

Irrigation Utilisation in the Context of Protective and Productive Irrigation in Maharashtra

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Foreword

Irrigation development has a long history in India and by now it has endowed the country with the largest irrigation system in the world. Yet the efficiency of surface irrigation systems in India leaves much to be desired. This is particularly so in the state of Maharashtra, a large part of which is affected by recurrent drought and scarcity of water.

According to the Maharashtra State Irrigation Commission which assessed the ultimate irrigation potential of the State, full exploitation of all the available surface water resources would bring under irrigation only 26 per cent of the cultivated acreage of the State. In view of this, water resources have become the most limiting factor in the development of agriculture in such regions and therefore proper and efficient utilisation of the available irrigation potential assume crucial importance in securing maximum return from present and future investment in surface irrigation.

A number of studies have been carried out at the Institute in recent years into the economics of irrigation water use in Maharashtra and issues related to this. The present study is in continuation of the previous studies and is especially concerned with the crucial issues of full utilisation of the irrigational potential created.

This book is the outcome of a study undertaken at the instance of the Government of Maharashtra to examine the utilisation of irrigation potential with special reference to kharif season utilisation, covering all the five major agro-climatic zones in the state of Maharashtra. Problem of estimation of extent of utilisation by the traditional 'area approach' has been highlighted in this book and it goes on to suggest that in addition to 'area approach' water use approach needs to be followed to get a clear understanding of the issues involved in utilisation of irrigation potential.

The various factors accounting for the different levels of utilisation in different agro-climatic zones are identified and the relative importance of them assessed. These factors, which mainly reflect the operation of demand and/or supply constraints, of course, differ from one agro-climatic zone to another.

The book reveals the nature of conflict that arises in different zones between the objectives of supplying water for protective irrigation when rainfall is inadequate and for intensive or productive irrigation during fair weather seasons.

In the very high rainfall zone, on the other hand, the problem seems to be that of generating more demand for irrigation water with increased efficiency of water use to be brought about by suitable modification in design of the distribution system and in crop-mix, specially in kharif season.

It is hoped that the book will prove useful in answering some of the questions relating to efficient water management and for improving the irrigation system in the state of Maharashtra. Researchers in this area may also find in this book a perspective of the issue of utilisation of irrigation potential and a framework to analyse the same.

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**V.S. Chitre
Director**

Preface

In recent years there has been considerable investment in irrigation development in India with a view to raise agricultural production and productivity, specially of foodgrains. Such investment and consequent development have added significance in states like Maharashtra characterised largely by uncertain rainfall, scarcity of water and affected by recurrent drought. Under such situation the questions that naturally arise are, what should be the objective of providing irrigation water and how should the distribution be designed and planned in order to fulfill the stated objective? It is in this context that the objective of protective and/or productive irrigation comes into question which is likely to have deeper implications for agricultural development in Maharashtra.

One of the most serious problems of efficient use of available water is the problem of underutilisation of irrigation potential mainly from surface irrigation sources. While there is no denying the fact that the underutilisation exists in considerable measure, it has to be seen, examined and understood in the context of the nature of irrigation, i.e., whether it is protective and/or productive and the objectives sought to be achieved through such irrigation, specially in water scarce and drought prone regions like Maharashtra. It is only after examining and analysing the problem of underutilisation in this manner that it is possible to identify the factors underlying such development and the ways and means to change the course in tune with the priorities set.

These are some of the issues which have been raised and analysed in this book. To begin with an attempt has been made to bring in clear perspective the issue of irrigation potential and its utilisation and evolve a framework for appropriate analysis of the issues involved. This forms the subject matter of Chapter 2. Factors responsible for particularly low utilisation of irrigation potential in kharif season in respect of surface irrigation in different agro-climatic zones in Maharashtra are identified, analysed and their relative importance assessed. The analysis is based on the subjective (farmers' opinion) and objective (data base) evaluations of such factors mainly arising out of supply and demand constraints in different agro-climatic zones, presented in Chapters 3 and 4.

Maharashtra is a large state with substantial regional variations in soil-climatic conditions. At one extreme is *Konkan* with very high rainfall

conditions suitable for growing paddy, entirely rainfed, in kharif season and at the other extreme is rain shadow regions of Western Maharashtra, characterised by low and uncertain rainfall, suitable for growing inferior cereals under rainfed condition. In between there are regions with progressively better rainfall condition but not adequate and timely enough to cultivate kharif crops without considerable risk.

The book clearly brings out that while a conflict of objectives of protective versus productive irrigation arises in assured rainfall, less assured rainfall and scarcity zones, a considerable change in design and distributional net work is required to induce the farmers to use irrigation water in kharif season in very high rainfall zone.

The book is the result of a study undertaken at the instance of the Government of Maharashtra to examine the problems of particularly low utilisation in kharif season in respect of surface irrigation systems in different agro-climatic zones of Maharashtra. We are grateful to the Government of Maharashtra for the financial support to carry out the study. But for the unstinted co-operation and help received from the concerned officials and staff of the Department of Irrigation, Government of Maharashtra, it would not have been possible to carry out the work in time and complete this book. I express my sincere thanks to them for their ungrudging co-operation.

In course of completing this work and preparing the manuscript I have had fruitful discussions with several of my colleagues, I am grateful to them for sparing their time, specially to Dr. Sulabha Brahme who had gone through the earlier drafts and made very useful suggestions.

My special thanks are due to Shri D.B. Sardesai for his advise in data processing to Ms. A.A. Kher and Shri M.M. Marathe for speedy handling of the computational work. My sincere thanks are also due to Shri R.D. Khodaskar for supervising and carrying out the field work in time and to Shri S.S. Kulkarni for efficient handling of the tabulation work.

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Ashok K. Mitra

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