Acknowledgement

I sincerely express my deep sense of gratitude to Dr. Balkrishna Sharma, who is my guide and advisor for giving me an opportunity to pursue research in my favorite field. Definitely without his help, consistent encouragement, unending patience and valuable suggestions the research work would not have taken this shape.

I am also grateful to Prof. Dr. K. C. Khare, who is my co-guide and constant source of inspiration. Continuous efforts towards improvement and involvement in the subject have also been responsible for timely completion of the research work.

I am thankful to the founder president of STES Prof. M. N. Navale and Principal of Sinhgad College of Engineering, Dr. S. D. Lokhande for extending help and cooperation.

I am thankful to Late. Prof. Dr. R. J. Garde, Prof. M. J. Deodhar and Er. P. B. Deolalikar for sparing their valuable time for discussions of model studies and giving constructive suggestions. I sincerely thank Prof. Dr. S. N. Londhe for constantly supervising the progress of the research work.

I am thankful to BOARD OF COLLEGE AND UNIVERSITY DEVELOPMENT for acknowledging efforts and funding the project.

I am grateful to the management of Sinhgad College of Engineering and Rajarshi Shahu College of Engineering for all the help and moral support to carry out the research.

I am also thankful to Prof. Dr. P. P. Vitkar, Ex. Director General of MERI Dr. D. M. More, Ex. Secretary of Irrigation Er. M. D. Pendse and Prof. V. R. Phadake and Dr. R. G. Patil for the motivation and fatherly advice.

I am also grateful to Superintending Engineer A.V. Shirke (Irrigation Department, Govt. of Maharashtra) and other officials of Irrigation Department for sharing data and fruitful discussions.

Thanks are due to all my colleagues in Sinhgad College of Engineering for involvement in my work. There are no words to express my feelings about the support given by my family.

G. A. Hinge