

## PREFACE

Irrigation is of utmost priority for agriculture activities of a country or region. The state of West Bengal especially North Bengal, Agriculture has been a priority of its socio-economy subsequently irrigation has a major role to play for the livelihood of the region. During the past two decades, the irrigation sector of West Bengal, as well as India, has emerged significantly important. The present study aims to identify the problems and prospect of irrigation in Koch Bihar District, West Bengal. The irrigation system of the District was mainly characterised by I) Shallow Tube Well (STW), II) River Lift Irrigation (RLI), III) Deep Tube Well (DTW), IV) Dug Well, V) Canal Irrigation and VII) Tank Irrigation. Through this work, an attempt has been made to analyse the problems of irrigation and impact of irrigation on agriculture and economy of the farmer and the prospect of irrigation of the District.

The thesis is presented in six chapters. The first chapter deals with the scope, hypotheses, objectives, methodology, and literacy review of the present study. The second chapter incorporates the general background of the study area, the Koch Bihar District. Chapter three deals with the determinants of irrigation in the district. This accounts the physical determinants and demographic determinants. This actually related to irrigation and physiography, geology, soil, rainfall, agricultural labour, cultivators, rural population. Chapter four discusses the spatio-temporal distribution pattern of irrigation practices in the district from 1991-92 to 2011-12. In chapter five impact of irrigation on agriculture and economy of the farmer are dealt with. Hence the relation of cropping intensity and irrigation intensity, cropping pattern, production, cost-benefit analysis and socio-economic has been analysed. Chapter six discusses the main constraints of irrigation and prospect of irrigation has been identified and chapter seven reveals the necessary recommendations for the corrective measures to be taken for the development of irrigation and agriculture followed by overall conclusion considering the essential lesson from the preceding chapters.

While the study was under process the research has incurred a lot of debts to many persons and institutions. First and foremost, he expresses his deep sense of gratitude and heartfelt thanks to his teacher and supervisor of the research Dr. Ranjan Roy, Professor, Department of Geography & Applied Geography, the University of North Bengal for his valuable guidance, constant inspiration in completing the work.

He would like to offer his gratitude and sincere thanks to Dr. (Mrs) Indira Lepcha (Nee, Lama), Head of the Department of Geography & Applied Geography, University of North Bengal for her inspiring advice. He is also thankful to all the teachers of the Department of Geography & Applied Geography, University of North Bengal for their valuable suggestions and encouragement in work. He is also thankful to the Librarian and different officers in the University of North Bengal for their help.

He expresses his deep and sincere gratitude to his beloved parents (Sri Ranjit Sarkar and Smt Purnima Sarkar), his uncle Ashok Sarkar & Aswini Sarkar, Uttam Karmakar (Brother –in- law), Didi Sathi Karmakar and other family members for their cooperation which has been a powerful source of encouragement and support in all his academic endeavours.

While carrying out the work at his workplace (Dinhata College) has come across with many people like Dr. Kishore Kumar Thapa, for giving suggestions and necessary inputs while the work was under process. His special thanks are also due to his colleagues Tanmoy Saha, Pallab Roy, Manjil Gupta and Subhash Das whose constant inspiration to pursue his dreams to be fulfilled.

He also special thanks go to his friend Manik Mukherjee, Chandana Barman, Pinku Das, Sima Basak, Pratyusha Parveen, Abdul Momin Hoque, Md Azizul Hossain, Uttam Sarkar, Prabir Basak, Masuma Parveen and my little friend Nausheen Islam (Manali) and Naureen Islam(Mishmi).

His special thanks go to his beloved students Mr. Deep Ghosh, Abhijet Saha, Manoj Dakua, Soumik Das, Subhajeet Sarkar, Sudarshan Das, Pritam Saha, , Uttam Das, Prasanta Das, Narayan Barman, Koyel Das, Amio Basak, Rupan Dutta, Indrajeet Barman, Koushik Barman, Biplab Sutradhar, Tapash Sarkar, Jagabandhu Patra, Arijeet Saha, Rakesh Das, Rahaman Ashique Ilahi, Bhupen Barman, Biswajit Das, Arjun Saha who helped him during the survey. Without their constant help, the research work might not have been completed in due time.

He also likes to extend thanks to Mr. Abdul Miraj, for his suggestions and help whenever needed during completion process of the work.

At the time of starting Ph.D Dr. Sadhan Chandra Kar was extending his helping hand but at the time of submission of the thesis Dr. Kar is no more. The researcher extends

his deep sense of gratitude to Late Dr. Sadhan Chandra Kar, Principal, Dinahata College for his direct and indirect support for completing the present research. The researcher hopes that his soul will rest in peace in heaven.

He thankfully acknowledges the help of the officials and scientists of various agencies and departments, particularly Department of Chemistry, Dinahata College, Koch Bihar, the Land & Land Reforms Department Koch Bihar, Soil Testing Laboratory, Koch Bihar, Health & Family Welfare Department, Koch Bihar for their valued co-operation in supplying data.

He takes the opportunity to acknowledge his gratitude to the various authors, publishers, organizations and institutions for allowing him to consult their learned papers journals, reports, and scientific data in connection with his research work. He expresses his sincere gratitude to the interviewees, family members of the farmer for their sincere cooperation during the field work of the research.

Finally, Nazrul Islam, his Guru, inspired him with his sincere cooperation. Without his inspiration, he could not venture out to undertake the research. He dedicates this work to his guru Nazrul Islam.

Date: 25/04/2018

Place: Koch Bihar

*Bappa Sarkar*  
(Bappa Sarkar)