

# Preface

In India, the enthusiasm to adopt the micro irrigation systems (MIS) has been quite overwhelming in a few states, viz., Andhra Pradesh, Maharashtra, Rajasthan, Karnataka, Gujarat and Tamil Nadu. Nevertheless, despite the financial incentives in the form of capital subsidies, the overall adoption in terms of area is quite low in relation to the potential area identified for MIS in the country. These two facts underscore the role of several physical and socio-economic factors that act as determinants of and constraints to adoption of MIS, as the hydrological, hydro-geological, agro-ecological and socio-economic conditions vary across states in India. This called for more in-depth analysis to assess the real potential and examine how the benefits and impacts of micro irrigation system adoption vary across situations. There is also the intellectual curiosity among scholars and policy makers to know the reasons for large-scale adoption of MIS in some states and no adoption in some others, including agriculturally prosperous ones.

The current volume assumes relevance in this backdrop and it takes a critical look at the trajectory and dynamics of adoption of MIS in India based on detailed empirical assessments involving proven methodologies and rigorous analytical procedures. While providing a snapshot of the trends in adoption of the MIS across the major states, such as Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Rajasthan and Tamil Nadu, the chapters in the volume present a rather dispassionate analysis of the socio-economic dimensions of adoption of this technology and its impacts. They mark a significant departure from the 'run-of-the mill' empirical works on micro irrigation, which mechanistically 'quantify' the water-saving, yield improvement, energy saving and income benefits, without putting much scientific rigour in the methodologies to make them context specific. Many advanced concepts in the field of water use hydrology and environmental economics were used in this volume to develop a nuanced understanding of the impacts of MI on irrigation water use in crop production and real costs and benefits of MI adoption, respectively.

A case study of the technical and economic rationale of solar powered drip irrigation systems as an alternative renewable energy source for well irrigation in

the current context, as an important addition to the thin, yet emerging literature on the subject, makes the volume much more engaging. The interesting case studies of MIS adoption across the major states also come out with the imperatives of aligning the institutional and policy regimes in the water and energy sub-sectors, in order to achieve larger scale MI adoption and bigger welfare gains.

Consolidating this volume in the present form was possible due to the help and support we received from various quarters and we take this opportunity to express our deep sense of gratitude to each and every individual and organization which were supportive to our endeavor of bringing out this volume. Yet, we will be failing in our duty, if we do not specifically mention some individuals and institutions for the encouragement and support rendered. We thank the Indian Council of Social Science Research, New Delhi for providing a seed grant to GIDR to develop a research proposal, which enabled us to join hands with the Institute for Resource Analysis and Policy (IRAP) to consolidate the work on the status of adoption and impacts of MIS in a few Indian states. We thank all the faculty and staff members at GIDR and IRAP for their constant encouragement and support during the course of consolidating this work. We thank Prof. R. Maria Saleth, a renowned expert on institutional economics of water and former director of Madras Institute of Development Studies, for his encouragement and for agreeing to write a 'Foreword' for the volume. We also thank the contributors for staying with us during the entire process of the publication, without which, this would not have been possible.

We place on record a very special word of appreciation to the Editorial Team, Springer (India) Pvt Ltd., especially, Ms. Sagarika Ghosh, Ms. Nupoor Singh, and Mr. Gowtham Chakravarthy for their untiring efforts in transforming the manuscript into the present volume. While utmost care has been taken by the publisher in editing the manuscript for readability, we solely are responsible for the errors or omissions, if any, that remain. We sincerely hope that this volume would help trigger some serious discussion and research on the various impacts of micro irrigation technologies and the relevance of policies and institutions in shaping their future in the agricultural sector in India and elsewhere.

Lastly, we are proud that we could dedicate this volume to the internationally renowned irrigation economist, Prof. B.D. Dhawan, whose work had immensely influenced many of the contributors to this present volume.

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