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**ANNOTATION OF
SOCIAL SCIENCE LITERATURE ON
NATURAL DISASTERS
IN BANGLADESH**

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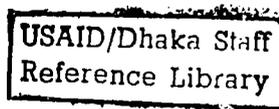
Introductory Note

This book arose principally because Dr. Nurul Alam suggested the need for it and his readiness to do it. His suggestion came at an opportune moment, however. PACT Bangladesh/PRIP and ADAB have been collaborating on disaster preparedness training and materials production since early 1989 and were regularly frustrated by the fact that there was no central repository of information on disasters in Bangladesh, nor any guides to the valuable work that had already been done. There is still no Bangladesh Disaster Preparedness Centre - but at least there is now a list of the relevant materials, at least from the social science perspective.

The books in the book lists in Chapter 3 are to be found in the ADAB Library where back issues of the valuable journal "ADAB NEWS" can also be found.

In order to keep this bibliography up to date, we ask all readers who know of other material that should be inserted in this bibliography to forward such material to Dr. Nurul Alam at his Jahangirnagar University Address. PACT Bangladesh/PRIP is ready to bring out yearly editions until a Bangladesh Disaster Preparedness Centre is created at which time we would be happy to pass over the work to such a body.

PACT Bangladesh/PRIP



PREFACE

This annotation of social science literature on natural disaster in Bangladesh has been prepared with the financial support of PRIP/IVS, Dhaka. I am thankful to Mr. Richard Holloway, Coordinator, PRIP and his staff for their help and cooperation during the preparation of the report.

The idea of preparing an annotated bibliography came to my mind when I was preparing a country paper on Social Science literature on Disaster in Bangladesh for presenting at the Seminar on Research on Socio-economic Aspects of Disaster in the Asia-Pacific Region held at the AIT, Bangkok, on March 1988. Mr. Everett Ressler of ADPC was extremely enthusiastic and introduced me to Mr. Holloway at Bangkok. Mr. Ressler greatly encouraged me to undertake the job and complete it as quickly as possible. Dr. Bruce Currey, Programme leader, HRDP, Winrock International, Dhaka, helped me not only with getting access to literature from his library but also with advice and support which he unhesitatingly provided during the preparation of the report. In fact, some years back, I became interested in disaster research due to constant encouragement and support by Dr. Bruce Currey.

In preparing the report many persons helped me by providing literature and also by advice and support from time to time. In this connection, I would like to mention the names of Dr. Edward Clay, Director, Relief and Development Institute, UK, Dr. Hugh Brammer of UK, Dr. John Rogge, Professor of Geography, University of Manitoba, and Dr. Russell Dynes, Director, Disaster Research Centre, University of Delaware, USA who gave me support and valuable advice. I got access to different back issues of the journal "Disasters" through Dr. Clay. I could not have got access to many literature published in North America on riverbank erosion and flood without the help of Dr. M.Q. Zaman of University of Lethridge, Canada. I greatly appreciate his cooperation. Dr. C.E. Haque of University of Manitoba also sent me some publications from Canada. Al Jahangirnagar University, Dr. Maudood Elahi, former Dean of Social Science and Professor of Geography encouraged me to pursue the work seriously and helped me with many publications from his collections.

I also appreciate the support and cooperation of staff and officials of many organizations who helped me with their publications. At the same time, I was also disappointed by the protective attitude of some in letting us use their publications. My research assistant Rabeya Roushan did a good job in tracing materials from different sources.

The field of disaster research is new. The literature is few, untraced and scattered. It therefore, needs time to make the work like this most exhaustive. Only just two weeks back, I got some materials from North America and many more will be coming. Given the time, I tried to make this annotation as exhaustive as possible. Any omission is regretted. I would appreciate if any body notices any significant omission and kindly bring this to my attention for inclusion in future.

For the last one month, I was totally engaged in completing this work. I could hardly give any time to my two little sons Noton and Shovon who were always wondering, "Abbu tomi Eto Ki Koro" (Father, what are you doing all the time?). My sons were inquisitive but not impatient. I owe to both of them as well as to their mother for understanding.

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S. M. Nurul Alam
September, 1990

CHAPTER 1

INTRODUCTION AND METHODOLOGY

This annotated bibliography has been prepared in the background of tremendous interest on research on disaster related issues specially after the 1987 flood of Bangladesh. The emphasis of this work is on annotation of literature to convey what is there in a particular work. No attempt is made to make an analytical or critical review. This is not what is intended and stipulated in the objective and terms of reference of the work. It is felt that there is need to collect and annotate these publications for access by NGOs, donors and researchers not only for understanding the problems from socio-economic perspective but also for helping the NGOs in their attempt to design programmes for disaster preparedness.

Natural Disaster in Bangladesh

Bangladesh is one of the most disaster prone countries of the world. Almost regularly, Bangladesh experiences different types of natural disaster both natural and man-made. These include flood, famine, cyclone, drought, tidal-bore, pest-attack and riverbank erosion. During the period of 1960-81, Bangladesh has been struck by at least 63 different types of natural disasters of various intensity. Among the various types flood is unquestionably the most recurrent and devastating kind of natural disaster in Bangladesh. Any abnormality in water level caused by excessive rainfall, may cause flood from normal to abnormal intensity. The annual flood effected areas usually varies between 25,000 sq. km. to 40,000 sq. km. The flood vulnerable area is much large. Experts estimate that out of the total of 1,42,777 sq. km., 82,088 sq. km. (58%) area is flood vulnerable in Bangladesh. Another estimate says that the onrush of water from upstream drainage areas could create havoc by flooding about 80% of the country. In the last thirty five years since 1954, there were 28 occurrence of flood, out of which 11 floods were devastating and 5 were most devastating.

Besides flood, Bangladesh is also subject to several tropical cyclones which generally originate in the Bay of Bengal. Cyclone in Bangladesh occur in April-May and October-November periods. Between 1960 and 1986, Bangladesh has been struck by 33 cyclones of which seven were most severe. Every year

northwesters also cause significant damage to life and crops. Lack of rainfall cause drought that significantly effects normal agricultural operations. Pest attacks are infrequent but not rare. When there is a pest attack, crops of thousands of acres of land are damaged putting the farmers in a helpless situation. It should also be mentioned that floods cause enormous shifts in river course and widespread bank erosion causing dislocation to rural peasant population. It is estimated that annual riverbank erosion cause dislocation to an estimated one million population, many of them permanently. The demographic and socio-economic consequences of the problem are far reaching and often enormous.

Natural disasters not only bring immense suffering and misery to millions of the people but also triggers a whole set of mechanism that effect the economic and social life of people in a variety of ways bringing many changes. These changes have both short and long term socio-economic implications which require indepth analysis and study. Social scientists can play a vital role in this field which is hitherto an unexplored or a little least explored field.

Social Science Research on Disaster

Inspite of the importance of research on natural disaster, the interest of social scientists on disaster related issues and problems is a recent phenomena. Until recently, for example, the problems of flood have been handled solely through structural methods without giving due attention to non-structural and traditional methods that people use to cope with the situation. It is important that attempt should be made to understand the problem from the insider's (or people's or actor's) point of view who are the actual sufferers during and in the aftermath of natural disaster. This may be considered a priority and a precondition for formulating any flood control and disaster preparedness programmes whether by government or by any non-government organizations.

In the past, little or sometimes sporadic attempts were made to understand the human and other problems associated with natural disasters. However, after the devastating floods of 1987 and 1988, significant interest has been generated in research related to natural disasters. Many papers were published, written and presented in meetings and a good number of studies and evaluation reports were completed. Numerous articles were also published in the news papers and weeklies. Many works are available in mimeographed form and are scattered in several places. No systematic attempt has been made to complete these

works and to prepare an annotated bibliography. Given the reality that whatever is done in this field, a literature search, a collection of relevant literature, an annotated bibliography and a repository of such literature at a common place making these accessible to all will be useful for understanding disasters and also for undertaking further research and for programmes for preparing disaster control and preparedness.

Objectives

The purpose of this work is: (1) to assemble all social science literature on the topic of disaster in Bangladesh from both overseas and local sources in one place accessible for NGOs in Bangladesh, and (11) to provide an annotated bibliography on these materials to be distributed to NGOs. A further objective is to list and source technical literature on disasters.

Methodology

What is social science literature ?

We had difficulty in deciding what to include within the purview of social science literature on disasters. The problem is, if we limit our choice of literature within strict or narrow definition of social science, then we will end up with few titles which can be termed as social science. The question is - can we include evaluation reports, or a summary of NGO activities or agricultural rehabilitation programmes or Government flood reports within the purview of social science literature ? This is a justifiable issue and need clarification regarding how and what we included within social science literature.

We took a very broad view of social science. Besides clearly defined social science work, we also included reports concerning NGO activities, evaluation reports, government reports, government programmes, flood control and drainage programmes within the purview of social science. Although some of these do not fall within social science definition but have strong social science bias and many issues in these reports are illuminating provide a good data base for further analysis. So, the report should be read keeping this particular point in mind.

How is the Annotation Done ?

We thought that the main purpose of this report is to convey the message of a particular work in a most effective way, so that the interested persons can find the relevant literature for their purpose. We did this by summarising the main issues and the themes in our own language. In many cases, we also used extracts or full sentences from the originals, so that the main theme is properly conveyed and is not distorted. In this consideration, this annotated bibliography may not be original but it is unique in the sense that this is a first work of this type in Bangladesh.

Literature Search

We made an extensive search in locating relevant literature both in and outside Bangladesh (A list of organizations/person contacted is given in the Annexure 5). The author also made some personal contacts. We got a list of disaster literature on Bangladesh, from the Asian Disaster Preparedness Centre (ADPC), at the AIT, Bangkok. We choose the most useful titles and procured them locally or through our friends from abroad. We did not get any reply from the University of Wisconsin in the USA. Our friends in Canada were extremely helpful in supplying the riverbank erosion papers published and available in North America. Even we received some dissertation abstracts and abstracts of papers selected for presentation in different professional meetings. We also contacted editor, "Disasters" and also Director, Relief and Development Institute, London, and Director, Disaster Research Centre, University of Delaware, USA.

Locally, we contacted various NGOs, individuals, and research organizations. We could not locate much from the NGOs. Many of them do not have anything but those who have appear to be very protective but friendly. Mention must be made of ADAB News. Since inception this journal is doing an excellent job by regularly publishing general reports, short notes, conference briefs, articles, and summary of NGO relief and rehabilitation activities. We made an exhaustive list of these writings and presented this through annotation in this report. We feel that we are more or less exhaustive in our listings but do not rule out the possibility of omission which is unfortunately inadvertent.

Layout of the Report

Including this introductory section, the report has seven chapters. The second chapter contains a brief discussion on salient features, gaps and future research priorities on disasters. The third chapter includes annotation of disaster literature by type of disasters. This chapter begins with an annotation of general social science literature on disaster in Bangladesh followed by annotation on flood, famine, cyclone, drought and riverbank erosion. This section is followed by six annexures.

CHAPTER 2

SALIENT FEATURES AND FUTURE RESEARCH PRIORITIES ON DISASTER

The preparation of an annotated bibliography of the nature we presented in this report, do not give much scope to make indepth comments on the nature and type of works, major gaps and also in suggesting future research priorities. However, we will make a few preliminary comments on this issue that might give the reader some idea about the current status of disaster research in Bangladesh.

Salient Features

In all we reviewed a total of 218 titles. These include conference briefs, seminar/conference papers, research, evaluation and donor reports, working papers, journal articles, books and consultancy reports. These materials are prepared by professionals/ persons representing a variety of disciplines that include geography, economics, sociology, anthropology, engineering and water resource experts. The areas they covered were diverse and the methodology they adapted were different. We could discern from the literature that in Bangladesh research on natural hazard was initiated in the early 1970s by a geographer of Dhaka University. The study was conducted on human adjustment to cyclone in Char Jabbar of Noakhali district. Many articles and working papers were prepared from this study. These publications relate to hazard perception, human adjustment of cyclone hazard and strategy of human occupation. Later on many geographers became interested in hazard research. Until today geographers remain the leading social scientist group in Bangladesh to conduct research on natural disaster. Economists, sociologists and anthropologists entered this area of social science research only recently.

Another significant addition in disaster research in Bangladesh is the recently completed Riverbank Erosion Impact Study (REIS) project. The project was different from the previous ones because for so long hazard research in Bangladesh has been conducted from the perspective of a single discipline and multidisciplinary perspective has been lacking. The REIS project was truly an interdisciplinary project which included scholars from various relevant fields e.g. geography, hydraulics, hydrology, population studies, economics, sociology and anthropology. The two main objectives of the project were: 1) to evaluate the long term trends, of river channel migration in

order to develop some forecasting techniques to be used by rural planners, and also 2) to assess the socio-economic and demographic impacts of the annual population displacement and develop from this assessment some policy planning guidelines and strategies which can reduce the dislocating effect and, in doing so, contribute to national rural development process. Indeed, this was a significant departure which we noticed while reviewing the literature on natural disaster. Many working papers, conference papers, reports, journal articles, and book chapters were published from this project. We have included most of these in our annotation.

After the 1987 and 1988 floods, we noticed a significant interest in research on disaster related issues especially flood. But these were conducted in a very disintegrated and scattered manner. Numerous workshops, seminars and conference papers were produced and presented. There was hardly any serious attempt to collect the papers and bring proceedings. It is sad that no systematic and well designed programme has been chalked out to organize the social scientists in disaster related research.

In most works we did not notice any uniformity in methodology. Many of the studies and research were conducted without any methodological rigour. The main emphasis was on survey method. Many works are based on secondary sources while others are impressionistic. Qualitative component and understanding of the problem from the insider's point of view was not given proper attention. Therefore, some of the works suffer from serious methodological shortcomings.

Future Research Priorities

Most of the works that we mentioned are typical descriptive and impact study which aimed at determining the causes of flood, nature and extent of damage, adjustment strategies of people during and after the natural hazards and also evaluation of relief and rehabilitation efforts. There are some exceptions. In general, no attempt is made to understand the changes and the processes of change over time. The analysis of data are in most cases static, i.e. "Flood 1987", effects of 1987 Flood", etc. The crux of the issue is that it is forgotten that a farmer "A" who faced and survived the 1984 flood, may not be in a similar condition when he was effected by 1988 flood. Significant changes might have occurred in the village X since it was effected by 1974 flood. Therefore the emphasis here is that we need to collect and store information that may act as a bench-mark later and compare these and discern the changes and processes of change

resulting from natural disaster. We cannot just say that natural hazards are accelerating pauperization in Bangladesh unless we understand the process of pauperization. In other words, we need to collect, store, compare and analyse information that are gathered over a period of time in order to understand the process of change. Here, we emphasis the need for longitudinal studies on disaster related issues.

Future social science research on disaster can include many issues of vital national importance. In fact, social scientists may act as providers of valuable information to planners and policy makers to plan and also to select strategies that will not only acclerate development but will also prepare people to live with flood. Keeping in view the issues covered in the literature, we suggest that the following themes in any research on natural disaster in future:

1. Disaster perception (How people conceptualise disaster and what are the factors that effect perception ?)
2. Study on natural disaster to identify the immediate and long-term impacts. The emphasis should be on the changes and processes of change.
3. Logitudinal study comparing information with a bench-mark year to identify the changes overtime due to natural disaster.
4. Impact of various FCD and FCDI projects and their implications for environment.
5. Attitude of rural households toward jhoki (risk) and bipod (danger) and their perception on this two concepts.
6. Surivival Strategies : How do people decide to adapt a particular strategy ?
7. Choice of crops. How far is the choice effected by natural disaster ?
8. Attitude of people toward state, government and NGOs during and in the aftermath of natural disaster.
9. Role of NGOs in the relief and rehabilitation programme and a comparison of NGO activities with government activities.
10. Impact of flood control programmes on environment.

We proposed the above list of issues as a very tentative one. We feel that a proper identification of future research priorities would require indepth analytical review of existing social science literature.

CHAPTER 3

ANNOTATION OF SOCIAL SCIENCE LITERATURE ON DISASTERS IN BANGLADESH

3.1 GENERAL LITERATURE ON DISASTER

Aall, Cato, 1979: Disastrous International Relief Failure- A Report on Burmese Refugees in Bangladesh from May to December 1978. Disasters, Vol. 3, No. 4, pp. 429-434

The paper provides some facts and figures of the relief operation of Burmese refugees in Bangladesh. It is pointed out that as many as 10,000 (7,000 of them children) died due to misunderstanding, inefficiency and incompetence in the cooperation between the government of Bangladesh and the participating UN organizations as well as inadequate decisions and choices of action. The author identifies some lessons which he argued should be kept in mind in order to avert such a disaster.

Key words: Disaster/ International support/ Relief failure/ Ration/ Food shortage/ Malnutrition/ Death

ADAB News, 1977: Relief versus Development. Vol. IV, No. 4, April, pp. 1-9

This part of the report is based on a paper prepared by David Morris on "Weather Instability, Food Scarcity and Famine Policy". According to him three types of policy i.e. increase in average stability of agricultural output, increase in crop yields and migration can reduce the burden of weather cycle. The emphasis of relief activity should not be on relief rather it should be on how the narrow focus on agriculture through work relief can be expanded for the rural sectors productivity. It is further pointed out that if famine policy is to be linked successfully with economic development, the existing ground rules for selecting projects must be changed. It is suggested that the allocations to public health, skill creation, and literacy campaign could leave larger residue of development benefits than what is now done.

Key Words: Disaster / Relief / Development/ cost effectiveness/ Relief policy

Alam, S.M.Nurul, 1989 : Social Science Research on Disaster in Bangladesh: A Review of Existing Social Science Literature and Research Effort. A Country Paper Presented at the Seminar on Research on Socio-economic Aspects of Disaster in the Asian-Pacific Region, held at the Asian Institute of Technology, Bangkok, Thailand, March 22-24, 1988, 34p.

The paper has three parts. First part contains a brief resume of different types of natural disaster that Bangladesh faces from time to time. A brief critical review of the existing social science literature and research effort has been presented in the second part. The paper concluded with a discussion regarding the limitations and the gaps in knowledge of the existing social science research on disaster and also the author's thinking on the future needs and objectives.

Key Words: Disaster / Social Science Research / Literature

Amin, Nurul A.T.M., 1989 : Public Policy Priority for Hazard Management in Bangladesh. A Paper Presented at the 23rd Bengal Studies conference held at the University of Monitoba, Winnipeg, Canada, 9-11 June, 1988. 21p.

In this descriptive and suggestive article the author argued for a public policy for management of hazards, identifying several priorities. A description of social and political awareness of hazard consequences can be found which is followed by an analysis of hazard management and public policy in perspective. The author also discussed the various measures for a comprehensive approach to hazard management . It is argued that there is a clear need for interventionist policies and strategies for hazard prevention and mitigation to facilitate alteration of the low level equilibrium trap. Resources for these interventions cannot be generated from within but from outside Bangladesh.

Key Words: Hazard management/ Awareness/ Hazard consequences/
Public policy/ Priority

Brammer, Hugh, 1980: Disaster Preparedness for Farmers - A Methodology. Disasters. pp. 140-144.

The author provides a methodology and framework for disaster preparedness for farmers. The role of government and the information required for this were delineated. It is further revealed that the agricultural contingency plans should be

specific considering the local cultural and socio-economic as well as the environmental factors. The main features of Bangladesh Drought Code and Flood Cyclone code have been outlined. In the conclusion, the author emphasises four elements that are considered essential for introducing a national system of agricultural disaster preparedness planning. The importance of training has been also recognised.

Key Words: Disaster preparedness/ Government's role/ Information/ Disaster Code/ Bangladesh

Brammer, Hugh, 1979: South Asia Disaster Preparedness Seminar. ADAB News, Vol. VI, No.4, April, pp. 23-24

This is a report on South Asia Disaster Preparedness Seminar held in New-Delhi from January 1 to 1 February 1979. The list of issues covered in the seminar were included in the report. From the experience of the seminar it was recommended that national and regional seminars on disaster preparedness should be organized to stimulate greater interest on the subject.

Key Words: Seminar/National and regional/Disaster preparedness.

Brammer, Hugh, 1979: Disaster Preparedness Precautions Against Water Shortage, ADAB News. VI, No.11, November, pp. 20-21

The author suggested some measures to help the farmers who are faced with a shortage of irrigation water. Farmers should be given warning and helped whether there will be a shortage of water or not. In case of possibility of water shortage, some measures should be taken to organize supplementary or alternative methods of irrigation. Farmers should be advised to grow crops which need less water.

Key Words: Water shortage / Irrigation / Disaster/ Alternative crops

Chambers, Robert 1987: Issues in Agricultural Rehabilitation. Disasters. Vol. 11, No. 1, p.3

This brief note emphasises that the main issues in agriculture rehabilitation is how to enable households to gain or regain sustainable livelihoods in the face of disaster. Besides this,

three other related issues are also identified: re-establishment or resettlement, disaster-proofing, sustainable self-reliance and safety nets. An elaboration of these issues are also provided.

Key Words: Rehabilitation/ Disaster/ Livelihoods

Chen, Lincoln (ed.), 1973: Disaster in Bangladesh. Oxford University Press, New York

Although the book is titled as Disasters in Bangladesh, this is basically a book about health and other related issues. The book has two parts. The first part which contains eight articles presents background description of health problems relating to population increase, nutrition and infectious disease, their spread and control. The second part which focused mainly on the theme has eight pieces. These emphasises on the health crises precipitated by one man-made (civil war of 1971) and one natural (cyclone of 1970) disasters. According to the editor the aims of this volume are: 1) to present the critical health issues confronting Bangladesh, 2) to examine scientifically the effect of disasters in Bangladesh, and 3) to analyze the lessons learned from the disaster relief experiences as they may apply to the future. The authors of the articles in the book derived the information from their own research and experience in Bangladesh. In fact, all of the contributors have lived and worked in Bangladesh. For this reason the articles of the volume appear both intimate and informative as well.

