ACKNOWLEDGEMENTS

I would like to grateful thank and deeply indebted to Assoc. Prof. Dr. Kobkiat Pongput my thesis advisor for advice, encouragement and valuable suggestion for completely writing of thesis. I would sincerely like to thank Assoc. Prof. Chukiat Sapphaisal, and Assoc. Prof. Dr. Jesada Kaewkulaya my committees, and also Dr. Thana Boonyasirikul from Graduate School for their valuable comments and suggestion.

I would like to greatly indebted to Mr. Tissa Bandaragoda and Mr. Ian Makin who are Former Regional Directors of International Water Management Institute (IWMI) during research works at IWMI South East Asia Regional Office, the IWMI's financial support for one year special courses at Asian Institute of Technology and partially fund for overseas research work.

I would like to sincerely thank Prof. Dr. G.V.Skogerboe who initiates the cooperation between Kasetsart University and Utah State University (USU.); and I gratefully thank Prof. Dr. Gary P. Merkley during research work at Department of Biological and Irrigation Engineering, USU.

I gratefully thank the Royal Irrigation Department for providing the data for this study. Financial support for this research was provided by The Thailand Research Fund through the Royal Golden Jubilee PH.D. Program which is sincerely acknowledged.

Finally, I am especially appreciated my parents, my sister, friends and relations for their continuing encouragements.

Thanet Somboon

March 2007