Engineering Concerns of Flood

A 1998 Perspective

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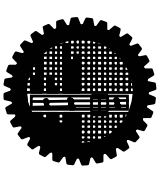

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PREFACE

This book *Engineering Concerns of Flood* has been designed as a reference work on various engineering aspects related to the causes and consequences of flood, which is a very common natural hazard in Bangladesh. Bangladesh is a small country of 147570 sq. km., but has a very large population of about 130 million, majority of whom are poor. The economic condition of Bangladeshi people makes them very vulnerable to the adverse effects of natural forces. It is, indeed, the vulnerability of the poor people of Bangladesh, coupled with the regularly occurring natural hazards like floods, that causes disasters during and at the aftermath of such events. Lack of proper planning and preparedness, poor quality of infrastructure and their inadequate maintenance also add to peoples' sufferings and magnitude of loss.

This book is an outcome of a systematic research initiative that was undertaken by the academics of Bangladesh University of Engineering and Technology (BUET) during and after the 1998 flood that lasted for several months causing havoc to almost every spheres of life. All the research works reported in this book were funded by the Committee for Advanced Studies and Research (CASR) of BUET. A total of 28 research projects covering varied aspects of flood were successfully completed and this book is an edited and summarized compilation of these research works.

The papers presented in this book cover a wide range of topics encompassing almost all the possible engineering, socio-economic and planning aspects of flood. Papers addressing both urban and rural issues have been included in this book. Environmental issues like water quality, water purification, sanitation and solid waste management have been covered. Different aspects of communication and transport sector have been covered including the vulnerability of existing road network, design aspects of roads including effect of inundation on subgrade strength, and economic losses in both road and water transport sectors. Papers analyzing the effects of flood on flood protection embankments, groundwater recharge, morphology of rivers, and performance of flood control and drainage projects have been included in this volume. Damages and losses in various sectors including those in industrial sector have been presented. Engineering concerns and prospects related to non-engineered rural houses, alternate power supply as well as role of remote sensing and imagery to assess the environmental impacts of flood have been covered in this book.

Flood is a major problem for Bangladesh. The present book comes out at a difficult time, as the country appears to be heading towards another flood. The lessons learnt from the 1998 flood through the research initiative at BUET, as summarized in this book, may help engineers, planners and policy makers to face future floods more effectively and minimize the disastrous effects.

M. Ashraf Ali, Salek M. Seraj and Sohrabuddin Ahmad, Editors

FOREWARD

I am very happy to note that the Directorate of Advisory, Extension and Research Services (DAERS) is publishing the compilation of research works conducted at BUET on various engineering as well as socio-economic aspects of flood. Right after the devastating flood in 1998, the BUET authority under the then Vice Chancellor Professor Dr. Iqbal Mahmud launched a research program on various facets of flood. At the end of the respective studies, researchers of BUET submitted a total of 28 research reports. *Engineering Concerns of Flood: A 1998Perspective* is the edited and summarized version of all the studies that were conducted under the funding provided by the Committee for Advanced Studies and Research (CASR) of BUET. I have my special thanks to Professor Iqbal Mahmud for initiating the research on such an important issue like flood, which affects the life and economy of Bangladesh in many ways. My thanks go to the editors who have successfully completed an otherwise very difficult job.

I am confident that the contents of *Engineering Concerns of Flood* will form a strong foundation for further research and help Bangladesh combat and cope with natural calamities in the future. I wish this book will be of immense benefit to the people and to the Government of Bangladesh.

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