Key Words: Disaster/ Health/ Population/ Disease/ Nutrition/ Refugee/ Relief/ Famine

Chen, Lincoln C. and Robert S. Northrup, 1973: Framework For Disaster Relief In Lincoln C. Chen (ed.), Disaster in Bangladesh. Oxford University Press. pp. 257-274

An attempt is made to provide a framework and offer a constructive approach to effective relief planning and administration for future disasters in developing regions of the world. The framework for disaster relief is divided into several components. First, the authors emphasised the need for pre-disaster planning. Through disaster planning it is possible to identify disaster prone-regions, coordinate warning systems against natural disasters, provide background information on local conditions, and offer contingency plans. Other components are : field assessment, relief operations under peaceful

conditions, relief during military conflict and finally rehabilitation and development. Through this paper, the authors drew attention to the gamut of issues related with relief and how relief can be made more useful, effective and development-oriented. In the conclusion, it is pointed out that relief is not a static process on the contrary, many new techniques, innovations, and institutions may be introduced during relief operations and old ones are strengthened.

Key Words: Disaster/ Relief/ Planning

Chisholm, Malcolm, 1978: Lessons from a School Building Project, and Refugee Relief Operations-Bangladesh - 1975-77, Disasters, Vol. 2, No. 2/3 pp. 148-151

Two separate experiences one from a school building project implemented by UNICEF and Swede and the other is the refugee relief operations in 1975-77 in a border district is the subject matter of this article. It is mentioned that due to improper design, inadequate foundation depth, reinforcement and constructions and lack of proper supervision many of these constructions have become disasters in themselves. In most cases, dual purpose of public buildigs both providing community facilities and as places of refuge is often overlooked. Regarding relief operations, it is pointed out that the actual need of the people is not always assessed. It is important that every single need for example, shelter, must be seen in terms of part of the total needs of a refugee. Nine lessons from relief operations were identified. The paper ends with an indirect appeal (to donors and development practioners) to use wisdom, with little less arrogance and show more respect for the people and culture of various countries.

Key Words: School/ Public building/ Community facilities/ Refugee/ Relief/ Need assessment

Crow, Ben, 1978: Why are the Ganges and Brahmaputra Undeveloped ?- Politics and Stagnation in the Rivers of South Asia. Journal of Concerned Asian Scholars. Vol. 10, No. 1 pp. 35-48

The importance of the Ganges and the Brahmaputra rivers in the life of 800 million people who live in the basins was discussed. It is pointed out that the coordinated development of the resources of the two rivers could bring prosperity to the region, which has been, however, precluded by the intergovernmental dispute over the sharing of the Ganges water. The article provides the history of the Ganges water-sharing

disputes, its origins and the way it has been conducted. A description of the causes of dispute can be also found in the beginning of the article. In other words, the paper reveals the political economy of water disputes relating to two mighty rivers of South Asia.

Key Words: Rivers/Water dispute/Flood/Politics/Bangladesh.

Crow, Ben, 1989: Crisis and Foodgrain Markets in Bangladesh. Notes for a Talk at the Workshop on Crisis and the Rural Poor. School of Oriental and African Studies, 12 May, 12p.

The paper provides a brief sketch about the structure of foodgrain markets from an on-going research and how these effects the dynamics of crisis in foodgrain distribution. Four Points about crisis and foodgrain markets were elucidated. These are : crises has to be understood in the context of the four systems of foodgrain distribution; crisis will have different implications in backward and advanced areas; a household's access to food may be determined by the conditions under which that household participates in grain markets and the relationship between the state and the private markets. It is also pointed out that the households ability to survive in a crisis depends on the dynamics of the system on which they depend on for food. Several causes of crisis were identified. These are : natural disaster (flood, drought and cyclone), social collapse (civil strife, political upheaval) and economic collapse. These crises have different effects on the food system. The author also describes the operation of usurious credit hierarchy and its influences on the formation of foodgrain prices. An analysis of the history of relations between Bangladesh government and the grain trade can be found in the paper.

Key Words: Crisis /Foodgrain markets / Distribution system / Exchange /Disaster / Credit relations / Food prices / Bangladesh

Currey, Bruce, 1988 : Natural Disasters and Micro Computers - A Long Term View. Draft for Discussion. September 27, 1988, American International School, Dhaka, 8p.

In this article, the author proposes for using micro computers for disaster monitoring on continuous basis. It is further pointed out that the proposed network of analysis, computers and study sites may be coordinated through HRDP (Winrock). A Social Science network will involve, a) on farm

research sites, b) village study sites, and, c) NGO villages in vulnerable agroecosystems. It is felt that this kind of monitoring will fill the gaps of knowledge of policy makers during and after the natural disasters when some vital information is needed for policy purposes.

Key Words: Disaster / Monitoring / Computer / Network

Currey, Bruce, 1982: Issues in Evaluating Food Crisis Warning Systems. Food and Nutrition Bulletin, Vol. 6, No. 2, pp.7-17

This is a paper on food crisis warning systems in Asia. It is based on author's experience from evaluating food crisis warning systems from the two predominantly rice growing countries of Asia. The countries are Bangladesh and Indonesia. An attempt is made to provide a conceptual framework for judging whether a food crisis warning system will be effective. The author also identifies nine criteria for judging any food crisis warning system and also provides a new paradigm for evaluating food crisis warning systems. In the conclusion, it is felt that the article may provide the basis of a first check-list for an evaluation handbook for many warning systems that are likely to be set up in the regions.

Key words: Food crisis/ Food system/ vulnerability / Warning system

Cutler, Peter, 1985 : Detecting Food Emergencies - Lessons from the 1979 Bangladesh Crisis . Food policy, August 1985, pp. 207-224

The 1979 drought and the consequent food crisis that created an almost famine like situation were discussed. Although the 1979 crisis was extremely serious, much of the work on Bangladesh's vulnerability to food emergencies have centered around 1974 famine. Using tables, diagrams and charts the author outlines the main features of 1979 crisis. Various macroeconomic indicators and the degree of their usefulness were revealed. The indicators are : food availability, retail prices of rice, and wage price indices. The author also considers the state responses to crisis. It is further pointed out that there is a strong need for a central early warning unit for arresting the emergence of a food emergency and also for better managing the crisis.

Key Words: Drought/ Famine/ Food emergencies/ Food availability/ Wage price/ Early Warning/ Bangladesh.

Gomes, Ruben, 1986: Relief and Self-Help. CARITAS-Bangladesh. August 1986, 15p.

The paper is written with the objective of demonstrating that the poor and uneducated people are capable of facing disaster with their own resources if they are organised and given proper guidance. Four case studies on the experience of CARITAS and of Association for Social Advancement (ASA) on relief and rehabilitation programmes were used. The case studies are : Flood recovery programme, Flood and tornado recovery programme, Cyclone rehabilitation activities and also Drought recovery programme. The experience of case studies although varied, however, it becomes obvious that under certain circumstances relief became necessary and even unavoidable.

Key Words: Disaster/ Relief/ Self help/ Beneficiary/ Case study

Greenough, William b. and Richard A. Cash 1973: Post Civil War in Bangladesh - Health Problem and Programmes. In Lincoln C. Chen (ed.), Disaster in Bangladesh. Oxford University Press, pp. 241-256

The impact of civil war on health and other problems that were generated during the period of war were the subject matter of this article. It is pointed that most significant impacts of war on health have been revealed through malnutrition, disease and consequent high mortality due to disruption of the basic needs of food and shelter. A description on post-war health programme regarding what was done and could be done is given in the paper. In the end, the authors drew attention to three major health problems that were needed to be addressed on priority basis. The problems are: over-population, malnutrition and infectious diseases.

Key Words: Civil war/ Health problems/ Overpopulation/ Malnutrition

Islam, Aminul M., 1986: Alternative Adjustment to Natural Hazards: Implications For Bangladesh. Presidential Address. Bangladesh Association for the Advancement of Science. Rajshahi University, March 2-6, 15p.

Alternative adjustment strategies to natural hazards and their implications for Bangladesh were suggested. The paper starts with a general description of different types of natural

hazards as extreme events, the growth and the development of hazard research in USA and Bangladesh. The author then discusses the flood hazard and coastal hazards in Bangladesh focusing on the various measures undertaken to mitigate these two hazards. It is pointed out that the behavioural aspect of flood hazard from the public policy point of view has been ignored. Reliance on a narrow range of adjustments and employment of technology without knowing its social effects contributed to the increase of losses from natural hazards. Three possible types of natural hazard adjustment have been identified i.e. Folk or pre-industrial, modern technological, comprehensive or post industrial adjustments. In the last section of the paper, the author provided a methodology for developing a comprehensive hazard damage reduction programme. In this methodology, he identifies the stages as well as the possible types of adjustments for the flood damage reduction plan.

Key Words: Natural hazards/ Extreme events/ Hazard research/ Adjustment decision/ Damage reduction/ Comprehensive hazard/ Damage reduction/ Bangladesh

Islam, M, Aminul and Howard Kunreuther, 1973: The Challenge of Long Term Recovery from Natural Disaster - Implications for Bangladesh. *Oriental Geographer*. Vol. XVII, No. 2, pp. 51-62

An attempt was made to develop a methodology for coping with the natural hazards. This suggestive methodology is based on the earlier works of economists and geographers. It is emphasised that the economic and geographic effects of the particular disaster through proper survey should be understood before a reconstruction programme can be fully appreciated. Underlying the discussion is the implicit assumption that the government will bear a substantial portion of the recovery costs. In this paper, disasters have been viewed as a public responsibility and therefore, it is suggested, its costs should be shared by all tax payers. Due to this, disasters recovery programme represents both a challenge as well as an opportunity to the concerned governments. Several possible types of adjustments and stages in the development of a long run recovery programme have been identified. Then the authors applied the methodology to the development of reconstruction programme for the coastal areas of Bangladesh effected by tidal surges and often violent cyclones.

Key Words: Disasters/ Long-term recovery/ Adjustments/ Economic and social effects/ Reconstruction

Khan, Abdullah Al-Mamun, 1973: Geographic Research on Natural Hazards. *Oriental Geographer*, Vol. XVII, pp. 94-103

The history and development of geographic research on natural hazards in Bangladesh and elsewhere in the world was discussed. This is mainly an inventory on what is done by geographers on natural hazard research in the last 50 years or so. Geographic research was mostly initiated in USA. Gilbert F. White was the pioneer in this respect who mostly concentrated on floods. However, the basic research paradigm was formulated at the University of Chicago in 1956 as a result of the flood studies which was later extended to new hazards like drought, coastal storms, snow hazard and tsunami. International collaboration on hazard research was sponsored mainly by the International Geographical Union (IGU) Commission on Man and environment. IGU played a very crucial role in natural hazard research in the world. In Bangladesh, human ecological research on natural hazards was initiated by an eminent geographer at the Dhaka University where research on human adjustment to the cyclone in a char was conducted under the IGU sponsorship. It is obvious from the paper that hazard research was mostly conducted by geographers and researchers from other fields have yet to show their interest in the field. The author concluded with an observation that the collaborative programme of natural hazard research should be continued and extended to other areas.

Key Words: Natural hazards/ Research/ Geography/ collaborative research

Myers, Desaix, 1973: Civil War in Bangladesh - Relief Planning and Administration in an Insurgency Situation. In Lincoln C. Chen (ed.), *Disaster in Bangladesh*. Oxford University Press, pp. 206-224

Given the various constraints in administering relief activities in Bangladesh situation, the author discusses some difficulties encountered in trying to plan and administer relief during war in Bangladesh. In the beginning, background of disaster planning and existing framework of relief administration in Bangladesh have been discussed. Later actual problems faced during insurgency were described. It is pointed out that out of the three main problems i.e. planning, transport, and distribution, the latter two proved to present insurmountable problems. In such situations donors can offer three things, relief supplies, transport and planning. It is then pointed out that planning is the easiest and most likely to have some success in an insurgency situations.

Key Words: Relief/ Planning/ Administration/ Civil War/Insurgency

Nazem, Nurul Islam, 1988: Management of Environmental Disaster in South Asia - A Regional Approach. BIISS Journal. Vol. 9, No. 3, pp. 340-370

The author gives a general overview of environmental disaster with a description of the origin, nature and types of disaster in South Asia. Flood, cyclone, drought and riverbank erosion have been considered as the major types of disaster. The intensity and the extent of damage is not same for all countries. The author also discussed the impacts of natural disaster under the headings of economic, social and political impacts. The last section contains analysis toward an approach to disaster management with an emphasis on the need for a comprehensive regional approach. The paper concluded that the measures for disaster management in all stages including planning, designing and implementation at the regional levels should be coordinated as a part of an integrated regional system in order to ensure long term viability and effectiveness.

Key Words: Disaster Management/ Regional approach/ Flood/ Drought/ Cyclone/ Impacts/ South Asia

Rahman, Atiur, 1990: Human Response to Natural Disasters - Issues Involved. Paper for Discussion in the Joint Government/ UNDP Organised Brainstorming Session on Disaster Preparedness and Management. 9-10 January, 1990, Dhaka, 45p. (mimeographed).

Many issues of human response both theoretical and practical were highlighted. Conceptual issues relating to absorption, acceptance, reduction and the real response found at the individual, social and public levels were also discussed. Individual response varies due to difference in the socio-economic background of people. Some response may be spontaneous, while others are due to moral reasons and even there may be some who do so with an opportunistic motive. During the 1988 flood responses from all quarters, such as social, governmental and non-governmental were visible. The paper also made a point that people in general are not relief minded but wanted to involve themselves in the development following a disaster. It is further argued that disaster plan should not be seen on piece-meal basis but rather as a continuous process. It must have several components e.g. motivation of people, interorganisational coordination, quick dissemination of information, disaster warning, and also a proper plan for transition from a relief plan to a development one. People's own perception on disaster was

incorporated in one section. The arguments and analysis in the paper have been supported by citing data, information and quotes from various previous studies. The appendix of the paper contains a general overview on natural disaster in Bangladesh- a background which is informative and useful.

Key Words: Response/ Vulnerability/ Capability/ Individual/
Social/ Public/ Relief/ NGOs/Perceptions/Disaster plan

Ressler, Everett M., 1988: Recommendations for A Programme Strategy to Enhance Disaster Preparedness and Emergency Response in Bangladesh. Asian Disaster Preparedness Center, AIT, Bangkok, October 1988, 20p. (mimeographed).

The paper focused on what additional measures can be undertaken to prevent loss of life, avoid or reduce property damage, minimize human sufferings and speed up recovery in subsequent floods. Keeping this problem in mind some core components of disaster preparedness were identified. These are prevention, mitigation, preparedness, emergency response, rehabilitation and reconstruction. Seven strategies with comments for enhancing disaster management capability were also spelled out. This part of the paper contains detail discussion on the necessity of each strategy and how these can be adapted. It is, therefore, mainly an exploratory paper with many recommendations to enhance the disaster management and preparedness in Bangladesh.

Key Words: Disaster/ Management/ Preparedness/ Strategy/ Damage/
mitigation/ Response/ Recovery

Rohde, Jon E. et al., 1973: Refugees in India - Health Priorities. In Lincoln C. Chen (ed.), Disaster in Bangladesh. Oxford University Press. pp. 145-166

Refugee migration often create tremendous health problems. An attempt is made to discuss the refugee migration to India after the 1971 crisis and conditions of camps which were hazardous to health. It is argued that the various health programmes associated with natural disasters can be strengthened by survey, surveillance, and utilisation of existing knowledge. The authors mentioned about a nutrition survey which greatly helped to plan and adopt a nutrition programme called "Operation Lifeline". Many other examples are also cited to support author's arguments. In the conclusion, the authors emphasised

the importance of utilizing existing knowledge in the implementation of health programmes under emergency situations.

Key Words: Civil war/ Refugee/ Health problems/ Survey and surveillance/ Nutrition

Shelley, Feldman and Florence McCarthy : 1983 Disaster Response in Bangladesh. International Journal of Mass Emergencies and Disasters. Vol. 1, pp. 105-124

The central focus of the paper is on the family and its changing forms and functions surrounding the socio-economic and political upheavals and also the environmental upheavals that include floods, typhoons and famine. The author suggested several social consequences of disasters that include increasing landlessness, migration both internal and external, change in wage rate and reduction in the size of landholdings alienating the people from the means of production. All these bring changes in social relations and social institutions that have become permanent aspects of daily life and social structure of the country. It is hypothesised that disasters tend to exacerbate existing trends and patterns of instability or inequality rather than initiate completely new forms of response. Citing examples, the author points out that disasters always attack the weakest link encouraging changes in the society and the economy.

Key Words: Disaster/ Family/ Response

Taylor, Alan J., 1979: Emergency Sanitation for Refugees : Experiences in the Bangladesh Refugee Relief Camps, India, 1971-72. Disasters, Vol. 3, No. 4, pp. 435-442

This paper draws attention to an important issue i.e. emergency for people who are driven out from their country due to civil war and take refuge to another country. The paper outlines some efforts which were made in an attempt to solve some very serious and appalling sanitary problems. Describing the various measures, it is concluded, that the sanitary requirements of people should have to be met whenever they are needed. However, whatever method is chosen should be culturally acceptable, technically and economically practicable, can be cleaned easily and must be capable of being brought into service quickly.

Key Words: Refugees/ Emergency sanitation/ Methods/ Relief camps

Zaman, M. Munir-Uz, 1990: Government Response to Natural Disaster in Bangladesh. Paper for Discussion in the Joint Government UNDP Organised Brainstorming Session on Disaster Preparedness and Management. 9-10 January, 1990 Dhaka, 26p. (excluding maps and charts)

The beginning of the paper contains a brief overview of different types of disasters that Bangladesh experiences from time to time. Three different types of natural disasters i.e. a) floods b) tropical cyclone and tidal surges, and, c) drought were mentioned. It is pointed out that in spite of this the rulers and the administration in various times of history had played important role to rescue the distressed people in the natural disasters. The pattern of disaster management was different but it was always an important component of administrative operations over time. Wide range of activities are included under the term disaster management. The essential elements of disaster management programme had been nicely incorporated in the different codes i.e. famine, flood and drought which exists even to day. In the 1960s and 1970s, disaster management programme included significant decisions regarding the formulation of codes and creation of a number of physical facilities. Gradual increase in the role of NGO indicates a noticeable change in disaster management. The introduction of modern disaster (flood, cyclone) forecasting and warning cell helped the disaster management programme. In the conclusion, the author makes two points : that the organisations and structure of disaster management and rules and procedures governing should not be modified and amended frequently, and 2) in different phases of disaster management peoples' should be properly motivated and their participation should be ensured.

Key Words: Disaster/ Flood response/ Government/ Management/
Disaster Code / Government / Relief

3.2 FLOOD

Abbas, B.M., 1987: Flood Management in Bangladesh. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, PP. 89-96

The paper is written by an eminent flood expert in the background of 1988 flood. It is pointed out that the outstanding feature of the 1988 flood was the synchronization of the peak floods of the major rivers. Other suggested causes of flood with brief comments have been included. The author argues for a

various methods of flood control that have a structural bias. It is felt that flood cannot be controlled without the cooperation from the neighbours of Bangladesh and support from the international community. In the conclusion, a programme of work for flood management in Bangladesh is suggested.

Key Words: Flood/ Causes of flood/ Methods of flood control/ Neighbour's cooperation.

ADAB News, 1989: Dense Afforestation is a Primary Solution to Floods and Tidal Surge. Vol. XVI, No. 8, May-June, pp.26-27.

It is argued that the fury of flood and tidal surge can be substantially controlled by a dense afforestation programme. It is further pointed out that the maintenance of adequate forest cover is an ecological precondition for any country. A novel methodology of intensive afforestation with *lpil ipil* as the primary component for flood control has been proposed.

Key Words: Flood control/ Afforestation

ADAB News, 1988: The 1988 Floods - The Response of ADAB. ADAB News. Vol. 15, No. 5, September-October, pp.20-22.

From this case study, one gets a picture that ADAB not only coordinated but also directly participated in relief activities. Various activities of ADAB during the flood were incorporated in the short article.

Key Words: Relief/ NGOs/ Monitoring/Media

ADAB News, 1988: The Tragedy of Repetition? Vol. 15, No. 5, September- october.

This issue of ADAB News contains five articles relevant to the 1988 floods. These are: 1) The 1988 Floods: The Images of the Apocalypse by Azfar Hussain, 2) Glimpses into the History of the Floods: 35 years by Iqbal Shailo, 3) The 1988 Floods: Sources and Causes: Expert Views, 4) NGO Case studies: OXFAM, CARITAS, and ADAB, 5) Development Possibilities in Flood Prone Areas in Bangladesh by Hugh Brammer. The annotation of each of these articles are given later in this work.

ADAB News, 1984: Floods-'84, Vol.XI, No.6, November-December.

This issue of ADAB news includes several short articles on flood and other natural disaster. The first section (p.2-3, 6), contains ADAB's Disaster Report on 1984 Flood which is based on information furnished by NGOs from 85 Upazilas of the country. It is reported that some Upazilas experienced severe to extreme flood and an estimated 20 percent of the population in these areas were affected. In the 47 percent of the areas people live in extreme distress. The main causes of distress were loss of crops, starvation due to lack of food which is again often due to lack of consumer's buying capacity. The areas of emergency assistance contains mostly meeting the basic needs, such as flood, shelter, medicines, and distribution of agricultural seeds, poultry vaccination and tree plantation. The annotation of each of the articles is given later.

Key Words: Disaster/ Distress/ Population effected/ Exmergeney assistance/Relief

ADAB News, 1977: Man and Water. Vol. 4, No. 1, January, p.19-20

This is an extract reprinted from a FAO publication titled "Man's Influence on the Hydrological Cycle". According to the report man's effort to control hydrology is effected by factors that include ecological, sociological, economic, cultural, political and other factors. Everyday decisions by politicians and economists also effect water resources. Irrigation projects which are also manifestation of man's role affect the hydrological cycle.

