops and implements community-based solutions to ensure the... See more of Watershed Management Group on Facebook. Log In. or. Create New Account. See more of Watershed Management Group on Facebook. Log In. Forgot account?