Key Words: Man's role/ Hydrology/ Economic, Cultural and Sociological factors/ Technology

ADAB News, 1977: Fertility of Flooded Soils, Vol. 4, No. 2, February, pp. 15-16, 20

This short piece written by Dr. Brammer points out that the popular belief that the fertility of Bangladesh flood plain soils is maintained by silt deposits is a myth. It is further pointed out that the sources of fertility of soils is biological properties that provide nitrogen and chemical properties of submerged soils. This makes phosphorous and the nutrients in solution in the flood water.

Key Words: Fertility/ Flooded soil/ Biological/ Chemical/ Nutrients/ Phosphoros/

Ahmad, Mohiuddin (ed.), 1989: Flood in Bangladesh. Community Development Libreny (CDL). Dhaka.

The book which contains twenty five articles written by twenty five persons gives a more or less general overview of flood in Bangladesh. The articles of the book which are technical and general in nature are divided into five parts: 1) overview, 2) hydrology and morphology, 3) flood control and management 4) structural measueres, and, 5) human interference. Some articles in the collection appear useful and interesting. We provide annotation of all the articles separately later.

Ahmad Mohiuddin, 1984: Deluge in the Delta. In Mohiuddin Ahmed (ed.), Flood in Bangladesh. CDL, Dhaka, pp.3-41

The author discusses flood in Bangladesh with an emphasis on 1988 flood. The article contains a very minute description of 1988 flood. The author also highlights the types of flood, socio-economic impact of flood , causes of flood and also the different flood control measures that were undertaken in the past. It is a general overview of floods in Bangladesh.

Key Words: Flood/Deluge/Types of flood/Causes /Flood control and management.

Ahmad, Mohiuddin, 1988: Deluge in the Delta. Community Development Library, Dhaka, October 1988. 32p.

In just thirty two pages using charts, pictures and graphs, the author not only describes the deluge of 1988 but also discusses the flood in retrospect, causes of flood and even flood control measures. This report which is based on a very meticulous use of secondary sources contains a discussion of how the water rose gradually and also an account of damages and the grim battle that the people fought and survived. One can also get an idea about flood politics from the various statement of political leaders presented in the book. In the section on flood in retrospect the author discusses the types of flood and socio-economic impacts of flood. In the last portion of the report causes of flood and flood control measures are described.

Ahmed, Manzoor, 1989: Food for Work Programme and its Interference to the Drainage System in Bangladesh. In Mohiuddin Ahmad (ed.), Flood in Bangladesh, CDL, Dhaka, pp. 199-212

The main emphasis is on the relationship between Food for Work Programme (FFWP) and the drainage system in Bangladesh. The paper begins with a description of the origin and the growth of FFWP programme, achievements of food for work schemes under BWDB and also the effectiveness of BWDB programme. Regarding the effects of FFWP, it is pointed out that the natural condition of rivers which constituted a series of main branches linked by a complex network of canals has been changed due to man's intervention. In many polders, the initial planning has provided only for the embankment and the regulators with little concern for the system of canals. This has many serious consequences, which the author discusses. Several potential areas where, the FFWP programme can be effectively utilized have been suggested in the conclusion.

Ahmed, Salehuddin, 1988: Socioeconomic Impact of Flood Control, Drainage and Irrigation (FCDI) Projects in Bangladesh - Some Aspects of a Monitoring and Evaluation System. Paper Presented for the International Symposium on the Impact of Riverbank Erosion, Flood Hazard and the Problem of Population Displacement, April, 1988, Dhaka, Bangladesh, 46p.

The Socio-economic and environmental impacts of FCDI projects hardly received due attention from the concerned quarters. This is in spite of the fact that the FCDI projects are likely to play a significant role in the future flood control and management programmes. The author raises some important issues that might be relevant in setting up a comprehensive Monitoring and Evaluation System (MES) of the FCDI projects. For this purpose benchmark data are to be collected and a set of key indicators for monitoring should be identified. The author also proposes to conduct the evaluation of FCDI projects on continuous basis. Formal methods, of data collection (census, survey etc.) should be supplemented by the low cost key informant system. Mostly household level data derived from an on going study of 18 villages are used as illustrations. Some community level data are also cited. The socio-economic benchmark information relating to land ownership, land use, cropping pattern, crop calendar, crop diversity, annual income size and composition, agricultural income of land owners and income of landless, are used in the paper. Negative impacts of FCDI projects on fishery are described. The author even provides some hypotheses on FCDI

impact for testing. It is, expected, that an understanding of the FCDI projects would help to improve planning and management of water resources development in Bangladesh.

Key Word: FCDI/Impact/ Socio-economic /Monitoring / Evaluation / Water Resources

Akash, M.M., 1990: Bangladesh Bonna: Pariperkhit, Karan and Koronoy (Flood in Bangladesh- Context, Causes and Tasks). Samaj Bighan Probondabali, Dhaka university, pp.64-108 (Bangla article)

This is a general type of paper where the author discusses the context and causes of flood and at the same time identifies the future tasks. The context was 1988 flood. It is pointed out that the flood in Bangladesh affects all, although it is different for different categories of people. The discussion of the causes of flood is followed by a discussion on the types of flood. In the next section, steps towards permanent solution and international issues have been highlighted. It is pointed out that although permanent solution to flood is not possible, however, some temporary measures can be undertaken. The nature of such measures will depend upon local and regional situations. Some concrete temporary measures have been proposed. In the last two sections the author presents the steps already undertaken for flood control and also the unsettled international issues.

Key Words: Flood/ Causes/ Impact/ Solution

Alam, S.M.Nurul, 1990: Perception of Flood Among Bangladeshi Villagers. Disasters, Vol. 14, No.4 (Forthcoming)

Perception of flood by some households drawn from two villages is discussed. The article presents data on how the flood victims perceive flood and how far their perceptions conform to reality. The focus is on the perceptions of durjog (disaster), including the causes, nature and types of flood, and of relief. It is revealed that people consider flood as the worst disaster which they classify as barsha (normal flood) and bonna (abnormal flood). The paper concluded with an observation that people are not always seeking relief and there is no evidence of relief hysteria in the study area.

Key Words: Flood/Disaster/Perception/Flood types/Causes Relief

Alam, S.M. Nurul, 1990: Natural Disaster and Rural People in Bangladesh -A Study on the Pattern of Response of Rural Households in Two Selected Villages (mimeographed).

This research report is based on field work in one disaster-prone (flood) and another disaster-free villages located in Comilla and Chittagong districts respectively. The purpose of the study is to compare and contrasts the physical, demographic and socio-economic backgrounds of the people in the two villages and find out how these effects the livelihood and survival strategies. Several strategies are mentioned, such as selling of land and household assets, eating of unusual food, borrowing of money and also temporarily migrating to nearby areas for extra income. These strategies, however, are not different when compared with the survival strategies in the relatively disaster-free village. From this, the study concluded that the main problem in the two study villages is poverty and pauperisation which effect people's survival strategies in many ways.

Key Words: Natural disaster/ Flood/ Rural households/ Survival strategy / Poverty and pauperisation

Alam, S.M.Nurul, 1989: Perceptions of Sugarcane Growing and Gur Production, in Rajoir Upazila, Madaripur District. A Social Anthropology Consultancy for ITDG (UK), Dhaka, August, 1989, 70p.

How natural disaster effect the choice of crop is one of the subject matters of this report. The study was conducted in the aftermath of 1987 and 1988 floods. It is revealed that the farmers consideration of vulnerability to natural disasters is gaining importance in their decision making process of crops. It is pointed out that this is due to experience of two consecutive devastating floods. The two floods in 1987 and 1988 although caused significant damage to many agricultural crops, damage to sugarcane was relatively low, which gave the farmers a big incentive to cultivate sugarcane. The report further shows that the effect of flood also effect the way farmers conceptualise good and bad year.

Key Words: Perception/Sugarcane cultivation/Flood vulnerability Flood damage/Choice of crops

Alam, S.M. Nurul , 1989: A Study of Flood Perception in Some Selected Villages of Bangladesh. A Consultancy Report Prepared for War on Want. Dhaka, September 1989, 62 p.

The study was conducted after the devastating flood of 1988 on some selected households of Dhamri and Manikgonj. The information were collected through a combination of survey and intensive interviews. The homogeneity in the socio-economic backgrounds of respondents have been reflected in the perception of disaster. It is found that the respondents make distinction between normal and abnormal floods. The respondents link their loss with their principal source of income. The study further revealed that people do not consider relief as permanent feature, although many of them think that it is necessary. The past experience of the respondents coupled with their common sense have contributed significantly in the formation of perception. The research report also contains a section on woman's perception of flood.

Key Words: Flood/ Perception/ Types of flood/ Loss due to flood/ Relief

Alam, Shamsul and Dara Shamsuddin, 1988: Bangladesh Bonna, Karon O Er Shahaabastoner Upaya (Floods in Bangladesh: Causes and the Ways to Coexistence) .(In Bangla) Boghul Patrika (Jahangirnager University), No. 7, 1988, pp.1-16

Discussing history of flood control measures and their consequences, lessons from the geophysical, physical features of Bangladesh and the different causes of flood, the authors pointed out that there is no permanent way out of the scourage of flood. Different flood control infrastructural development through embankments may control flood locally and temporarily but permanent solution lies beyond Bangladesh border where most of the mighty rivers of Bangladesh originated. Considering this situation the authors proposed a number of long term measures in order to coexist with flood. These include building of houses on raised land, gradual change in agricultural calendar and also excavation and reexcavation of already silted rivers. Protective embankments should be built only to protect industrial areas and towns.

Key Words: Flood control/ Geophysical features/ Coexistence

AST/CIDA, 1988: A Study of the 1987 Floods. Interim Report.
AST/CIDA. February, 1988, I-VI, I-44 P.

This is a report on the adverse impacts of 1987 flood prepared on the basis of a survey of 1,750 households from 35 upazilas located in different areas of the country affected by floods. The impact of flood has been discussed under two main headings: Agriculture impact; and socio-economic impact. The report has five chapters. These are; ;introduction where the rationale, objectives and methodology of the study have been delineated. Second chapter contains a review of existing literature and the third chapter presents the general characteristics of the regions covered. The impacts of flood is discussed in chapter 4, followed by a summary and conclusions in chapter 5. Agriculture impacts are described in terms of loss of different crops while the socio-economic impacts include loss of lives, decline in food intake, loss of employment, dwelling houses, various assets, livestock and poultry. Regarding policy options the report emphasises the need for moving away from the short term crisis management approach to more enduring measures on a short, medium and long term basis.

Key Words: Flood/ Households/ Socio-economic impacts/
Agriculture/ Policy options

Bangladesh Government, 1984: Bonna Upadruta Elakaya Krishi Punorbashion Kaizsha Suchi (Agricultural Rehabilitation Programme in the Flood-affected Areas) May- August, 1984), Ministry of Agriculture, Agriculture and Forestry Department, September, 1984, 46p.

This is revised agricultural rehabilitation programme of 1984. It contains detailed description of the crops damaged in 338 Upazila of 53 districts, rehabilitation programme in different districts and Upazilas including the requirement of seeds, fertilizer and money needed for grant. It gives a general overview of agricultural rehabilitation programme .

Bangladesh Government : Floods, 1987-Medium Term Recovery Programme. Ministry of Agriculture, Government of the peoples Republic of Bangladesh.

This document was prepared as a medium term recovery programme (MTRP) after the 1987 floods. After considering the damages and the problems faced during the 1987 floods, the Ministry of Agriculture evolved four medium term recovery

strategies for preparing the ground for restructuring Bangladesh's agriculture not only with regard to flooding but with regard to any agricultural risks which may potentially reduce agricultural growth rates beneath the third five year plan levels. The main body of the report starts with a methodology for flood damage assessment, followed by a description of the characteristics of 1987 floods and the lessons learned. The document identifies ten lessons which appear relevant and should be kept in mind in any flood preparedness, mitigation and recovery programmes. Many maps, charts, graphs and tables were used in the report. The ten lessons are : 1) Floods are a recurrent phenomenon, 2) Floods are not specific events, but are an integral part of national development, 3) Floods must be viewed in an international context, 4) Fluvio-geomorphological changes can change Bangladesh's flood regime, 5) Flood heights are not the sole determinant of flood damage, 6) Crops tolerance of floods vary, 7) Agricultural households tolerance of flood vary, 8) The need to reassess agricultural policies, 9) The need for a framework for policy issues in disaster situations and, 10) The need for agricultural Geographical information system. The document ended after identifying what is called "felt needs for the future.

Key Words: Flood damage/Recovery/Policy options

Bangladesh Government. 1984: Emergency Standing Orders for Flood. Relief and Rehabilitation Division, Ministry of Food. February, 1984, 51p.

This is a booklet prepared by the Relief and Rehabilitation Division of the Ministry of food after the 1984 flood. It contains description of numerous tasks that are expected to be performed by different ministries and government departments from the national to the local levels. The index of the booklet shows the names of many departments and ministries. The tasks are called the Standing Orders and have been based upon action plans submitted by the various ministries and concerned agencies. It is expected that these orders will help to handle unforeseen and other demanding situations quickly with boldness.

Key Words : Ministry / Relief and Rehabilitation / Tasks

Bangladesh Water Development Board, 1987: Flood in Bangladesh, 1987- Investigation, Review and Recommendations for Flood control. Ministry of Irrigation, Water Development and Flood Control. December, 1987.

This is a comprehensive report on 1987 flood prepared by a team of experts of BWDB. Considering the extent, intensity and damage, the report termed the 1987 flood as the most severe in recent past. Excessive rainfall and delayed drainage due to obstructions created by development infrastructure and also public cuts and breaches in the embankments caused flood. It is observed that the flood control and prevention is heavily dependent on international cooperation. Internally, it is important to build embankments and create outlets for the natural flow of water. This lengthy report contains many maps, charts and graphs. Numerous tables with information have been used to show the intensity and the damage caused by flood.

Bangladesh Agricultural Research Institute, 1988: Bonna-Uttor Punarbashna Bikolpa Krishi Projukti (Alternative Agricultural Technology in Post-flood Rehabilitation) Bangla Booklet. Field Research Department. Jodevpur, Gazipur, September 1988. 11p.

This booklet contains results of field research department of BARI. From the experience of 1984 flood, BARI researchers suggested several alternative agricultural technology in crop cultivation as a part of post-flood rehabilitation programme.

BARC, 1990: Floodplain Agriculture .Bangladesh Agriculture Research Council, Dhaka , 15p

This policy brief is the result of multidisciplinary discussion forum organised at the BARC. The brief highlights the several serious environmental effects of embankment centered flood control projects. It draws attention that it is important to understand the full range of the agronomic, economic, social and ecological effects before massive investments in such projects in the future. It is further pointed out that through the flood control and drainage projects Bangladesh is gradually being transformed into a land without water. There is also considerable concern over the significant second generation problems relating to FCD projects. The brief also expressed reservations about Action plan for Flood Control dated November 7, 1989.

Key Words: Embankment/Floodplain/Flood control/Ecological effects

BARD, 1985: Flood, 1984 - Survey of Nine Villages in Comilla. First, Second and Third Phase, BARD, Kotbari, Comilla.

The three reports published by BARD contain the results of a survey conducted in nine villages of Comilla after the 1984 flood. The villages for the study were purposively selected on the basis of intensity of flood, duration and damage and also the accessibility by the researchers. This three phase study conducted after some intervals collected information relating to the causes of flood, damage to crops, peoples' response to flood and governments efforts to mitigate the sufferings of people. The emphasis of the study was on survey method and many tables in the reports were presented relating to the issues mentioned above. The coverage of one full year through three surveys pursuing the same issues provide scope for identifying the changes and the processes. The study revealed that there is differential impacts on different categories of villagers in terms of income, employment, indebtedness and other socio-economic indicators. The survey is longitudinal in nature and can be repeated in future for comparison.

Key Words: Flood/ Causes/ Damage/ Response / Changes

Basu, Manjusri, 1988: Marginalisation and Floods: A Case of East Bengal Migrants in the Ajay Valley in Bardhman District, West Bengal, India. A Paper Presented at the International Symposium on the Impact of Riverbank Erosion, Flood Hazard and the Problem of Population Displacement. Dhaka, 11-13-April, 1988.

The paper reviews the socio-cultural circumstances under which a migrant rural community colonises in floodprone areas of a seasonal river. It also examines how they interpret flood. The area where the migrant community is exposed to floods lies within the district of Bardhman. Initially the migrants face the problem of flood and learnt how to live with flood. Later they adapted to the situation by better utilisation of local resources. The migrants developed a different attitude and know how to live with flood. The refugees have developed an affective bond with their behavioural environment.

Key Words: Flood/Environment/Migrants/Social space/Marginalisation

Bhattachapriya, Debapriya, 1989: Social Responses to Natural Disasters: Insights from 1988 Flood Relief Camps of Dhaka City. BIDS, Dhaka, January 1989, Mimeographed, 33p.

This is an outcome of a study carried out by BIDS on 54 relief camps of Dhaka city during the 1988 flood. It contains detail description of the conditions of relief camps, materials distributed, expectation of flood victims and also the management and distribution relief materials. It is pointed out that most people were confident that they would be able to overcome the challenges of flood but all of them expected that the government should play its desired role after the flood water totally recedes. The study further reveals that although there were many-efforts by government, NGOs, political parties and individuals to help the distress people, the society appeared to be totally unprepared to respond appropriately. Numerous concrete incidences of misappropriation of relief goods and funds by the local power groups were incorporated in the report.

Key Words: Flood/ Relief camps/ Relief distribution/ Government/ NGO/ Power groups / Misappropriation

Bhuyian, Abdul Hajid, 1976: Bangladesh Bonna Niyontron (Flood control in Bangladesh). A booklet. 19p.

This is private publication in Bangla on flood and flood control problems of Bangladesh. The brief booklet contains six sections. It begins with a description of geophysical and climatic features of Bangladesh, causes of flood, effect of flood control measures. It is strongly pointed out that the unplanned construction of roads, bridges and culverts obstructing natural and normal flow of water is causing flood.

Key Words: Topography/Rainfall/Roads and Bridges/Unplanned development

Bottrall, Anthony, 1984: Floods, Food and Information system-must We be Pessimistic. ADAB News, Vol. XI, No. 6, November-December, pp. 4-6

This short notes was prepared as a reaction on Bruce Currey's earlier writing and discussion regarding feasibility of "high-technology national early warning system" versus "community oriented information system" to monitor flood, food shortage and other unforeseen problems. The author feels that if one supports

the necessity of such a information system, the problem will arise how the system might be organized. He draws attention to two pertinent issues: executive responsibility and sponsorship. The author did not elaborate the sponsorship issue but argued that the management committee comprising representatives of government agencies, as well as universities, research institutes and NGOs will be useful. At the end of this brief, the author suggests that along with the establishment of information system there is also a great need for synthesising the collection and analysis of information from different sources. He appears optimistic about the prospect of establishing an effective rural information system in Bangladesh.

Key Words: Information system/Network/Floods/Food/ Analysis and synthesis.

BRAC, 1989: The Flood of 1988 and People's Survival. Seven Case Studies from Gheor. Research and Evaluation Division, BRAC, Dhaka, January, 1989, 54p. (mimeographed).

The report presents case study of seven flood victims of Gheor. It contains minute description of events heard from the flood victims regarding how flood water came, engulfed the area, what they did, how they survived, their problems and the sufferings, relief operations and many other issues. The description is in depth with an anthropological perspective. It is a description of flood from the insider's point of view. The end part of the report contains a general discussion of the overall impressions gathered from the seven respondents.

Key Words: Flood/Sufferings / Survival/ Shelter / Food/ Relief.

Brammer, Hugh, 1988: Development Possibilities in Flood Prone Areas of Bangladesh. Relief and Development Institute, Ferdinand Place, London, September 1988, 33p.

A former FAO agricultural advisor, the author describes the major development problems of the floodplain regions of the Ganges, Brahmaputra, Jamuna, Tista and Meghna rivers. In the first part, the characteristics of floodplains which effect the development prospect in the region have been described. The concrete steps to increase crop production without undertaking massive flood protection schemes have been suggested in the section two. In the third section, different options for development with flood protection, delineating several

institutional aspects of intensive agricultural development have been provided. The author concludes his writing with a summary description of floodplain features.

Key Words: Development/ Floodplain/ Soil types/ Rainfed cultivation/ Dry season cultivation/ Flood protection/ Disaster preparedness / Institutional aspects.

Brammer, Hugh, 1988: Development Possibilities in Flood-Prone Areas (Part 1). ADAB New, Vol. XV, No. 5, September-October, pp. 25-28

This is a first of three parts article in which the author identifies the major floodplain regions and their basic geophysical features. A distinction is made between "normal flood" and "disastrous flood" in order to demonstrate the damage caused by flood and also the development problems that emanate from this situation. A description of the characteristics of floodplain landscapes has been given to demonstrate how these might effect the agricultural development possibilities.

Brammer, Hugh, 1988: Development possibilities in Flood-Prone Areas (Part-II) ADAB News, Vol. XVI No. 6, November-December, pp. 28-34

In this part, the author draws attention regarding the prospect of floodplain agriculture. It is felt that two strategies i.e. flood protection or improvement in crop production without flood protection can be adopted to increase agricultural production in the floodplain areas. The author, however, emphasised that each step in floodplain areas will depend on the geophysical features of the region, the state of technology and also the resources available to bring changes. It is pointed out that the improvement in crop production without flood protection is simpler and less costly. Therefore, the author favours rainfed cultivation without flood protection and the provision of irrigation and drainage during the dry season which may increase and stabilise crop production within the shortest possible time. In the conclusion, the necessity of disaster preparedness of severe floodplain lands through some contingency plans have been emphasised.

Brammer, Hugh, 1989: Development Possibilities in Flood-prone Areas (Part III). Vol. XVI, No. 1, January - February, pp. 22-28

This is the final of three parts article. The author discusses some pertinent institutional aspects of intensive agricultural development in floodplain regions and different options in this respect. It is pointed out that flood protection and drainage is a complex and multifaceted venture and requires understanding of agroecological features not only of floodplain regions but also of the areas from where the water comes. The author also argues that along with the flood protection programme the development agents, planners, researchers and extension agents must catch up with the farmers in their knowledge and understanding of environment-man relationships. He outlines some proposals for doing this. These are: farming systems research, participatory planning, land use planning, Upazila gazetteers, education, training and communications. The last section of this part provides summary description of floodplain characteristics i.e. relief, soils, hydrology, climate which influence land use and development possibilities.

Key Words: Development/ Floodplain/ Soil types/ Crop suitability/ Rainfed cultivation/ Drainage/ Dry-season irrigation/ Disaster preparedness / Institutional aspects/ Flood protection

Cain, Mead, 1981: Risk and Insurance : Perspectives on Fertility and Agrarian change in India and Bangladesh. Population and Development Review, Vol. 7, No. 3, pp. 435-474

In this paper, the author analyses environments of risk and mechanisms available for adjusting to risk in two regions of South Asia. The regions are a flood prone village of Bangladesh and a drought prone, semi-arid region of India. The analysis focuses on the recent history of land transactions among sample of villagers in two regions, patterns of household economic mobility measured as gain or loss in land assets. The paper also contains description of the features of the villages, a comparative analysis of distributional change in land assets, intragenerational economic mobility and also land sales according to purpose of sale. The sources of risks and insurance with emphasis on natural disasters have been delineated. The implications of the analysis for fertility are also examined. The paper concluded with a discussion on policy implications highlighting the merits of public employment schemes as an instrument of population policy.

Key Words: Flood/ Risk/ Insurance/ Disaster/ Response/ Distress Sale/ Economic mobility/ Fertility

Chowdhury, A.M., 1989: Flood 1988 In Moniuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 235-240

This is a general article on 1988 flood. An attempt is made to delineate the causes of flood into primary and other causes. The primary cause of flood is the rainfall in the catchment areas of the rivers of Bangladesh while the other causes include snow melting in the Himalayas, deforestation, and construction of unplanned roads railways and embankments. The short article also include a description of the role of Bangladesh Space Research and Remote Sensing organisation (SPARRSO) in flood preparedness.

Key Words: Flood causes/ Primary cause/ Flood monitoring/ SPARRSO/ Flood preparedness,

CIRDAP, 1986: An Interim Report on the Impact of Selected Flood Control, Drainage and Irrigation (FCDI) Projects in Bangladesh - Benchmark Survey and Initiation of a Monitoring and Evaluation Systems. CIRDAP, Dhaka, Bangladesh, 113p.

The report is an account of the impact of selected flood control, drainage and irrigation (FCDI) projects in Bangladesh. The study of three FCDI projects located in the Meghna-Muhuri flood plain was conducted with two main objectives: a) to familiarise relevant quarters about preliminary benchmark findings in order to ascertain if the right issues are raised or the right approach adopted, and b) to carry out methodological exercises including internal and external checks. It is a resource inventory and a situation report primarily in the form of self-explanatory summary tables covering local resources, infrastructure, agriculture, fishery and environment. The report pointed out that the impacts of FCDI projects on environment i.e. soil, micro and macro flora, impact on fauna (insects, pest, fish, livestock and poultry) were significant.

Key Words: Impact/ FCDI Projects/ Irrigation/ Environment/ Resources/ Infrastructure/ Agriculture/ Fishery

Currey, Bruce, 1984 : Fragile Mountain or Fragile Theory. ADAB News, Vol. XI. No. 6, November-December, pp. 7-13

In this article, the author strongly disputed the popular belief that rampant deforestation of mountain slopes in the upstream causes flooding in the plains. The author cites several examples to demonstrate that although the argument is elegant but

unproven. The reafforestation will not solve the problem. It is further argued that deforestation must not be allowed to detract attention from the equally important question of how changes in the agricultural calendar in the plains with the introduction of crop varieties is also making plains more or less prone to flood damage. The article contains a good bibliography on the issue.

Key Words: Fragile/ Flood plain/ Damage/ Deforestation/ Reafforestation/ Social forestry

Currey Bruce, 1990: Questioning the Nilometer in Bangladesh-Monitoring the Dynamics of the Environment and the Vulnerability of Rural Poor Households. South East Asian Studies, Kyoto University, May, 1990, 12 p

Drawing an analogy of the Nilometer of ancient Egypt, for understanding the relationship between floods and rural welfare, it is suggested that instead of Nilometer the concept of Ecometer should be used to indicate levels of distress making use of specific measure components of household budgets within their web of changing local, regional and international structures. In order to demonstrate the dynamics of environmental and economic interaction, 30 poor or landless rural households from a village of Chilmari Upazila which is a considered highly vulnerable agroecological zone, have been selected. Considering the impact of 1988 floods and also the time series of 1984-88 when the rivers remained at peak, it is revealed that the various exogenous factors, such as changes in world prices, withdrawal of credit etc. may in some cases become more disastrous to the rural households welfare than high floods. Many tables, graphs, charts, and pictures were used to support the arguments in the paper. The resilience or cushioning in the households significantly effect the impact. It is important to monitor the extent of resilience that may help to improve the information base for formulating policies to mitigate the situation.

Key Words: Flood/ Ecometer/ Nilometer/ Agroecological zone/ Households/ Resilience or cushioning/ Information base

Cutler, Peter et al 1989: Evaluation of Post-flood Rehabilitation Projects of Four NGOs in Bangladesh. Dhaka, April, 1989. 75p.

This report reviews the activities of four NGOs in the post-flood rehabilitation programme in Bangladesh. It is based on

field visits to different locations and discussions with the field staff of NGOs and the beneficiaries. The authors of the report draw attention to some of the shortcomings of rehabilitation work and suggested measures for improvement. It is pointed out that in undertaking development projects insufficient attention has at times been paid to technical quality and the socio-economic and ecological considerations. Financial reporting and accounting has been generally of high standard but the report questioned the capacity of some NGOs to absorb more funds and materials for larger emergencies. In the last section, under the heading summary and discussion of NGO experience of post flood rehabilitation, the authors nicely present the issues, problems relating to rehabilitation and also offer suggestions for improvement.

Key Words: NGO/ Flood Damage/ Relief and Rehabilitation/ Housing/ Development projects

Cutler, Peter, 1984: Food Crisis in Bangladesh? Report on a Visit to Dhaka, 2nd - 21st July 1984, Disasters, Vol. 8, No. 4, pp. 242-43

A possible food crisis situation in July 1984 was discussed. It is observed that during the times when the prices of rice were expected to fall, in fact, registered a sharp increase which was a worrying trend. Two factors i.e. pumping of money to influence local elections coincided with the Aman harvest bringing a general inflationary expansion of the money supply which rose by 32%. Drought in late March-April delayed the the sowing of Aus and Aman crops until the late April. Widespread flooding in May in North-Eastern Bangladesh further accentuated the problem. However, the imminent food crisis could be averted by government food distribution system that was aimed towards vulnerable groups. Abnormal excess mortality from starvation during the year has been noticed but food crisis management performance was getting better which helped to reduce the crisis.

Key Words: Food/ Crisis/ Inflation/ Drought/ Flood/ Distribution/ Management

Das, Subash Chandra, 1988: Bangladesher Bonna Artha Samajik Patikriya (Flood in Bangladesh - Socio-economic Effects) in Bangla. Boghul Patrika (Jahangirnagar University), No.7, pp. 17-23.

An analysis of the socioeconomic consequences of flood can be found. Various figures relating to the extent of damage of flood since 1954 were presented. It is pointed out that flood has some beneficial effects which are often ignored. Both structural and non-structural measures can be adapted to control flood. However, considering the reality of Bangladesh the author felt that the non-structural measures are more viable. Provision for cluster settlement, and flood shelter may act as some non-structural measures. A comprehensive flood preparedness scheme is considered as the need of the time.

Key Words: Socioeconomic/ Damage/ structural and non-structural/ Preparedness

Dodge, Cole P. and Paul D. Wiebe, 1980: Practical Application of Nutritional Assessment - Malnutrition in the Flooded Area of Bangladesh 1974. Disasters, Vol. 4, No. 3, pp. 311-314

The need for an accurate and reliable nutritional survey has been emphasised in the paper. This kind of assessment survey may indicate the extent and nature of developing famine before it assumes disastrous proportions. The arguments for the nutritional assessment and its practical application is drawn from the experience of relief operation in the Rawmori Upazila of Rangpur district.

Key Words: Nutrition Assessment/ Famine/ Disaster/ Voluntary agency

Elahi, K. Moudood, 1989: Geographic Approach to Flood Management in Bangladesh. Paper Presented at the Fifth National Geographical Conference, Rajshahi, March, 2-4, 12p.

The nature, extent and types of flood in Bangladesh is described. The paper also contains a general overview of the socio-economic impacts of flood during the period of 1984-88. It is pointed out that the vulnerability syndrome of flood reflected through the expansion of flooded area, damage to regional basin area and complexity in the evaluation of flood impacts is gradually becoming apparent in Bangladesh. The author suggests flood management through non-structural and environmental measures. This includes traditional or non-technical measures which may provide a comprehensive framework for flood management. It is further suggested that environment structural and non-

structural measures may form the crux of a comprehensive flood management programme. The environmental structural measures, such as building of FCD and FCDI projects are necessary to control and rejuvenate natural courses of rivers. Detailed hydraulic and environmental planning is needed. The non-structural measures contain variety of options relating to human aspects of flood control and are generally adopted to keep down flood damage. These include flood preparedness, land use and land management, and educating people how to live with flood. The paper ends with an observation that both these measures are needed to mitigate flood problem in Bangladesh.

Key Words: Recurrent Floods/ Impacts/ Damage/ Flood management/ Structural and non-structural measures/ Government policy

Expert views, 1988 : The 1988 Floods - Sources and Causes and Some Policy Options. ADAB News, Vol. 15, No. 5, September-October. pp. 9-12.

ADAB News sought opinions regarding sources and causes of flood and possible policy options from Mr. B.H. Abbas AT, Prof. Ainun Nishat, Mr. Amjad Hussain Khan and Dr. Zahiruddin who are considered eminent experts in the field. The views of expert are presented in this article. The experts have different views on the causes and policy options that, in fact, reflected in their independent perspectives on the problem. Some experts hold that one of the causes of the recurring floods in Bangladesh is the Farakka Barrage in India, While some others felt that the excessive rainfall may be identified as the chief cause of flood. Some even emphasised the need for regional cooperation for flood control. The concluding part of the piece contains a geologists analysis of flood who point out that flood generally occur due to a complex interaction of climatological, geological and man-made structures.

Key Words: Flood/ Causes/ Excessive Rainfall/ Regional Cooperation

Gallagher, Rob, 1984: Flood Monitoring in Bangladesh - A Study of Responses to the 1984 Crisis. War on Want, UK, 89 p.

This report has been prepared on behalf of a British NGO to highlight the various responses in the aftermath of 1984 flood. The focus of the study was NGOs role and also how the different agencies monitored the situation and coordinated their efforts.

The author felt that the NGOs made a very important contribution to the national response of 1984 flood. The government response was, however, limited and focused mainly on the urban areas. Although a famine could be averted after the 1984 flood due to participation in relief activities by government, donors, and NGOs, however, it is pointed out, that there was significant room for improvement in terms of monitoring, targeting, and implementation of the emergency programmes. Excepting introduction and conclusions, the report has three chapters. One chapter gives background to the food crisis, events, responses and monitoring. Second chapter highlights government action and the third one specifically deals with the NGOs contribution.

Key Words: Floods/ Damage/ Response/ NGO/ Government/ Relief/ Rehabilitation/ Monitoring/ Food crisis/

Gani, Mohammad Osman, 1983: Report on Socio-economic Feasibility on Parsuram Flood control Scheme, Noakhali, NTAP/SIDA, Dhaka, May, 1983.

This report contains the results of socio-economic feasibility study of Parsuram Flood Control Scheme in the Noakhali district. Discussing the physical, demographic and economic features of the area, the author felt that although the distribution of benefits in terms of more agricultural production is likely to benefit all, the distribution will be different because of unequal access to land and other resources. The quantum of benefits that will accrue to different groups have been specified. It is pointed out that the technical design of the project is defective and the design overlooked the necessity of watering the flow space of the Muhuri river below the Fulgezi Railway bridge. It is recommended through the feasibility study that the project should be accepted and the technical issues relating to hydrological, topographical and geomorphological aspects should be carefully reviewed in order to ensure long term efficiency.

Key Words: Flood control/ Irrigation and drainage/ Benefits/ Target groups/ Technical aspects/ Short and Long term effect

Gono Unnayan Prochesta: Life and Living with Flood. Mimeographed. undated. 25p.

This report contains eight short write-ups prepared by the field staff of a Gono Unnayan Prochesta (GUP), an NGO working mainly in the Madripur district. The report describes the relief

and rehabilitation activities undertaken by GUP after the 1988 flood. The write-up by field staff also describes the field experience how people survived in the flood and also how GUP conducted relief operations.

Key Words: Flood/ Relief/ Rehabilitation/ Survival

Halim, Md. Abdul, 1990: US Response to Bangladesh Flood Disasters with Special Reference to the Enactment of the Bangladesh Disaster Assistance Act 1988. In B.K. Jahangir (ed.), Perspectives in Social Science. Centre for Advanced Research in Social Sciences. Dhaka University, pp. 69-126

The U.S. response to Bangladesh flood in the aftermath of 1988 flood through the Bangladesh Disaster Assistance Act of 1988 passed by Congress is the subject matter of the paper. The author argues that the U.S. cannot be expected to take foreign policy decisions on humanitarian ground alone, global compulsion and political consideration always act as an imperative in such decisions. The paper describes how the act was passed, identifies the persons in the decision making process and how their commitment and political coalitions expedited the enactment of the act. Media in USA played a crucial role in mobilising public opinion and creating favourable climate for passing the act. It is further pointed out that along with the material help, U.S. should also endeavour to make positive and meaningful contributions to the solution of dual problems of shortage of water in the dry season and severe flooding in the monsoon. The author felt that this is essential to prove that U.S. is sincere.

Key Words: Bangladesh flood/ U.S. response/ Public opinion/ Media

Hannan, Abdul, 1989: Embankment for Flood Control in Bangladesh. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 159-172.

The author argued that flood control through storage reservoirs at the upper catchment although attractive was not much used in the region. Building of embankments is an alternative major method of flood control. However, embankment height necessary for confinement of flow is a major factor controlling the suitability of this method. In the conclusion, it

is pointed out that flood control activity through embankment construction should be linked with overall water resource development of the country.

Key Words: Flood control/ Storage reservoirs/ Water flow/ Embankment

Haq, Shafiqul, 1989: Floods, Whether Dredging is the Answer. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 144-145

Geological history of Bangladesh was discussed. It is pointed out that although dredging will not give a total solution, one cannot completely rule out the use of dredgers in Bangladesh. Some specific areas where dredgers can be useful are: reclamation of land, execution of control structures and building of protective embankments around cities and towns for flood protection. The author also draws attention to the other uses of dredging.

Key Words: Dredging / Flood control/ Geological History/ Silt storage

Hossain, Azfar, 1988: The 1988 Floods and Images of the Apocalypse. ADAB News, Vol. 15, No.5, September-October, pp. 3-6.

Author in this article describes the various types of damages caused by 1988 flood under separate headings. It also includes two case studies and two pictures which support the description of the article.

Key Words: Flood/ Media/ Damage

Hossain, Azfar and Saleem Samad, 1987: The 1987 Floods: NGOs on the Move. ADAB News. Vol. 14, No.5, September -October, pp. 1-38.

This is a cover report of ADAB News where the authors consider the 1987 flood as the worst in 40 years. One then gets a very good description of the magnitude of the effect and damage to life, property, standing crops and physical infrastructure. In presenting the figures of effect and damage from various sources, attention has been drawn to the discrepancies in facts

and figures cited in the media. However, the authors, added that instead of impugning, Hamlet-like, the obvious digital discrepancy-17 million or 24 million? - One can perhaps look at the situation in terms of realising its intensity and its ruthlessness. The causes of flood deriving views from geographers, environmentalist, hydrologist and water experts were presented. The last section highlights the main theme of the article describing the NGOs involvement in relief and rehabilitation activities. This section contains information relating to number of NGOs involved, nature of programme activities, project areas (i.e. Upalila, district) and also their tentative budget.

Key Wards: Flood/Damage /NGOs /Relief / Reliabilitation

Hossain et al, 1987: Floods in Bangladesh- Recurrent Disasters and People's Survival, Universities Research Centre, Dhaka, Bangladesh

This is a macro study on flood problems conducted by a interdisciplinary team consisting of social scientists, engineers and geo-morphologists. The book has several chapters. It begins with a general analysis of the nature, causes and consequences of flood in Bangladesh. In the chapter 2, the authors presented the results of a survey conducted in some flood affected areas of Bangladesh. The focus of the survey was on the economic and social impact of floods. A total of 1819 households were surveyed through a questionnaire which generated information relating to 1) the size and composition of households in the flood-prone areas, 2) the occupational distribution, 3) asset ownership, 4) havoc of flood on rural households and, 5) response of households to floods. The findings of the study are quite illuminating and presents information how people in flood free and flood-prone areas survive and the difference (if any) in their adaptation. Next chapter contains a review of the policies and programmes which have been adapted by the government at various times to reduce the incidence of flooding. The book ends with some general conclusions and suggestions regarding various options to control flood.

Key Words: Flood/ Disaster/ Survival/ Households/ Economic and social impact/ Flood damage/ Flood control

Hossain, Mahbub et al, 1988 : Economic Impact of the Floods - Impressions from Field Visits. Bangladesh Institute of Development Studies. Dhaka, December 1988, Mimeographed, 65p.

This report prepared by a group of three economists provided the first glimpses of the economic impact of 1988 floods. The survey is based on several quick visits to different areas of country. The objective of the survey was to get first hand impression on two issues : 1) the nature and extent of damages caused by flood, and, b) the response to the crisis at the individual level. Indicators used to demonstrate the economic impacts are: damage to crops, infrastructures, livestock, fisheries and forestry. The authors also discussed the economic conditions of the areas covered with an indepth perspective. Economic conditions of people were described in terms of loss of work, limited employment opportunities, low agricultural wage, damage to crops and loss of properties. Although prepared from a short field visits, the description has an ethnographic flavour. Authors used tables, charts, maps and photographs in their report.

Key Words: Flood/ Impact/ Damage/ Agriculture/ Economic conditions/ Relief.

Hossain, Mahbub, 1990: Impact of the 1988 Flood on the Rural Economy of Bangladesh. A paper presented at the National Seminar on Floods in Bangladesh - Bangladeshi Views. Flood Study Forum, Dhaka, January 24, 1990.

The information, derived from a short field trip immediately after the 1988 flood, was used to assess the impact on the rural economy. It was observed that in spite of the severity the incidence and impact of the 1988 flood was found quite uneven from region to region. Impact on crop production, damage to property, forestry, livestock, fisheries and infrastructure was mentioned. The damage to roads, bridges and culverts was extensive. The burden of flood damage fell heavily on the poor compared to other classes of people. The general economic conditions measured in terms of wage, income of rural households in flood effected villages has declined. Nearly 60 percent of the households reported that they borrowed from some sources after the flood. A consolidated statement of the estimates of flood damage in value terms gives a general overview of the impact and damage of flood.

Key Words: Impact/ Rural economy/ Intensity/ Crop production/ Infrastructure/ Economic condition.

Hossain, Mosharraf, 1985: The 1984 Flood and Population Displacement in Serajganj. REIS Newsletter, No. 2, pp. 8-10

This brief review on 1984 flood and population displacement by a civil servant provides glimpses of the impact and damage of flood in one of the most flood prone areas of the country. The paper begins with a description of the BWDB flood embankment and the erosion problem. The author then discusses the 1984 flood, its socio-economic effects and also the extent of damage in the Serajganj district.

Key Words: Flood/ Embankment/ Socio-economic effects

Huda, Nurul, 1989 : Flood Control Proposal for the Major River Systems of Bangladesh. In Mohiuddin Ahmad (ed.). Flood in Bangladesh. CDL, Dhaka. pp. 116-131

This is a typical article where the author begins with a description of the topography of Bangladesh, the situation of the major rivers, the causes of flood and then proposes certain remedial measures that should be undertaken within and outside Bangladesh to control flood. The author proposes building embankments along the major rivers, improvement of drainage facilities, dredging and afforestation programmes. Outside Bangladesh reservoirs should be constructed in Nepal and India to control flood. The author ends with an observation that regional cooperation is of great importance to mitigate flood in Bangladesh.

Key Words: Flood control/ Major rivers/ Causes of flood/ Regional cooperation.

Huq, Mahfuzul, 1989: Some Permanent Cost Effective Co-solutions of Green House-effect and Flood Problem of Bangladesh. In Mohiuddin Ahmad (ed.), Flood in Bangladesh, CDL, Dhaka, pp. 107-115

Some concrete proposals with a structural-bias have been proposed for the solution of flood problem. It is said that the proposal will bring high economic returns through irrigation, generating hydroelectric power and also saving fossil fuel with many environmental benefits. This least expensive method, in the author's opinion, will also help to solve, at least partially, the predicted global environmental disaster known as "green house effect" which is likely to effect Bangladesh significantly. The

author suggested that a series of dams and barrages should be built along the southern flanks of the Himalayas and the Khasia- Jayanti hills in a specified manner. It is obvious from the article that cooperation of neighbouring countries will be crucially important for the success of the programme.

Key Words: Flood control / Green house effect / Economic and environmental effect / National and international cooperation

Husain, Saadat, 1989: Villagers' Struggle for Survival During Flood-A Story from Karaikandi. BARD, Kotbari, Comilla. 12p (mimeo).

A very brief village study on 1988 flood. Description relating to topography, climate, causes and effects of flood can be found. The author also highlights the different strategies of survival in the flood by the villagers. He argues for a long term planning for flood mitigation by taking into consideration the survival mechanism adopted by the villagers.

Key Words: Effect / Damage / Survival /Honey lending /Relief/ Long term planning.

Hye, Hasnat, Abdul et al, 1986: Flood-1984 BARD, Kotbari, Comilla

This is one of the very few books published on flood in Bangladesh. This book is an outcome of a survey conducted in nine purposively selected villages drawn from four severely affected Upazilas in the aftermath of 1984 flood. The data were collected by administering two sets of questionnaire, one meant for families with dependency on land (including tenant farmers) and the other was administered to the landless. The authors claim that the coverage of one full year starting from the occurrence of the flood and completing a cycle of seasons that intimately govern the activities in the rural areas and influence the lives of the rural population, is an innovative approach to a study of this nature. The objective of the study was to collect information relating to the causes of flood, effect on different crops both in the years of 1984 and 1985, land sales, condition of employment, wage rate, food intake, impact on basic needs, response of villagers to flood, and the description of measures taken by government to mitigate flood. The objective and scope of the study appear very broad. A look

at the appendix show that the study generated a large body of information: . The authors felt that the study provided useful information relating to physical, social and economic aspects of village during periodic traumatic experience,. The study revealed that loss of food crops resulted in food shortage, employment decline, sale and mortgage of land and also in increasing indebtedness for the cultivators. This is an informative work.

Key Words: Flood / Family / Crop damage / Land sale and mortgage/Indebtedness.

Islam, H.A., 1980: Agricultural Adjustment to Flooding in Bangladesh - A Preliminary Report. The National Geographical Journal of India. Vol. 26. No. 1-2, pp. 51-59

Could not get it for annotation.

Islam, Nazrul, 1990: Let delta be a delta An Essay in Dissent on Flood Problems of Bangladesh. The Journal of Social Studies (Dhaka), vol. 48, :April 1986, pp.18-41

Discussing the various flaws and dangers associated with the conventional way of thinking about the flood problem, the author argues that most of Bangladesh still represents an active delta and any interference with the normal flow of water through embankments-which is cordoning of rivers,-will bring further disaster for the country. From a brief review of flood control and water development efforts in Bangladesh in the past the author pointed out that the flood problem is not a problem of more hydraulic dynamics rather the problem reaches out to the issues of the economy, ecology, society, demography, settlement pattern, transportation, and even of politics and culture. It is, therefore, strongly pleaded that an "opening up strategy" rather than a "cordoning off strategy" through controlled flood will help to give some relief from flood. The crux of the idea is that given a particular volume of water, the more is the area upon which it is allowed to spread, the less is the height at any particular place. In this way, it is argued that one can enhance the beneficial effects of flood and yet mitigate it at the same stroke.

Key Works: Flood/Delta/ Flood control/ Embankments/ Cordoning-off Strategy/ Opening-up strategy

Jones, Steve, 1986: Considerations in the Evaluation of Flood Control, Drainage, and Irrigation Projects. Bangladesh Agricultural Research Council and Winrock International. Methodologies to Evaluate the Performance of Irrigation Systems. Dhaka, 1986, pp. 246-270

In this paper, the author attempts to develop a common methodology for the evaluation of flood control, drainage and irrigation projects. Eight problems relating to the studies of water sector project have been identified. Some of these are : narrowly conceived terms of reference, single-discipline approach, use of imperfect indices, heavy reliance on enumerators and questionnaire and absence of rigorous fieldwork and analysis. A distinction is made between monitoring and evaluation. It is pointed out that monitoring is a continuous process while evaluation is generally conducted when a project is completed and full benefits are achieved. Taking a position that there is no universal blue print for evaluation, the author proposed a project evaluation process consisting of four parts which may be useful in such works. The four parts are: a socio-economic survey, a cost study, a management and engineering study and an economic evaluation using some indicators. A figure is used to demonstrate the relationship among the four processes. Full evaluation is time consuming, expensive and sometime one needs to wait long till benefits are achieved. Therefore, the author, discusses the possibility of mini evaluations, a type of rapid rural appraisal to be undertaken by small interdisciplinary teams of professionals supported by one or two field staff. The importance of coordination of such studies and opening of an evaluation unit by government has been emphasised.

Key Words: FCDI projects/ Project Evaluation/ Methodology Evaluation Process/ Monitoring/ Mini evaluation/ Government coordination

Kamal, Md. Mustafa, 1989: Bonna 1988-Chrunchi Gram Shamikha (Flood 1988 Chrunchi Village Survey). Palli Unnayan (BARD), Vol. 3, January, pp. 46-49.

This is a survey of 1988 flood in a village located in the Rajbari district of Bangladesh. The causes and intensity of flood, nature and the type of damage, and survival strategy in the face of flood is described. It is a descriptive work based on the people's perceptions and opinions regarding how they looked at 1988 flood.

Key Words: Rainfall/Flood/Effects/Damage/Survival

Karim, M.A., 1985: The Impact of 1984 Flood on Kazipur Upazila. REIS Newsletter No. 2, pp. 10-11

This brief paper by a Upazila Nirbahi Officer provides glimpses of the impact of 1984 flood on Kazipur Upazila of Serajgonj district. This Upazila was severely effected by 1984 flood and is constantly vulnerable to riverbank erosion. The author briefly describes the effect and damage caused by 1984 flood. He also mentioned the different administrative responses that include the formation of relief teams for each of the eleven unions of Kazipur, opening of an information centre and also the distribution of relief under the supervision of the Upazila administration.

Key Words: Flood/ Erosion/ Impact/ Damage/ Administrative response

Khan, Abdur Rob and Nurul Islam Nazem, 1988: Abundance and Scarcity of Water in Bangladesh Issues Revisited. Bllss Journal, Vol. 9, No. 4, pp. 460-483.

Two authors of the paper discuss the paradox that in Bangladesh when the country does not need it there is an abundance of water and there is too little when it needs a lot. These two situations cause problems. Then the authors concentrate on the issue of abundance i.e. flood, issues relating to the causes of flood, nature, and magnitude of flood and issues relating to solution of flood problem. Issues relating to the scarcity of water are delineated. It is pointed out that scarcity of surface water specially in the Ganges basin is due to the withdrawal of water at Farakka. The authors argued for a regional solution of the problem which they feel will need significant diplomatic effort.

Key Wards: Flood/Water abundance and scarcity/Causes/Control of Flood/Adjustment/Regional solution

Khan, Akhter Hameed, 1981: Bengal Reminiscences. Vol. 1, Food and Flood. BARD, Kotbari, Comilla.

"Bengal reminiscences" is an informal and very indepth potrayal of socio-economic, food and flood situations in the Comilla region of the country where the author worked. The scenario of the description is 1950's and 1960's. Nature, type

and suffering's of people during and in the aftermath of flood caused by the river Gumti is described very intimately.

Key Words: Reminiscences/Development/Flood/Food.

Khan, Md. Amjad Hossain, 1989: International Cooperation on Flood Control. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 151-153.

The nature and consequences of 1988 flood are discussed in the article. The author strongly argues that for flood mitigation in Bangladesh, international cooperation is a must. It is suggested that there are four potential developments which can be undertaken on a regional basis in the upstream. These are: construction of storage, change of catchment use, halting deforestation and new afforestation and improvement in flood forecasting.

Key Works: Flood control/International/Regional Coopertion/

Khan, Md. Hozaharul Islam: Analysis of the Local Power Structure for Disaster Preparedness and Planning: The Case of Flood Shelter Location in Northern Bangladesh (mimeo), Undated, 29p.

How the local power structure effects the location of flood shelters and operations and activities of these shelters has been vividly described from the case study of four villages located in the northern Bangladesh. The paper also contains discussion regarding what is power, what makes people powerful, and also how people assert and exercise power. The spatial analysis of the flood shelter location, effect of flood shelter mislocation, access to employment in constructing the flood shelters, access to the use and allocation of space within shelters and environment within the flood shelters have been described in the paper. It is pointed out that the bindings relating to power structure and flood shelters in all likelihood is also applicable to other resource allocation decisions e.g., schools, tube-wells, roads etc. In sum, this paper is an empirical potrayal of biases that emanate from the existing power structure in the distribution and allocation of scarce resources.

Key Words: Flood Shelter/Power Structure/Access/Biases/Spatial location/Environment

Koudstaal, Rob. 1989: Flood Protection and International Aid. In Hohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 273-276.

The author emphasises that flood protection is not only complicated in a social, economic and financial sense, but also in a physical sense as well. Government involvement is needed because most flood protection measures can be realized more effectively and efficiently on a bigger scale than the individual approach. Operational plans should concentrate on the formulation of a medium and long term national policy rather than investment in large infrastructure works. Donors should consider all these aspects while supporting any flood protection programmes.

Key Words: Flood protection/Government involvement/International aid.

Latif, A., 1989: Control of Flood in Bangladesh - Need for International Cooperation. In Hohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 97-106

Giving a general background of the nature and causes of flood and also of 1988 flood, the author discusses the various studies and investigations on flood and flood control. The author also highlights the different aspects of international cooperation. In the last section, various short and long term plans for flood control are suggested.

Key Words: Flood/Flood Control/International Cooperation/Short and Long term plan.

Hasun, Muhammad, 1989: Some Aspects of Impact of Floods on Bangladesh Economy. A Paper Presented at the International Seminar on Bangladesh Floods, Regional and Global Environmental Perspectives. Dhaka, March, 4-5 1989, 11p.

Various impacts of flood on the economy at the macro and regional levels are discussed. It is pointed out that severe floods cause enormous loss which not only disrupts the current economic activity but also significantly reduces the future growth potential of the economy. Citing examples of damage caused by the 1988 flood, the author demonstrates that the impact of flood significantly varies over different regions and also amongst different social groups within a region. Since the factors that cause flood are beyond the control of Bangladesh,

therefore, the development planning of the country needs to be reformed accepting the position that Bangladesh has to live with flood. Along with this international cooperation to control flood should be sought.

Key Words: Flood/Impact/Economy/Region/Social groups.

Mia, M. Maniruzzaman, 1990: Chairman's Speech Delivered at the Inaugural Session of the Seminar Organized by the Flood Study Forum on Floods in Bangladesh - Bangladeshi Views. 24-27 January, 1990. 15p.

Discussing the history of flood in Bangladesh, the author points out that the past efforts to control flood have a distinct structural bias that failed to consider the both short and long term effects of such plans. Providing some pertinent facts of geography, hydromorphology and economy of Bangladesh, the author feels that structural elements, more specifically, the proposals for embankments and river-training are not conducive to the country. Although in the last three decades 200 FCD and FCDI projects were completed, their performance has been far below the expected level. Several reasons were mentioned why these kinds of projects may not be beneficial to the country. The presentation concludes with some observations of what can be done for the future. The crux of the observations is that the entire network of rivers should be allowed to flow freely in times of normal floods.

Key Words: Flood/History/Control/Structural solution/Embankment/River training

Mia, Maniruzzaman, 1988: Flood in Bangladesh - A Hydromorphological Study of the 1987 Flood. Academic Publishers, Dhaka.

This is a hydromorphological study conducted after the 1987 flood. It contains information relating to the general pattern of flood, history of flood and also the causes of flood. The book is brief but quite informative. This is an outcome of a study conducted with five main objectives. It has four chapters and a postscript of the 1988 flood. The first chapter contains discussion on floods in historical perspective, causes and types of flood, methodology and objectives. Numerous tables, maps, charts, and diagrams were used to support author's arguments and analysis in the book. The general pattern of flood level and discharges of different rivers both small and large were

presented in the context of 1987 flood. In analysing the causes of flood in chapter 3, the author not only considers rainfall but also the whole gamut of causes including the impact of declining river-channel volumes and also the effects of various engineering/earthworks. In support of his arguments the author uses examples from different areas of the country. It is emphasised that the 1987 flood has wrought more damages as a result of faulty planning and design of many flood control and drainage projects. The book ends with a postscript of 1988 flood. The author pointed out that the 1988 flood is caused by heavy precipitation in the upper catchments of the Brahmaputra and the Meghna combined with an attainment of simultaneous peak levels of the big rivers.

Key Words: Hydromorphology /Flood/ Discharges/ Rainfall / Flood Causes and Types/ Damages /Overland run-off /River channel.

Mohammed, Wahiduddin, 1990: Introduction to the Theme of the Seminar on Flood in Bangladesh Bangladeshi Views. Flood Study Forum, Dhaka, 24-27 January 1990, 11p.

Socio-economic Impacts of flood and the burden of damages on the poor have been highlighted. It is pointed out that flood causes different problems to different people. The actual impacts are yet to be objectively identified. The issues relating to embankments are discussed. It is felt that there is no unique engineering blue-print for flood control by embankments. There are wide-ranging options in the planning and design of embankments, each entailing very different costs and benefits to the society. Some adverse environmental effects of embankment may be addressed by means of controlled flooding. An extensive system of river embankments has been recently proposed with a provision for undertaking a number of studies and experimented projects on river morphology, topography, hydrology and socio-economic impacts. The author opines that these issues require intensive and prolonged studies and in some cases scientific research of fundamental nature. The author feels that it is unlikely to be met by the type of studies usually carried out by consultants, mostly expatriate. The research and development activities in the context of flood should be given serious attention.

Key Words: Socio-economic impacts / Damage / Burden on Poor / Embankment /FCDI schemes/Control flooding/Fundamental research.

Montgomery, Roger, 1985: The Bangladesh Floods of 1984 in Historical Context. Disasters. Vol. 9, No. 3, pp. 163-162

Flood losses are described in terms of loss of crops which bring hardship and deprivation not only to farmers but also to farm labourers who depend upon these both for food and employment. A description of the crop by crop losses in 1984 and a historical perspective comparing this loss with other large losses and a consideration of whether those particular losses mean an overall decrease in crop production can be found in the article. The loss of different rice crops, such as Aman, Transplant Aman, Broadcast Aman, and Aus were estimated and compared with the loss of these crops since 1969. The losses were different in different years depending upon the impact of weather. From this exercise it is pointed out that losses must be considered separate from overall production estimates. This is because overall food availability, as measured by total rice production or total grain production disguises profound losses suffered by certain regions and masks the true degree of severity of the problem caused by flood damage during monsoon. It is further mentioned that in 1984, the loss was at a historical high and surpassed the 1974 level of loss that caused famine. In 1984, the Government of Bangladesh had sufficient early warning and procured ship and distributed food in time and thus could avert famine.

Key Words: Floods/Production/Crops/Damage/Shortage/Famine/
Distribution.

Murshid, K.A.B., 1988: Floods and Food Crisis in 1987. Paper presented to the BEA Conference, Dhaka, July 15-17, 1988, 32p.

The paper highlights some major government interventions which are claimed to have achieved success after the devastating flood of 1987. In spite of the large scale successful government role these touched the problem of mass starvation only marginally. From his observations after the 1987 flood, the author felt that there were quite distinct indications that the strength and resilience of the peasantry and rural poor have improved significantly in the 80's compared to 70's. The success of government should be judged in the background of this change. The author also discusses the role of markets, different government intervention strategies and their impacts, vulnerable group feeding programmes and test relief. The issues relating to agricultural growth, poverty, inequality, and the beneficiaries from growth have been elucidated. The author concluded that in recent years the economy has undergone certain changes that have

led to greater strength to withstand shocks. This has happened despite any explicit policy of egalitarian growth strategies.

Key Words: Food/ Flood/ Crisis/ Government intervention/ Economy/ Agricultural growth/ Inequality/ Poverty.

Nazem, Nurul Islam and M. Humayun Kabir, 1986: Indo-Bangladesh Common Rivers and Water Diplomacy. BIISS Papers, No. 5, December 1986, p. 1-51.

The paper is an attempt to depict the problems relating to the common water resources between Bangladesh and India. The discussion starts with a description of the geopolitical setting and hydrological situation in Bangladesh. The latter sections of the paper include discussions on India's water diplomacy, glimpses of legal issues and also an account of impact of upstream activities and diplomatic postures of India vis-a-vis Bangladesh. The paper also makes an attempt to offer certain options for Bangladesh to evolve a strategy for a comprehensive development of water resources.

Key Words: Water resources/International water/Common rivers/ Water diplomacy/Legal issues.

Nishat, Ainun, 1990: Planning of Evacuation Sites and Clustered Village Protection Against Flood. UNCRD-CIRDAP Workshop. Dhaka, Bangladesh, 28 January - 1 February, 10p.

This paper focuses on two aspects of flood management namely, planning and operation of evacuation sites and planning for protection of clustered villages against floods. The main emphasis is on the first issue. There is threadbare discussion on the different stages for disaster management, components for flood preparedness, evacuation planning, evacuation sites, and finally, the protection of cluster villages. It is obvious that significant emphasis has been given on evacuation planning. Two types of protection measures depending upon the nature of habitation were recommended. First is the raising the plinth above flood level for houses which are scattered. For clustered/agglomerated villages measures, such as construction of polder/ring bund around the village may be undertaken. This should be supported by reliable flood forecasting and warning from appropriate authority.

Key Words: Protection/ Evacuation / Clustered village / Disaster management/

Perera, J.S., 1988: The 1988 Floods and Rehabilitation Measures.- The CARITAS Approach. ADAB News, Vol. 15, No. 5, September-October, p. 16-19

In this brief review the author draws attention to an NGO's rehabilitation measures which is called CARITAS approach. It is pointed out that rescue, relief and rehabilitation or reconstruction should form the core of any disaster management programmes. The author then mentions seven principles on the basis of which CARITAS rehabilitation programme were conducted. This description, in fact, takes us inside of an NGO's emergency operation.

Key Words: Rehabilitation / Housing / Health / Shelters

Paul, Bimal Kanti, 1984: Perception of Agricultural Adjustment to Floods in Jamuna Floodplain, Bangladesh. Human Ecology, Vol. 12, pp. 3-19

The perception of and the agricultural adjustments of rural households to both normal and abnormal floods in the Jamuna flood plain is the subject matter of this article. Collecting the information from randomly selected farmers inhabiting the area, the author makes a distinction between barsha (normal flood) and bonna (abnormal flood). Due to this difference in the conceptualisation of flood adjustment strategies which are traditional in nature and transmitted through generations, also differ. The author emphasises that the people do not consider normal flood as a hazard and successfully cope with it. In the conclusion, the paper, emphasises the need to undertake more research in the perceptions, adjustments and other related issues.

Key Words: Perception/ Normal Flood/ Abnormal flood/ Adjustment strategy/ Crops / Damage

Rahman, Aminur, 1989: In Search of Flood Mitigation. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka pp. 41-51

The article begins with a description of the nature and types of flood, history of major rivers and also how these rivers changed their courses during the last several centuries. The author also makes a critical analysis of the different expert reports on the flood problem. These reports include, The Krug Mission Report, J.R. Hardin's report, Master Plan for Flood control and J.T. Thijsse report. It is pointed out that

structural measures through embankments are not likely to solve the flood problem. Different adverse effects of flood are discussed. The author feels that if the main objective of flood mitigation is to minimize or limit the damage caused by flood, then flood forecasting and warning could be one of the most effective non-structural tools to attain this goal. The Dhaka Narayanganj- Demra (DND) irrigation project and the experience gained from it might act as a guiding example to move forward, with due adjustments, to live with the floods and floodings.

Key Words: Flood mitigation / Flood reports Embankment / Structural and non- structural measures / Forecasting and warning.

Rahim et al, 1985 : A Record of the 1984 Floods. Project Evaluation and Identification Team. AST/CIDA and Ministry of Agriculture, Government of the Peoples Republic of Bangladesh. December 1985, pp. 1-79

This comprehensive record of 1984 flood is an attempt to amalgamate the surveys, news paper articles, government reports and the findings of various organizations. According to the authors this document was compiled because people tend to forget our past experience and very often have to relearn what had been known before. In the first twenty pages, the authors provided a detail description of 1984 floods during different periods of the year. This is followed by illustration through many maps, charts and numerous tables. The tables contain information relating to effected population by district and upazila, damage to different types of crops. One important feature of the tables is that the information is provided by flood periods. The whole document can be treated as a statistical handbook of 1984 flood. This record can be used in comparing the 1984 floods with the previous and later floods.

Key Words: Flood/ Record / Document

Rahman, Md. Ataur, 1989 : Is there a Permanent Solution for Flood in Bangladesh. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 132-140.

The floods, causes and consequences of floods have been discussed. It also contains suggestions of five different alternative solutions which are considered practicable and pragmatic. The suggested alternatives are preventive/ indirect and curative/direct in nature. Implementation of some of these

measures requires regional cooperation, understanding and agreement. The preventive measures have structural bias, involve colossal engineering construction works and cooperation from neighbouring countries. However, in case this is not possible, the author feels that Bangladesh should mentally and physically prepare to control flood through curative or direct methods.

Key Words: Flood control / Preventive and curative methods / Flood zone /Cooperation.

Rahman, Atiur. (undated). Human Responses to Disasters : An Illustrative Study on Grameen Bank Borrowers. Human Resource Development Division, BIDS, Dhaka, 77p

The paper deals with the peoples responses and adjustment strategies in the backdrop of natural disaster. In the beginning of the paper, various individual, households and social responses are discussed. In doing so the author specifically uses the example of Grameen Bank to discern whether the people who belong to an organizational network do better in coping with the disaster. The paper also contains discussion on the background and dimensions of natural hazards in Bangladesh. How different categories of households, such as landless, landpoor, small, middle, rich peasantry respond to flood are described. Later, the author discusses the institutional responses and uses the example of Grameen Bank. It has been observed that the rural poor belonging to Grameen Bank faced recent floods more boldly than others of similar socio-economic backgrounds. It is further revealed that Grameen Bank workers stood by their borrowers during disaster and provided goods and services against repayment and discouraged relief. In spite of good work done by Grameen bank their impact was limited due to limited coverage and could not reach all the poor.

Key Words: Disaster / Flood / Human responses / Household / Social and Institutional response / Relief / Credit

Rahman, Md. Anisur et al., 1990: Flood and Development - A Study of the Socio-economic Impact of 1988 Flood in Rural Bangladesh. Bangladesh Public Administration Training Centre, Savar, Dhaka

The study conducted was in four villages drawn from four districts worst effected by 1988 flood. It presents information relating to socio-economic backgrounds of the study respondents, nature and type of damage caused to crops, trees, poultry, houses etc. Impact of flood on the conditions of share cropping,

unemployment, wage rate, land sale and mortgage, rural-urban migration, relief and rehabilitation programmes undertaken by the government and the NGOs are also described. Data from both primary and secondary sources are used. The primary data are collected through administration of questionnaire to 232 randomly selected households from four villages. This is a typical flood study with a comprehensive coverage of issues. The majority of the respondents (40%) were landless and suffered most. The damage to crops, fruit bearing trees and houses were significant. The major portion of borrowers borrowed from non-institutional sources. It is revealed that during the flood the relationship between the poor and the middle class was good. The study concluded with a note that the flood 1988 increased the process of differentiation of peasantry, inequality, dependency relationship and indebtedness.

Key Words: Flood Damage/ Households responses/ Socio-economic background/ Survival strategy/ Sharecropping/ Unemployment/ Government's policy and response

Rahman, Saidur, 1988: NGO Intervention in the 1988 Floods, -OXFAM - A Case Study, Vol. 15, No. 5, September - October, pp. 13-15

This case study is a depiction of facts of OXFAM relief activities in Bangladesh. It has been reported that OXFAM distributed food to 61 Upazilas of 30 districts through 131 NGO Local organisations, institutions and groups, during peak time of 1988 floods.

Key Words: NGO / Relief / Food

Rashid, Harun and Bimal Kanti Paul, 1987: Flood Problems in Bangladesh. Is there an Indigenous Solutions? Environment Management, Vol. 11, No. 2, pp. 155-173

The paper begins with a description of environmental settings, nature of flood problem, types and extent of damages. It then draws attention what was done in the past and could be done in the future. Bangladesh experiences two distinct types of inundations : 1) river floods caused by excessive runoff due to monsoon precipitation and, 2) coastal floods induced by storm surges or tropical cyclones. Floods may be normal annual events (normal flood) or abnormal that might occur once in every few years. It is emphasised that the people of floodplains have shown tremendous resilience and adaptability to normal floods by developing a series of indigenous or traditional adjustment

mechanisms. The adjustment to coastal floods is, however, inadequate. Solution will be highly expensive, time consuming and probably will be beyond the means of the internal resources of Bangladesh. It is concluded that there is no total indigenous solution and ultimately the solution lies in the effective control of downstream flood levels through international collaboration, by constructing small public projects, such as polders, and also by encouraging and reinforcing various types of indigenous adjustment to floods. Numerous FCD and FCDI projects were completed within Bangladesh to control and to minimize the loss of abnormal floods. The authors opine that a successful solution would require international collaboration and support.

Key Words: Flood Problem/ River floods/ Coastal floods/ Solutions/ Structural and Nonstructural/ Adaptation/ Indigenous/ Collaboration

Ressler, Everett, 1990 - What Families can Do to Reduce Flood: Resource Information for the Development of Literacy, Educational and Public Awareness Materials for Family Level Flood Preparedness and Response. Mimeographed Draft, January 1990, 34p.

The paper provides information which will help and encourage the households effected by flood to take action in order to reduce further losses of life and personal property. It contains information regarding what people know about flood, how they can reduce deaths, illness and injuries, agricultural damage, damage to houses, properties, loss to livestock and poultry etc. The paper draws attention to the actions both before, during and in the aftermath of flood by rural households. The information collected by a NGO from survey of villages effected by flood were used to prepare the paper. It is expected that the materials of the paper may be used as reference information for the development of literacy, educational, or public awareness literature for use at the rural household level.

Key Words: Flood/ Loss / Reduction / Family / Damage

Rogers, Peter et al, 1989: Eastern Waters Study - Strategies to Manage Flood and Drought in the Ganges - Brahmaputra Basin. Asia Near East Bureau, USAID, Washington D.C. April 1989.

The Eastern Waters Study was sponsored by USAID focuses on the watershed management in the Ganges and the Brahmaputra

basins. The report makes a strong reservations that large scale flood control projects through embankments are a feasible solution in dealing with the flood problem in the near future. Flood control by embankments unlike reservoirs makes no contribution to irrigation or hydropower but brings very large environmental disruptions. The cost of construction as well as maintenance of embankments is also high. It is pointed out that drainage improvements are less disruptive ecologically and technically and economically more feasible than dams and embankments. The recommendations of the report are divided into three categories, general recommendations, action recommendations, and recommenda-tions relating to technical and scientific research. Each of the recommendations are divided into several subcomponents.

Key Words: Population/ Resources/ Flood ecosystem/ Causes/ Flood control/ Embankments/ Feasibility

Safiullah, A.M.H., 1989 : Embankments for Flood Protection - Success and Failure. In Mohiuddin Ahmad (ed.) , Flood in Bangladesh. CDL, Dhaka, pp. 173 -

In this article , attention has been drawn to the fact that flood protection through embankments is likely to continue as an important method in the near future. Properly planned, designed and constructed embankment projects provide a wide variety of benefits in addition to protection of life and property. Every year in Bangladesh, there is large number of cases of embankment failures which are due to inadequate planning, faulty design without following the standard procedure of the principle of soil mechanism, and lack of quality control during construction. The author felt that much of the success of embankment projects have been jeopardized due to these reasons . From a number of case studies the author revealed that the most failures are related to hydrologic and geotechnical inadequacies followed by subsequent low standards of maintenance. It is obvious in the article that the embankments are not bad but some of the conditions related to embankment design and construction that are unique to Bangladesh require serious reconsideration and further study.

Key Words: Flood protection / Embankment/ Hydrological and geotechnical information/ Design / Construction

Shahjahan, M., 1989: The Devastating Flood of 1988. In Mohiuddin Ahmad (ed.), Flood in Bangladesh. CDL, Dhaka, pp. 141-143

This brief article begins with a discussion of flood pattern in Bangladesh. The author suggests that three types of measures for flood control, such as short, medium and long term can be undertaken. Short term measures are mostly non-structural while the medium and long term measures are structural. It includes among other things the construction of storage reservoirs in the upper catchments.

Key Words: Flood control/ Short, medium and long term measures/

Shahabuddin, Quazi and Stuart Hestelman, 1986: Uncertainty and Disaster-Avoidance Behaviour in Peasant Farming -Evidence from Bangladesh. Journal of Development Studies. Vol. 22, No. 4, pp. 740-752

Farmers in traditional agriculture are subject to various uncertainties that put them to numerous risk. An attempt is made to test predictions of a safety - first model and of a profit maximisation model of farmer behaviour. The data for the purpose were derived from small holding farmers of Pabna region. The paper also contains a discussion on the model, data and estimation procedures. The result shows that predictions of a safety-first model of decision-making strongly conform to the empirical evidence but predications of profit maximisation model could not be supported. It is further pointed out that in case of major outputs, such as rice and jute, the safety first model performs better compared to the profit maximisation model.

Key Words: Agriculture/ Uncertainty/ Peasant behaviour/ Disaster avoidance/ Safety first model/ Profit maximisation model

Shailo, Iqbal, 1988: Glimpses into the History of the Floods - 35 Years. ADAR News. Vol. 15, No. 5, September - October, p.7-8

Although not comprehensive, one finds here a brief overview of the history of floods in the last thirty five years . Floods in Bangladesh are cyclical phenomena, but in recent years this has become an annual event. Quoting a renowned statistician who conducted a survey in 1927, the article reveals that flood is generally experienced in this region at an interval of two years and a quarter. Out of the 28 floods in the last 35 years, 5

floods are categorised as the most devastating and terrible. The paper also contains a graphical presentation of water levels of major rivers in three floods i.e. 1954, 1987 and 1988. Estimates of flood damages can be found in the paper.

Key Words: History/ cyclical phenomena/Water levels/ Damage

Shaw, Rosalind, 1989: Living with Floods in Bangladesh. *Anthropology Today*, Vol. 5, No. 1, February 1989, pp. 10-13

Through this brief note an anthropologist describes her experience of the 1988 Bangladesh flood and how people survived in a relief camp in the Dhaka city. The nature and the type of flood, peoples' perception of flood both as hazard and resource have been discussed. The author felt that until recently the capacity of people to survive in flood has been sufficient to permit a favourable balance between the risks and the advantage of living on a fertile flood plain, but in the last few decades this adaptive capacity of the majority of Bangladeshis has declined due to deteriorating levels of poverty. It is observed that in urban relief camps commensal divisions between households tended to harden, even as social support and mutual co-operation between them increased. On the contrary, in the rural communities social support networks are very important during the time of crisis. The high-tech construction will not solve flood problems; rather an attempt should be made for building people as well as embankments.

Key Words: Flood/ People/ Survival/ Poverty/ Social support/ Relief/ Embankments.

Siddique, A. B. M., 1989: Impact of Flood on the Economy of Bangladesh. In Mohiuddin Ahmad (ed.), *Flood in Bangladesh*. CDL, Dhaka, pp. 245-253

The impact of flood on various sectors and subsectors of the economy are discussed. These include impact on roads and highway, railways, inland waterways, agriculture that includes subsectors like crops, livestock, fisheries and forestry, industry and urban infrastructure. The effect on the economy is also discussed in terms of its effect on GDP growth rate, on investment, on cost of living and on balance of payments.

Key Words: Flood/Impact/Economy

Tim, R. W. Fr., 1989: Causes of Heavy Flooding in Bangladesh. Mohiuddin Ahmad (ed) : IIL, Dhaka, pp. 271-272

Various causes of flood are described. However, the author draws attention to another issue i. e. riparian right which he links to human right. Since the basic human right is the right for everyone to live, therefore, the countries bordering on the upper reaches of international rivers have legal duties and obligations towards those living in the lower reaches. All these countries should cooperate and separate discussions on a country to country basis can have little effect.

Key Words: Causes of flood /Rainfall/ Deforestation/ Riparian rights/ Human right/

UNDP, 1989, Bangladesh Flood policy Study. Final Report, May 1989

The Bangladesh flood policy study is an outcome of study/ deliberations of a multidisciplinary and multisectoral study team/ steering committee to initiate a study which would examine the causes, nature and effects of the floods, recommend remedial measures and establish a comprehensive flood policy. One important observations of the study is that solutions should be sought through plans which can be implemented within the country. Several options were identified in this respect. These are: upstream storage, shallow storage reservoirs in plains and embankments. Considering all these the flood plan includes both structural and non-structural components. It is pointed out that properly planned and maintained embankments provide the best solution to the country's flood control endeavour. Along with these non-structural activities, such as flood forecasting, early warning and flood preparedness have been emphasised in the plan. In order to provide water control to the protected areas and secure environment for intensive agriculture the flood plan proposes to divide the protected areas into compartments to be managed locally. For implementing the plan the flood policy programme has been divided into several phases (preparatory, short term and medium term). The plan also identifies some high priority projects.

Key Words: Flood policy/ Structural/ Non-structural/ Embankments/ Flood forecasting and preparedness/ compartmentalisation

UNDP, 1988: Draft Contingency Plan for 1989 Flood Preparedness in Bangladesh. Dhaka, June 1988, 32p.

This paper is a product of the ongoing dialogue between UNDP and Government of Bangladesh on disaster preparedness following the devastating floods of 1987 and 1988. The paper has three sections. In the first section, the scenario for 1988 floods reviews the possibilities for floodings in 1989 on the basis of experience of the two previous years. The flood preparedness recommendations in section 2, outlines steps that are to be undertaken to improve the nation's flood preparedness. In the section 3, the background report contains some revisions of the flood policy study of UNDP. It is an useful document and first of its kind in Bangladesh.

Key Words: Flood/ Emergency / Preparedness

White, Sarah C., 1988: Forests and Flood - Connections and Questions. Oxfam. October 1988, 3p.

The paper questions the widely held view that floods in India and Bangladesh can be linked to deforestation of the Himalayas following rapid population growth. It is always believed that population growth along with the poverty of masses is to be blamed for deforestation, but it is not the the wealthy, urban inferests that receive the blame. This is not surprising because the history of forest dwellers in India shows that their way of life has been blamed since colonial times for environmental degradation. It is further pointed out that the connections between the two is not conclusive. Deforestation in the region began 200 years ago. The quality of the forested area was declining, its extent was not. Damage is not generally due to the cutting of trees but to the way they are removed. The issue of the Himalayan deforestation is yet to be properly researched and need conclusive evidence. In the last section, the author draws attention to the negative effects of flood control by embankments.

Key Words: Flood / Forest / Deforestation / Environment

Woodrow, Peter (ed.), Floods in the Char Areas of Kurigram District - A Case Study. Undated, 6p (mimeo)

This is a brief case study of 1987 and 1988 floods in the char villages of Chilmari Upazila of Kurigram district. The socio-economic conditions of people, their livelihood features, agriculture and other related issues are discussed in the write

up. The last section contains an analysis emanating from flood. The extent of inundation, the number of people who suffered and how they survived the ordeal are described.

Key Words: Flood / Char/ Poverty / Socio-economic features / Relief / Crisis

World Bank. 1989: Bangladesh - Action Plan for Flood Control. Main Report. The World Bank, September 22, 1989

This report has been prepared by the Bank staff, with significant contributions from government staff and also from appropriate experts. This report provided a basis for discussion at the London conference in December 1989 convened to discuss the flood problems and control programmes which was participated by the countries and the agencies interested in this. The report has twenty five elements divided into three groups : Plan components, supporting activities and non structural programmes. The report further outlines a five year action plan for the implementation of a comprehensive long term programme for flood control and drainage in Bangladesh. The plan is a mix of projects that are likely to be implemented in the next 2/3 years and studies leading to further projects in the near term and subsequent plan periods. The provision has been made for supporting technical, socio-economic and environmental studies.

Key Words: Flood control / Action plan / Studies / Projects / Structural and Non - structural Programmes

Zaman, H.Q., 1990: Water, Water, High Water - Living with Flood in Bangladesh. A Paper Prepared for presentation at the 24th Bengal Studies Conference, held at the University of Chicago, May 18-20, 1990.

The author begins the paper with a discussion on the nature and types of flood in Bangladesh. It is pointed out that people in the floodplain are well adjusted to normal flood whereas the high flood brings massive destruction and displaces hundreds and thousands of people. This duality in importance of normal flood and periodic devastation by high flood is a dominant theme in the Bengal peasant's world view system. It is felt that it is not possible to eliminate flooding completely, so attempts should be made toward limited protection recognising how we have to live with flood in future.

Key Words: Flood/ Devastation/ Flood Protection/ Public policies

3.3 FAMINE

ADAB News, 1977. Disaster Preparedness Section - Famine Mapping, Vol. IV, No. 4, April, pp. 1-8.

This report described an on-going project of famine mapping by a social geographer which is likely to fill the information-gap on the problem. The researcher formulated and listed the environmental factors, assessed the relative importance of each factor and also suggested preventive and precautionary measures for areas in accordance with these identifiable factors. The last part of the report includes a background of the study provided by the researcher Bruce Currey. Here the researcher describes when and how famine occurs, how Akal (scarcity) becomes Durvickha (famine). He also defines famine vulnerability as equivalent to the absorptive capacity of an area in terms of its absorptive capacity, its degree of isolation, its purchasing power, and its storage and savings capacity.

Key Words: Famine Mapping/ Disaster/ Preventive and Precautionary Measures/ Scarcity/ Vulnerability

ADAB News, 1979: Prospect of Famine-1979. Vol. VI, No.11, November, pp. 27-28.

This is a report on Dr. Bruce Currey's research on famine and his predictions of famine in 1979. It points out that Dr. Currey felt in 1979 that the government officials gradually accepted the reality surrounding the famine while in 1974 the situation was totally different. The report also mentions different indicators that may be used in forecasting a famine. Detailed hydrological information may also be useful for this purpose.

Key Words: Famine/ Food Stock/ Indicators/ Forecasting a famine

Alamgir, Mohiuddin, 1978: Bangladesh - A Case Study Below Poverty Level Equilibrium Trap. Bangladesh Institute of Development Economics. Dhaka, Bangladesh.

In this book an attempt is made to make a structural analysis of poverty, inequality, famine and death (PIFD). To explain the PIFD a theoretical construct called "Below Poverty Level Equilibrium Trap" has been developed. Including introduction and conclusion the book has seven chapters. In all

these chapters the author discusses the trends in real income and poverty, pauperisation and polarisation, laws of motion in Bangladesh society and also elements of development strategy. In the chapter on pauperization and polarization, the author draws attention to the 1974 famine and the vulnerability of people to famine. The socioeconomic background of famine-affected people, langarkhana gruel kitchen inmates, compared with the households drawn from the other areas of the country. An analysis of transfer of assets, distress sale, and nature of exchange entitlement can be found in the book. It is pointed out that in 1974 the most important reason for people to move from rural areas into Longarkhanas in urban areas was drastic reduction in income and employment opportunity. The author also compares the income, employment and wage rate of famine and non-famine areas. Indeed, the book brings into focus the gamut of issues relating to poverty, inequality and famine.

Key Words: Poverty/Inequality/Famine/Polarisation/Pauperisation/
Bangladesh

Alamgir, Hobiuddin, 1980: Famine in South Asia-Political Economy of Mass Starvation. Oelgeschlager, Gunn & Hain, Publishers, Inc. Cambridge, Massachusetts, USA.

This is a comprehensive study of famine in Bangladesh based on a broad based field study conducted during 1974 famine. At the outset the author attempts to provide a theory of famine, then describes the various Indian famines of the past. Chapters 4 to 8 contains a detail analysis of Bangladesh famine with supporting data from a famine survey. The data for the book is obtained from a survey carried out in eight villages and eight langarkhanas (gruel kitchen) of Bangladesh during November 1974. The sample observations include 1774 households in eight villages and 788 inmates of eight langarkhenas. The author discusses the effects of famine on different groups of households. Later the author describes societal response to famine, food grain availability at the national, regional and household level. General price situation, wage, employment and real income situation are also elucidated. The study is quite informative gives both a micro and macro perspective of famine situation in Bangladesh.

Key Words: Famine/Flood/Foodgrain availability/Employment/Income/
Wage/Price/Bangladesh

Ali, Mehtabunisa, 1984: Women in Famine -The Paradox of Status in India. In Bruce Currey and Graeme Hugo (ed.), D. Reidel Publishing Co. pp. 113-133.

An attempt is made through this paper to show that women play a crucial role in Indian famines and in similar other crises. It also takes exception to the conventional demographic notion that there has been a devaluation of women concerning the status and role of women by describing their roles during the famine. The paper also contains a review of literature on the role and status of women in India. It examines departures during famine from women's traditional roles and highlights the ability of women to expand their traditional roles as food processors and food preparers to fulfill traditionally male roles as income earners and food procurers. The paper depicts the famine responses of poor women, who may be considered as most vulnerable during a food crisis with focus on studies of women in famines in Bihar and Bengal and also drawing instances from women studies in contemporary Bangladesh. The paper emphasises that there is a necessity to reexamine the existing criteria for assessing status and women's roles in the development process.

Key Words: Famine/ Women status/ Food crisis/ Decision-making/ Bangladesh

Anonymous, 1974: Famine in Bangladesh. mimeographed. 62p.

This study was conducted by a group of university researchers with a view to understand the nature, causes and the implications of famine which started before the unprecedented floods, and crop failures due to drought. It is based on information collected from official documents and reports, news paper reports and opinions of officials and also direct observations of the affected areas and the people. The study begins with a description of past famines and then the background of the 1974 famine. It points out that although flood, drought and consequent crop failures may be identified as the most important immediate causes of famine, in reality the factors that caused famine are many and inter-linked. These are: population growth, pressure on the means of subsistence, pauperisation of the general masses and also the failure of the government food distribution system. It is further observed that the famine is not directly caused by man but its severity and human sufferings are aggravated by human actions. Numerous figures and tables are used to analyse the different causes. Later, the study contains a detail description of the 1974 famine in Rangpur, one of the worst famine-affected areas. This is followed by a discussion of

famine relief in Bangladesh. The study concludes with a description of the impacts of famine and the future prospects. It can be discerned from the study that famine brings immense misery for the people, and causes gradual pauperisation which reduce peoples capacity to face future disaster.

Key Words: Famine/ Food/ Drought/ Crop failure/ Foodgrain availability/ Effects of famine/ Bangladesh

Berry, Leonard, 1978: Environment - A Critical Aspect of Development and Food Production in Bangladesh. Ecology of Food and Nutrition. Vol. 7, pp. 73-86

The article provides a critical analysis of the environmental aspects of development and food production in Bangladesh. The effects of population growth, changes in the Ganges - Brahmaputra catchment, problems of physical systems within Bangladesh and finally environmental problems and the possible developmental changes are discussed. The emphasis of the paper is on the environmental issues and their implications which have been so long ignored in the literature. The author points out that many important aspects of environment are not yet fully understood or quantified. Although Bangladesh is not a very environmentally heterogenous country, a regional development approach might be useful even given whatever heterogeneity is there.

Key Words: Environment/Development/Population Growth/Development change/Food production.

Brammer, Hugh, 1984: Development Strategies in Famine-Prone Areas. ADAB News, Vol. XI, No. 6. November-December, pp. 20-25.

Identifying Char and bil areas of Kurigram and Faridpur districts as the famine prone areas, an attempt is made to suggest development strategies for these areas. At the outset the author discusses the common agroecological features and also constraints to development. According to the author both the areas are characterised by unstable environments, insecure living conditions, poor communications and backward social conditions. Considering these conditions the author suggests that two courses of development need to be considered: i) what can be done within the area and, ii) what can be done outside the area to ensure secure living conditions. He suggests that within the char area

an obvious need is to increase production of crops, generate employment, develop appropriate infrastructure, land improvement etc. In the conclusion, the author suggests that outside the char area employment opportunities should be created to attract people from the most insecure char sites.

Key Words: Agro-ecology/ Char and bil/ Unstable environment/ Insecurity/ Production/ Employment.

Brennan, Dr. Lance, 1984: The Failure of Famine Relief in Bengal in 1943. A Paper Prepared for the Asian Studies Association of Australia, Fifth National Conference, University of Adelaide. May 13-18, 1984, 19p.

Failure of famine relief in the background of 1943 famine is discussed. Some general factors that are identified include dislocations caused by war, the paucity of lower level administration in Bengal and also the difficulty of communications. Examples of several districts of both East and West Bengal were cited. Lack of any plan for relief, lack of coordination and reliance on Famine Codes without considering the reality further accentuated the problem. Pointing to several factors that contributed to failure, the author concludes that there was also a failure, mainly in the higher political and administrative structures of the province to work together to establish a relief policy and organization which could have saved more of those affected by the crisis.

Key Words: Famine/Relief/Grain market/Relief failure/East Bengal

Chen, Lincoln C. and Jon e. Rohde, 1973: Civil War in Bangladesh - Famine Averted. In Lincoln c. Chen (ed.), Disaster in Bangladesh. Oxford University Press. pp. 190-205

An attempt is made to analyse how a much predicted famine after the 1971 civil war that precipitated major disruptions in an already marginal economy could have been averted. To investigate the issue, the authors reviewed the rationale for the famine forecasts, critically analysed why a major famine failed to materialise, examined the impact of war on nutrition, and offered some perspective on the future nutritional situation in Bangladesh. Many facts relating to foodgrain production, food availability just before and after the 1971 disaster are presented. It could be discerned that famine could be averted due to several reasons: 1) substantial reduction of population

due to civilian war deaths, 2) large scale migration to India which afforded Bangladesh a significant food saving, the burden of which could be shifted to India, 3) Although there was some deficit in food availability in 1971, the major portion could be met by taking into consideration the refugee exodus and civilian deaths, 4) the capacity of numerous waterways to facilitate food grain movements by country boats, and 5) a surprising lack of private hoarding, profiteering, and speculation. The authors also draw attention to the fact that the resilience of Bengali peasants who faced many disasters for generations are either underestimated or ignored, which might have contributed significantly to averting famine in 1971.

Key Words: Famine/ Civil War/ Food production and availability/
Migration/ Population reduction/ Resilience of
Peasants

Chowdhury, A.K.M. Alauddin and Linoln C. Chen, 1977: The Dynamics of Contemporary Famine. Ford Foundation. Dhaka, January 1977, 32p.

This is a study of the demographic impact of a famine like situation after the 1971 war of liberation and 1974 famine on Matlab thana, a riverine rural area located 40 miles away from Dhaka. Although the effects of the two crises were different, both of these exerted a profound influence on all three demographic vital variables, such as births, deaths and migrations. The rates, however, varied immediately after the famines and later. Another finding was that the impact of the 1974 famine was of longer duration than the effects of the 1971 disaster. The impact and fluctuations of births, deaths and migrations are also disaggregated and analysed. From the experience of two contemporary famines, the authors also developed an analytic framework delineating the multiple interacting causes and consequences of famine. The framework postulates that several mutually reinforcing vicious cycles, between infection and malnutrition and between the three demographic variables, that contribute to the impact of acute nutritional crisis. Various statistics and figures have been used to support the arguments. The authors also suggests some preventive and remedial measures to face the problem. For exemple, it is suggested that the early warning system should be strengthened.

Key Words: Famine/Demographic variables/Food consumption/
Nutritional crisis/Price fluctuations/Mlgration.

Cole, Patrick Dodge and Paul D. Wiebe 1976: Famine Relief and Development in Rural Bangladesh. Economic and Political Weekly. May 29, 1976. pp. 809-817.

The paper contains a description of relief operation conducted by government, a cooperative institution, one foreign and one local NGO during the 1974 famine. The authors make some comments on the factors that helped in the successful implementation of relief programmes and constraints that hindered the operation. The setting of the operation was Rowmari Upazila that lies within Rangpur district in the northern Bangladesh. This was one of the worst affected areas by 1974 flood. The paper reveals that relief operations are conducted more or less smoothly due to better understanding of local problems by two NGOs, cooperation among NGOs and government officials. The problems that were faced however, include transport and communication and accommodation. The relief programme included food supply in the gruel kitchen, child feeding and health support programme. A brief tension that developed between the workers of a NGO and local people were amicably settled through the intervention of officials. In the end the paper raises an issue which needs attention. The issue is to what extent the NGOs can work through the local power structure ?

Key Words: Relief/Food/Health/Cooperation

Currey, Bruce (undated Draft): Is Famine a Discrete Phenomenon. 11p.

Reviewing two recent books on famine the author raises an issue whether famine can be treated as a discrete phenomenon. It is pointed out that traditional approach to treat famine as discrete phenomenon, do not give an exact picture regarding what is famine and the processes that led to a situation of famine. So, the author argues that rather than looking at famine as a discrete phenomenon it is important to see it as a subjective window on poverty and hunger. The focus, therefore, should be on invisible children that slip towards starvation. The author used two tables to support his arguments.

Key Words: Famine / Discrete phenomenon/ Structural hunger / Starvation

Currey, Bruce, 1978: The Famine Syndrome-Its Definition for Relief and Rehabilitation in Bangladesh: Ecology of Food and Nutrition. Vol.7, pp. 87-98.

In this paper, the author attempts to define famine from a different perspective. As opposed to the commonly accepted definition of famine as epidemic malnutrition, the author also views famine as the community syndrome which results when social, economic, and administrative structures are already under stress and also further triggered by one, or several discrete disruptions. He used two examples-one from Dhaka city which supports the presently accepted definition; the second example is from the rural area of Rangpur region which emphasises the potential of monitoring early indicators. This analytical paper uses several graphs, tables, and figures to illustrate various arguments in the paper. It is further pointed out that it is possible to quantify several of the signs of famine syndrome. The background of the 1974-75 famine in Rangpur is quite nicely described in a table. The analysis and definition provided by the author has significant implication not only for flood relief but also for general relief and rehabilitation activities in Bangladesh. In the conclusion, the author stresses a more eclectic approach to the understanding of famine drawing from various disciplines, such as agricultural economics, transport logistics, rural demography, social anthropology, land use planning, international relations, and public health.

Key Words: Famine syndrome/Malnutrition/Symptoms/Food availability/Prevention/Relief and rehabilitation.

Khondker, Habibul Haque, 1984 : The Famine of 1974. In M. H. Khan and John Throp (ed.), Bangladesh-Society, Politics & Bureaucracy. Center for Administrative Studies. Dhaka, Bangladesh. pp. 43-74

In this paper the author attempts to explain causes of 1974 famine. Beginning with a definition and context of 1974 famine the author identifies several factors that are believed to have caused the 1974 famine. These include : the geographical and climatic factors, the economic, social-structural and politico-administrative factors. It is pointed out that the 1974 famine was actually an outcome of complex interaction of various factors. Attention is also drawn to the existing poverty situation, the elimination or reduction of which to a tolerable level is greatly needed to build up peoples capacity to face disaster like famine. In the conclusion, however, it is said that

hard and unpopular political decisions are necessary in freeing Bangladesh from the spectre of famine.

Key Words : Famine / Causes / Natural disaste / Structural / Politico-administrative

Muqtada, H., 1981: Poverty and Famines in Bangladesh. The Bangladesh Development Studies. Vol. IX, Winter (1981), No. 1, pp. 1-34

Drawing largely from the experience of 1974/75 famine, the author attempts to make a structural analysis of famine. He argues that rather than considering famine as an after-effect of natural disasters, it should be seen as simply an extension of the existing state of poverty. The author begins the paper with a framework for analysis which he calls a structural approach. Then he discusses the scenario of 1974/75 famine and the various attempts in seeking the causes in natural disasters, food availability decline (FAD) and fluctuations; in exchange entitlement. It is argued that all these causes are less than a complete account of famine and individually they do not explain the famine in its proper perspective. Therefore, indepth analysis considering famine as an extension of poverty linking the factors that are believed to cause famine may give a justifiable and acceptable explanation of famine. In the conclusion, the author further points out that given the current agrarian structure, the short term break-down of economic relationships that occur in the wake of famines can, in effect, aggravate vulnerabilily of the rural poor, leading to impoverishment.

Key Words : Famine / Structural approach/ Poverty / Natural disaster/ Food availabilily / Exchange entitlement

Rahman, H. Mujibur, 1978: The Causes and Effects of Famine in the Rural Populations - A Report from Bangladesh. Ecology of Food and Nutrition. Vol. 7, pp. 99-102

Experiences of famine from a micro perspective are described. The author attempts to relate the experiences of 1943 and 1974 famines emphasising the reactions of rural people and their attempts to avoid starvation and death. The role of infectious disease as a source of mortality in the 1974 famine has been brought under attention. It is further pointed out that since the majority of the population are extremely poor, they remain continually vulnerable when a natural disaster, like flood

and drought hits them. The result of this is crop failures. In fact, the author observes that both 1943 and 1974 famines were the results of consecutive crop failures. Describing the effects of famine on rural population, the author further says that famine leads to a reduction in their income and shrinkage of their purchasing power. Several events that usually occur in the aftermath of scarcity in rural areas are nicely presented. Several infectious diseases made their appearance in epidemic proportions caused by shortage of food, starvation and also the civil war preceeding the 1974 famine.

Key Words: Famine/Crop failure/Effects of famine/Natural disaster/Rural population/Infectious disease/

Seaman, John and Julius Holt, 1980: Markets and Famines in the Third World. Disasters. Vol. 4, No. 3, pp. 283-297

The relationship of famine and markets in Third World context describing it as a market event are considered. The authors point out that the major features of famine as a general phenomenon can be described by considering four points. These include market in food, monetary income, degree of population involved in the market and the existence of institutional arrangements to meet any shortfall. Examples from Bangladesh, Ethiopia and Sahel have been used. The paper also contains some general considerations on the market. Discussing the case of Bangladesh, the author points out that the 1974-75 famine was caused by crop failures which effected the lower strata of people most. The nature and types of changes in market price and also the impact of government interventions in the market have been assessed. The relationship between income, wage-price indices and starvation have been elucidated. It is pointed out that the price rise effected the food intake of the poor in 1975. The crux of the argument of the paper is that starvation is related not with the quantity of food produced in an area rather it has much to do with the market and other means of storage and redistribution. Therefore, the paper concludes with a observation that in a situation where the market mediates some or all of starvation, a rational approach to relief should be not entirely free distribution rather food should be sold.

Key Words: Market/Famine/Prices/Starvation/Income and wage/Market surplus/Bangladesh

Yusuf, P.N.H. and Bruce Currey, 1979: The Feasibility of a Famine Warning System for Bangladesh. Ministry of Relief and Rehabilitation. Government of Bangladesh. 119p.

This extensive though largely impressionistic report examines the complexity as well as the feasibility of designing a famine warning system for Bangladesh. The report starts with descriptions of famine in the Bangladesh context followed by an evaluation of some potential famine warning indicators at national, district (Dhaka) and thana level. Various problems and difficulties in providing an early warning system are discussed. Finally, the authors suggest a pragmatic course towards a more effective system for both short and long term duration. The report is based on several sources that include statistical series and reports available in Dhaka and also discussions and interviews of people in the relief ministry, other government officials and also officials at Rangpur, one of the worst famine effected areas in Bangladesh. The authors also interviewed 50 destitutes at Rangpur and 45 villagers from a village which provides an insider's viewpoint on famine.

Key Words: Famine/Early warning/Warning indicators/Rice prices/ Destitutes/Effects of famine.

3.4 CYCLONE

Brammer, Hugh, 1980 : Disaster Preparedness- Are You Prepared for a Cyclone ? ADAB News, Vol. VII, No. 10, October- November, PP. 26-29

This paper draws attention to the various issues relating to cyclone preparedness in Bangladesh. A cyclone is defined as an atmospheric disturbance which brings very strong winds, heavy rainfall and sometimes tidal flooding to large areas for a period of several hours. The author also discusses the effects of cyclone in terms of agricultural and other damages. Several long and short term measures to lessen the intensity of cyclone damage are suggested. However, it is pointed out that the best precautionary measure against cyclones is to know the kinds of damage and problems which a cyclone can cause in a particular area. The author also emphasises the need for cyclone warning and also agricultural rehabilitation programme after a cyclone. Some constraints are also noted which mostly relate to the unsuitability of soils for growing some crops.

Key Words: Cyclone/ Damage/ Loss reduction/ Precautionary measure/ Cyclone warning/ Agricultural rehabilitation

Brammer, Hugh, 1977 : Cyclonic Storms. ADAB News. Vol. IV, No. 5, May. PP.2

It is pointed out that the different terms used to describe storms often cause confusion when the scale of relief requirements is considered. Several correct technical terms for various kinds of storms have been suggested. These are : cyclones, cyclonic storm, tornadoes, whirlwinds, Norwesters, and tufan.

Key Words: Cyclone/ Technical terms/ Storms

Hossain, Azfar, 1989 : Tornado in Manikganj- NGOs on the Move. ADAB News, Vol. XVI, No. 8, May-June, PP. 14-25

The devastating tornado that had hit Manikganj district in April 1989 and the NGOs relief and rehabilitation operation aftermath is the subject matter of this exhaustive write-up. The report describes how quickly and efficiently NGOs went into action and also the type of activities conducted by NGOs. It is revealed that since the relief activities were conducted by NGOs, two coordination committees- one at the local level and the other at the national level were formed through which many overlappings in relief operations could be avoided. The report also highlights the effective role of the government in the post tornado period.

Key Words: Tornado/ NGO/ Destruction/ Rescue/ Relief/ Rehabilitation/ Coordination

Islam, M. Aminul, 1971 : Cyclone Hazard and the Strategy of Human Occupance in the Coastal Areas of Bangladesh. Oriental Geographer. Vol. 15, PP. 37-45

The article starts with a description of the cyclone hazard, nature and the type of human occupance in the coastal areas of Bangladesh. It is revealed that in recent years a large increase in the number of deaths is due to several factors, such as occupational hazard, sea-level fluctuations and other co-related factors. The author pointed out that people hardly want to leave their place of residence because people are guided by their innate optimism or submission to the Almighty and also their belief that they have no choice but to stay for subsistence. It is emphasised that before undertaking any reconstruction programme the relation that exists between man and hazardous

aspects of the natural environment in the coastal areas should be fully understood and appreciated. The problem of damage assessment is also mentioned. The author then mentions different strategies of hazard adjustment. He argues that various adjustment options should be considered in any recovery programme. The author feels that before a long term recovery programme can be undertaken it is essential that government specify the broad objectives of such a plan. It is also suggested that surveys of attitudes of the respondents in the coastal areas is important for planners for formulating and successful implementation of their programmes.

Key Words: Cyclone hazard/ Adjustment/ Damage adjustment/
Recovery plan

Islam, H. Aminul, 1981 : Human Adjustment to Cyclone Hazards in Coastal Bangladesh. In K. Maudood Elahi (ed.), Perspective of Bangladesh Geography. Bangladesh Geography Association. Dhaka, Bangladesh PP. 36-62

The paper is the result of a study conducted on some selected coastal dwellers in Char Jabbar with three objectives : 1) to study the processes which have led to the present pattern of occupance, 2) to study the degree to which the various hazards are recognised by those who live adjacent to the shore, and 3) to identify the range of adjustments that are practised or might be practised in dealing with the cyclone flooding problem. The paper includes discussion on the study design, geographic and socio-economic characteristics of the area, morphological changes, flood and tidal surge, losses and damages. It is revealed that respondents have high awareness of past experience, although the link between awareness of the past and expectation of future events is complex. A large number of respondents think storm occur due to God's will. The adjustment is divided into two broad categories, namely, a variety of adjustments requiring prior preparation and, emergency adjustments without prior preparation. A detail discussion on this two categories can be found in the paper. In the conclusion, the paper emphasises the need for better coordination between public and private actions to reduce the future effects of natural hazards.

Key Words: Cyclone Hazards/ Perception/ Human adjustment/ Costal flooding/ Public and private actions

Islam, Aminul H. 1974 : Tropical Cyclones - Coastal Bangladesh.
In Gilbert F. White (ed.), Natural Hazards - Local, National
and Global. Oxford University Press. PP. 19-25

An attempt is made to offer some indepth and accurate insights about the coastal flood and cyclone hazards as perceived by respondents chosen from Galachipa Upazila of Bangladesh. The study also focuses on the options and choices that are open to the respondents in making adjustments and living with the cyclones and coastal inundations that frequently hit Galachipa and other adjoining areas. A description of physical features and flood protection schemes, house patterns, quality of homesteads, and socio-economic and class indices can be found in the paper. In analysing the data gathered, the author reveals that all respondents are aware of the coastal flood-hazard which created a sense of pessimism among them. No relation is found between past experience and decision making to settle and maintain settlement. It is, therefore, suggested that decision-making has not been a function of natural hazard events system. The study reveals that the relief and rehabilitation programme has added a new dimension to the perception of hazard. It is found that relief without obligation has reduced respondents concern about hazard. The provision of relief has caused an increase in flood-loss potential. No relation is found between cyclone hazard and adoption of specific adjustments. Public perception of hazard does not lead to any effective approach to crisis. The author suggests that the cyclone control programme is piecemeal, and corrective rather than preventive in nature. No attempt is made to organize a community programme against coastal hazards taking into considerations of local situation. On the basis of the study of perception, the author suggests certain optimal or desirable sets of adjustments.

Key Words : Coastal hazards / Perception / Socio-economic
backgrounds / Adjustments / Settlement / Relief and
rehabilitation / Adjustment options

Islam, H.A. 1971 : Human Adjustment to Cyclone Hazards - A Case
Study of Char Jabbar. Natural Hazard Research Working paper
No. 18, Department of Geography, University of Toronto,
Ontario, Canada.

Could not get it for annotation

Karmaker, Ranjan, 1986 : Gurni Jorer Rajniti-Artha Samajik Bishleson (Politics of Cyclone-Socio-economic Analysis). Gono Unnayan Pathagar, Dhaka (A Bangla Book)

The book written in Bangla contains a very indepth description and analysis of cyclonic storms that has become a regular feature in the coastal areas of Bangladesh. The book is a depiction of what the author observed and felt during his visit to the coastal chars and island before and after the devastating cyclone of 1985. The first section of the book presents a description of the geophysical and environmental features of coastal areas, violence centering around control over land, population features, land ownership pattern, changes in land ownership and also the pattern of agricultural wages. An attempt is made to depict the life and features of special groups, such as women and fishermen. In the second chapter, one can find a minute depiction of the devastating cyclone of 1985, death, destruction and damage, and how people fought for survival during the fateful night and immediately after the cyclone. The author raises an issue whether the intensity of damage could be minimized by timely forecasting, warning and proper disaster preparedness. Later one finds a discussion on politics of cyclone from local, national and international perspectives. A discussion on the relief and rehabilitation efforts by Red Cross, government and non-governmental organizations can be found in the last chapter of the book.

Key Words: Cyclone/ Costal area/ Geophysical features/ Destruction/ Relief and rehabilitation/ Politics

Khan, Abdullah Al-Hamun, 1974 : Perception of Cyclone Hazard and Community Response. Oriental Geographer. Vol. 18, No. 1 (January 1974), PP. 1-25

The paper is based on a study of 122 permanent coastal residents of Chittagong area who were interviewed through a questionnaire. Information was also collected through informal interviews with persons involved in hazard decision-making, field observations and from other sources. The paper incorporated the findings of the study that depicts the perception, attitude and related behaviour of coastal dwellers. The paper begins with a general description of cyclone hazard, study area (Chittagong coast) and also the objectives and methods of study. It is found that due to religious background the coastal occupants show a relatively moderate hazard expectancy. Although people are aware of their vulnerability, their psycho-religious sentiment has given them a orthodoxy to rise above it, creating a fatalistic

and indifferent attitude. The author also notices a variety of adjustment strategies which have been evolved over the years. However, the level of adjustment appear to be what is called sub-optimal. Therefore, the author argued for a comprehensive planning for the proper utilization and management of coastal resources.

Key Words: Cyclone perception/ Hazard/ Community perception/
Adjustment strategies/ Sub-optimal adjustment/
Comprehensive management plan

Loewenstein, Mathew S. 1973 : The Cyclone : Nutritional Assessment with the Quac Stick. In Lincoln C. Chen (ed.), Disaster in Bangladesh. Oxford University Press. PP. 133-144

This paper is about the importance and need of nutritional assessment based on sound epidemiologic principles for increasing the efficiency and effectiveness of all relief operations. The method was QUAC stick which was first used in Biafran crisis later employed in Bangladesh in the aftermath of 1970 cyclone. QUAC stick is a height measuring rod that help to classify individuals and groups according to nutritional status. The author thinks that this method may become a very useful tool for future nutritional relief programmes following disasters.

Key Words: Nutritional surveillance/ QUAC stick/ Relief and rehabilitation

Sommer, Alfred and W. Henry Hosley, 1973 : The Cyclone : Medical Assessment and Determination of Relief and Rehabilitation Requirements. In Lincoln C. Chen (ed.), Disaster in Bangladesh. Oxford University press. PP. 119-132

This paper draws attention to the importance for rapid and accurate assessment of medical relief in the aftermath of natural disasters, such as cyclone. The authors mentions two surveys that were conducted after the November cyclone of 1970. These surveys were conducted to document the extent of the tragedy and helped to define the emergency relief needs and also the future requirements for rehabilitation. Through the surveys an estimation of relief and rehabilitation requirements of the cyclone-affected areas could be made that helped to conduct relief operations effectively, avoid unnecessary duplications, save money and spend the same in the most desired sectors. From

the experience of Bangladesh the authors propose a three phase survey and surveillance system. They further argued that such a data-gathering system can provide a framework for future rehabilitation efforts and evaluate the adequacy of existing relief measures.

Key Words: Survey/ Need assessment/ Relief and rehabilitation/
Requirement

3.5 DROUGHT

ADAB News, 1979 : Drought Response Forum. Vol. VI, No. 9, September PP. 1-2

This is a brief report of ADAB drought response forum which was organized in response to the drought situation with the possibility of flooding from heavy monsoon. Many options are discussed. One suggestion is that there should be an attempt to make optimum use of water.

Key Words: Drought/ Response/ Crops/

ADAB News, 1979 : ADAB's contribution in the Drought Emergency. Vol. VI, No. 9, September PP. 2-3

ADAB's contribution and its role in drought emergency is highlighted. It contains a report on different meetings and their recommendations during the drought emergency.

Key Words: ADAB/ Drought/ Emergency

Brammer, Hugh, 1985 : Development Strategies in Drought Prone Areas 1. ADAB News, Vol. XII, No. 2, March-April 1985, PP. 3-10

This is part 1 of a two part article on development strategies in drought prone areas. The article is concerned with the description of conditions in Bangladesh's driest environments and also identification of appropriate development strategies for overcoming the constraints. In the first section the author defines what is a drought prone area followed by identification

of the areas which he considers 'dry zone' areas in the country. It is also pointed out that climatic and soil variability should be considered while one considers agro-ecological conditions in Bangladesh's driest regions. By climatic variability the author indicates mostly rainfall and by soil variability he means different types of soils and their relation with rainfall and how these effects choice of crops by farmers.

Key Words: Drought/ Dry Zone/ Heavy rainfall/ Soil types/ Soil Moisture

Brammer, Hugh, 1985 : Development Strategies in Drought-Prone Areas 11, Vol. XII, No. 3, May-June, PP. 3-9

In this part, the author discusses the constraints and development possibilities in the dry zones of Bangladesh. The constraints include unpredictability and variability in rainfall, soil problems, salinity, irrigation, drainage and soil conditions. Four types of measures are suggested to accelerate development. These are : agro-economic measures, provision of irrigation, provision of drainage and socio-economic measures.

Key Words: Development/ Constraints/ Rainfall/ Soil variability/ Irrigation/ Drainage

Brammer, Hugh, 1987: Drought in Bangladesh Lessons for Planners and Administrators. Disaster, Vol. 11, No, 1, PP. 21-29

In spite of the intensity and widespread effect of drought, it has attracted little attention compared to floods and cyclone. A drought is defined as a period when soil moisture supply is less than what is required for satisfactory crop growth. In this paper, the author describes the several techniques which the farmers adapt to mitigate drought. The scenario is 1978-79 which the author describes in detail. He describes the extent, nature of drought, different incidence of drought, drought tolerance and also the lessons for planners. It is revealed that the farmers use new practices, such as irrigation of crops, normally grown rainfed, and transplanting crops that normally are direct seeded. Crop-rotation is another alternative. The various location-specific responses by farmers provide important lessons for planners and administrators. The author argues that agricultural development and production plans should be as flexible as possible so that adjustments can be made whenever it is needed. It is further pointed out that different drought mitigating techniques by farmers should be recorded which can provide a

basis for future research, extension and development programmes. In the end, the author emphasises the need for drought monitoring which will help to formulate plans and mitigate the problem.

Key Words : Drought/ Mitigation/ Farmers response/ Lessons / Planners and administrators / Rainfall monitoring/ Disaster preparedness.

Brammer, Hugh, 1980 : Disaster Preparedness - Apply Lessons Learnt From 1978-79 Drought. ADAB News, Vol. VII, No. 1, January, PP. 26-29

In the light of 1978-79 drought, several measures for drought preparedness are suggested. It is suggested that in drought preparedness activities will vary from area to area, according to estimate, soils and traditional cropping patterns. It is important that attempts should be made to increase the security of agricultural production. Farmers should be more involved in groups where they can share their experience and discuss issues relating to irrigation, drought - tolerant crops, moisture- saving practices and drought-avoiding practices. It is pointed out that several new practices were observed during 1978-79 drought which should be extended further. These include the transplanting of seedlings to fill in gaps in Aus, deep water Aman and jute fields, and the cultivation of quick maturing crops.

Key Words: Drought/ Irrigation/ New Practices/ Farmers groups/ Agricultural security

Shailo, Iqbal, 1989 : Drought in Bangladesh. ADAB News. Vol. XVI, No. 8, May-June, PP. 8-14

The discussion of 1989 drought is preceded by some useful information relating to drought. The author begins by making a distinction between drought vs aridity, types of drought, drought overtime and also causes of drought. The causes of drought is categorised as terrestrial and extra-terrestrial. Man-made causes (green-house effect) also figure prominently in the article. Quoting some previous works on drought, the author points out that a major drought is experienced in Bangladesh once in every eight to ten years which causes damage to crops almost equal to the ravages of floods. It has been revealed that the entire south western parts of the country were worst hit by drought following the withdrawal of the Ganges water by India at

Farakka. Rangpur was the worst effected district in the northern region. The effect of this drought has been enormous. The effect, however, depends on the time of the year and the stage of plant growth. In the conclusion, the author suggested several prevention measures, such as early warning system (EWS), Union EWS, Upazila EWS, District and National EWS.

Key Words: Drought/ Aridity/ Types/ Man-made causes/ Effects/ Prevention/ Early/ Warning Systems

3.6 RIVERBANK EROSION

Ahmed, Hobiuddin and Andrew Jenkins, 1988: Traditional Land-grabbing and Settlement Patterns in the South Eastern Delta. Paper presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazard and Population Displacement. Dhaka April, 30p.

The fights relating to access and control over newly accreted char land is nothing new in riverine Bangladesh. Through two case studies on Urir-char and Char Bagger Dona, the authors demonstrate how a group of local Jotedars and influential people through faction building, effective linkages with and subversion of government institutions, and calculated use of terror sought to establish themselves as new Zamindars. Fieldwork on which the paper is based is conducted in the south of Sudharam Upa ilya of Noakhali district during 1979-86. The case study also gives indications of the settlement process and social dynamics taking place in the south-eastern delta. The case study contains detailed descriptions of the background of the two chars, settlement history, settlement mechanisms, factions, power structure and also how a power war among various government functionaries delayed the transfer of land to landless cooperatives for the most effective and desirable use of land. From the two case studies, it is concluded that traditional land-grabbing/settlement patterns may be a major obstacle impeding the rapid achievement of higher levels of agricultural production on new land.

Key Words: Accreted land / Land control / Violence / Power Structure/Settlement process and mechanism

Akhter, Golam Morshed and Nasimul Gani, 1988: Riverbank Erosion Impact Study - Response Strategies to the Problem of Landlessness, Rural Impoverisation and Marginalisation. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement, Dhaka, Bangladesh, April, 1988, 36p.

The paper incorporates information to depict the problems of impoverisation derived from two villages, one is severely effected while the other is relatively less effected. The villages which are located in the Sariakandi Upazila of Bogra district demonstrate extreme problems of land loss, damage to property, crops, livestock and other assets. The study conducted on the basis of a household survey contains information relating to the socio-economic background of households, nature and magnitude of the problems caused by erosion and also the survival strategy of the displaced populations. It is revealed that people undertake three types of strategies either in combination or independently. These are: selling of assets, seeking alternative employment and also migrating to other areas. The paper contains many maps and graphs, tables to support the arguments. The paper argues for an appropriate policy on the basis of a proper assessment of the problem. Government should come forward for this purpose.

Key Words: Riverbank erosion/Displaced populations/Socioeconomic background/Survival strategy/Policy options.

Alam, S.H. Nurul, 1990: Socioeconomic and Political Dynamics of Char Land Settlement and its Implications for Poverty. In A.Q.H. Hahbub (ed.), Proceedings of the Seminar on People and Environment in Bangladesh. UNDP/UNFPA, Dhaka, February 1990, pp. 61-76.

The paper emphasises that the char land in Bangladesh presents a good prospect for addressing the problem of landlessness by a planned programme of land distribution. However, in the past this has not received attention due to lack of definite government policy on char land. It is pointed out that the large amount of land which has emerged as a result of riverbank erosion needs proper surveys in order to bring this land within government control. Existing settlement in char land is a product of local level socio-economic and political dynamics which is a reflection of the character of the state. It is also shown how through selective violence a few land grabbers maintain

their control over char land and settlement. The paper cites examples of how government backed programme for the distribution of land to landless has been thwarted by the unscrupulous jotedars in collaboration with the local politicians and dishonest officials.

Key Words: Char Land/Settlement/Riverbank erosion/Violence/Land control.

Amin, A.T.H., Nurul. 1988: Settlement Strategy for Riverbank Erosion Displacees in Bangladesh - A Human Resource Development Approach. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement. Dhaka, Bangladesh, April, 1988. 42p.

The paper focuses on the settlement strategy for riverbank erosion displacees and argues for human resource development as a device for evolving a settlement strategy. The author distinguishes between two groups of displacees (1) those who are principally dependent on farming and had little education or skill, and (2) those who had some education, skill and experience in some non-agricultural occupations. This two groups have different attitude and socio-economic backgrounds. The observed association between background in socio-economic and personal characteristics and emerging settlement patterns among the riverbank erosion displacees offer an important lesson to policy makers. This is simply the essentiality of human resource development on a priority basis for the inhabitants of erosion-prone areas. The paper ends with a set of policy recommendations necessary for human resource development. These include, mapping of erosion-prone areas, encouraging diversification of economic activities, delimiting land according to suitability and unsuitability of habitation, providing compensation to the victims of river erosion without delay and distribution of accreted land to the deserving people. The author bases these recommendations on the premise that permanent bankline along all rivers is neither possible nor even desirable.

Key Words: Riverbank erosion/ Settlement strategy/ Displacement/ Human resource development/ Policy options

Chowdhury, Abjad Hossain and H. Kabir, 1988: Socio-economic and Demographic Characteristics of Displacees in Kazipur and Bhola - A Comparative Study. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement. Dhaka, Bangladesh, April, 1988, 12p.

This typical paper investigates the socio-economic and demographic features of the displaced population selected from Kazipur, Chilmari and Bhola Upazila who are significantly effected by riverbank erosion. The paper contains information relating to age and sex distribution, education, employment status, socio-demographic and economic characteristics and respondents knowledge about family planning. It is revealed that the average age of population is low with 50% under 15 years suggesting a high fertility of the population. The average educational attainment is low compared to the national figure. It is further found that most respondents have agriculture as principal occupation followed by agricultural labour in the survey areas. A large number of households were landless during the survey period. Statistical technique of factor analysis is used to have an idea about socio-economic status of the respondents at household level. The multivariate analysis strongly confirms uniformity in the socio-economic status of the two study areas.

Key Words: Riverbank erosion/ Occupation/ Age and sex/ Educational level/ Socio-economic status/ Factor analysis

Elahi, K. Haudoob, 1989: Population Displacement due to Riverbank Erosion of the Jamuna in Bangladesh. In Clarke et al (ed.), Population and Disasters, Basil Blackwell, Oxford, pp. 81-97

The paper discusses the problem of population displacement due to riverbank erosion caused by the shifting of the Brahmaputra-Jamuna river. The impact on human habitat is described taking Chilmari and Kazipur Upazila as case study areas. A section of the paper also focuses on the morphological behaviour of the Jamuna river, together with its shifting tendencies using landsat imageries, large scale maps, extensive field observation and anthropological investigation. The author uses many maps, charts and tables to support the arguments in the paper. Erosion has a significant impact on differential population change, on related human occupancy and bankline settlements of the displacees. One major aspect of human occupancy is the development of rural slums inhabited by the displacees who mostly permanently settle along the flood

protection embankment. In general, the displacees tend to live closer to their original place of residence in the hope that lands might reemerge in future. The displacees do not have any permanent type of occupation and live almost a nomadic life. It is pointed out that the current state of land use and land tenure system do not depict a bright future for the displacees unless some measures are undertaken through government initiative to take control of khas and char land and distribute the same to the displacees.

Key Words: Erosion/ Displacement/ Population variation/ Human habitat/ Rural slums/ Government initiative

Elahi, K. Haudood, 1988: Riverbank Erosion, Flood Hazard and Population Displacement in Bangladesh - An Overview. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement. Dhaka, April, 1988, 17p.

An attempt is made to link flood hazard, riverbank erosion and population displacement. It is pointed out that although the erosion caused by shifting of rivers is hydrologic, the association of it with widespread flood brings untold sufferings for the people and the country. An inventory of major floods is made. It also contains discussion on the nature and extent of riverbank erosion and population displacement in some selected areas. In depicting the extent of riverbank erosion, the author uses examples from some erosion-prone areas that include Chilmari-Kurigram area, Sariakandi, Kazipur -Serajganj, Jamalpur, Chandpur, Hanikganj and also coastal areas. A number of figures are quoted to portray the dimension of the problem. A distinction is drawn between the displacees caused by flood which is stated to be temporary in nature and displacees caused by erosion which are mostly long range and permanent.

Key Words: Flood/ Riverbank erosion/ Population displacement.

Elahi, Haudood K., 1985: Riverbank Erosion and Flood in Bangladesh - Need for Inventory Planning. REIS Newsletter, No. 2, pp. 4-6.

This inventory paper discusses the nature and extent of riverbank erosion and flood problems and their human implication with focus on population displacement. The author argues for intensive investigation and research on the aspects of population rehabilitation, housing, alternative employment strategies and

land reallocation. Integration of the findings of the physical and socio-economic researches is emphasised.

Key Words: Research priority/ Population displacement/ Human implications.

Ferdous, S.K. Zahurul, 1988: The Utilisation of and Accessibility to Accretion Lands by Displaced Populations - A Riverbank Erosion Impact Study. A Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards and Population Displacement. Dhaka, Bangladesh, April, 1988, 30p.

The paper incorporates the results of a study conducted in Gazaria and Daruna Chars of Sariakandi Upatila. Gazaria is an old while Daruna is a new Char. The general objective of the paper is to see the socio-economic impact of riverbank erosion on the displaced populations and the problems associated with their settlement in and the utilisation of the accreted lands. The socio-economic conditions of 68 households in terms of land holding, occupation, income, family size and housing quality are analysed. The authors note the deterioration of conditions after their settlement at the chars. It is pointed out that those who once left chars did not come back and those who came back occupied their lands by surveying through surveyors. Various types of crops, such as local varieties of rice, millet, jute, chilli, potato and pulses are grown by settlers using primitive methods. It is further revealed that people in these two chars are peace loving people and the authors could not find any record of conflict or dispute in respect of possession and utilisation of land which is endemic in the case of other chars in Bangladesh.

Key Words: Riverbank erosion/ Accreted lands/ Agricultural activities/ Socio-economic status/ Displaced Population.

Greenberg, Charles and Ziarat Hossain, 1987: Adjustment of Riverbank Erosion Displacees - A Case Study of Serajgang in Bangladesh. In V.S. Pendakur and O.P. Dwivedi (eds.), South Asia Horizons. Canadian Association of Asian Studies. University of Montreal, pp. 27-23

This paper is based on a survey of 207 displacee households who migrated to Serajgang district town due to displacement caused by riverbank erosion. Based on the results of the survey, the paper investigates the dynamics of the adjustment process of the involuntary migrants in their new living environment. An analysis of the condition of housing, employment and health of

the displacees can be found. It is pointed out that the displacees who reside in the squatter settlements are not adapting to their current living environment. They lack adequate housing and health care facilities which are considered basic amenities of life. The paper concluded that since displacees have become a permanent component of Seraganj town life, therefore, some steps should be undertaken through policy measures to improve their plight and current conditions.

Key Words: Riverbank erosion/ Involuntary migration/ Settlement/ Adjustment/ Policy measures.

Haque, Chowdhury E., 1987: Impacts of Riverbank Erosion on Population Displacement in the Lower Brahmaputra (Jamuna) Floodplain. In V.S. Pendakur and O.P. Dwivedi (eds.), South Asia Horizons. Canadian Association of Asian Studies, University of Montreal, pp. 34-46.

The paper contains a discussion on the general impacts of erosion hazards in the lower Brahmaputra (Jamuna) floodplain of Bangladesh. The impacts of bank erosion hazards have been assessed in terms of loss of land, change in occupation, and impacts on social ties and relationships. The basis of analysis of impacts was a survey conducted on 547 randomly selected displacee households. It is indicated that a large number of households who had agriculture as their primary occupation became labourers following dislocation by the bank erosion hazard. The paper concludes that some social measures should be undertaken to ameliorate this problem.

Key Words: Erosion hazard/ Land loss/ Occupational change/ Primary Occupation/ Social measure.

Haque, Chowdhury E., 1988: Human Responses to Riverbank Erosion Hazard in Bangladesh - Some Lessons from Indigenous Adjustment Strategies. Paper presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazard and Population Displacement. Dhaka, April, 1988

The paper, based on a detailed household questionnaire conducted in one of the severely erosion effected Upazilas of Seraganj district, focuses on the nature of perception of hazards among floodplain inhabitants and also on the indigenous adjustment strategies to cope with the hazard effects. Peoples' perception of erosion demonstrates a mixed picture where people

mention fast currents referring to velocity and stream power as the major cause of hazardousness bank erosion in the floodplain. This is followed by the assertion that this is caused by Allah's will. A distinction is made between the corrective type of responses at individual level and the preventive types of responses at community level. The preventive measures usually involve control works and other structural-engineering schemes to technologically control or prevent the effects, whereas the corrective measures include purposeful attempts to modify events. The indigenous response strategies in rural Bangladesh are usually formulated and undertaken at independent household or local social organization level, such as *gusthi* or *samaj*. These are incidental rather than purposeful. The paper contains detailed discussions on the indigenous adjustment strategies. The results of the survey were presented in several tables which further support the discussion in the paper. In the conclusion, the paper identifies some lessons from indigenous adjustment strategies which are vital for formulating policy options for the future. It is pointed out that more attention should be given to the socio-economic alternatives of riverbank protection schemes with emphasis on various indigenous adaptation to floods and bank erosion problems.

Key Words: Riverbank erosion/ Human resource/ Adjustment strategies/ Corrective and preventing measures/ Indigenous adjustment/ Policy options

Haque, Chowdhury Emdadul, 1988: Impacts of Riverbank Erosion Hazard in the Brahmaputra - Jamuna Floodplain: A Study of Population Displacement and Response Strategies. A Ph.D. Dissertation. Department of Geography, University of Manitoba, Winnipeg, Manitoba, Canada.

This Ph.D. dissertation critically discusses the behavioural-ecological paradigm of human responses to extreme natural events using empirical evidence of riverbank erosion hazard of Kazipur Upazila residents located in the Brahmaputra - Jamuna floodplain. There are two specific objectives of the research. The first relates to the nature of relationship and the dimensions of human responses with respect to previous experience, hazardousness of an area and socio-economic entitlements. The second objectives relate to the determination of relationship of household welfare of floodplain users to displacement occurrence. The empirical evidence reveals that human responses are significantly linked to socio-economic

entitlements among floodplain users and available resources and opportunities. It is also further found that floodplain users have high levels of hazard perception, and the majority have either accepted hazard loss or reduced their loss through incidental and/or purposeful actions. The displacement status of floodplain users significantly effects their behaviour pattern and their external relations both within and outside their habitat. One final observation of the theses is that the individual's entitlements to available resources, constitute a significant explanatory variable in the natural hazard studies. Numerous maps, charts, graphs and statistical tables have been used to support the argument in the dissertation.

Key Words: Riverbank erosion/ Natural hazards/ Behavioural and ecological Paradigm/ Human adjustments/ Socio-economic entitlements/ Population displacement/ Response strategy

Haque, Chowdhury E., 1988: Human Adjustments to Riverbank Erosion Hazard in the Jamuna Floodplain, Bangladesh. Human Ecology, Vol. 16, No. 4, December 1988, pp. 421-437

The paper attempts to focus on the nature and type of different human adjustment strategies that the displacees adapt to cope with the riverbank erosion in the Jamuna floodplain of Bangladesh. The scenario for the study is the Kazipur Upazila of Serajganj district. A total of 547 households were chosen as statistically significant sample size for interview. Different adjustment strategies at the community and household levels were elucidated. A distinction is made between the corrective and preventive types of adjustment strategies in the area. It was found that the strategies taken at the community level fall in the preventive category while the individual level adjustment measures were corrective in nature. The paper also draws attention to some overt behaviour in adjustment measures in coping with hazard that reflect the perceived adjustment strategies of the displacees. The paper concludes that given the nature and the type of adjustment strategies, several social and institutional adjustment measures should be incorporated in the long-run policies and strategies of hazard management.

Key Words: Hazard/ Adjustment strategy/ Preventive and corrective measures/ Individual and community response/ Overt behaviour/ Displacement/ Riverbank erosion

Haque, Chowdhury E., 1986: Impacts of Riverbank Erosion on Population Displacement in the Lower Brahmaputra (Jamuna) Floodplain. Population Geography Vol. 8, No. 1 and 2, June-December, pp. 1-16.

The paper is based on a survey of 547 randomly selected households of Kazipur Upazila of the lower Brahmaputra (Jamuna) floodplain. It focuses on the dimensions and impacts of displacement by riverbank erosion. It is stated that the two thirds of the floodplain inhabitants experienced displacement at least twice in their life time. Most displacees either stayed within the Upazila or moved to the distant rural areas within the district. It is pointed out that the hope for reemerged land, financial inability to bear transport cost for a longer distance, and closer ties with local social organization were the prime determining factors for such patterns. The amount of land lost, change in occupation, impact on family conditions and impact on social ties and relationships have been assessed in the paper. It is observed that all these impacts are accelerating the process of marginalisation and pauperisation and some social measures should be undertaken immediately to ameliorate the sufferings of the displacees.

Key Words: Riverbank erosion/ Displacement/ Settlement/ Land lost/ Occupational change/ Social ties and relationship

Haque, Chowdhury E., 1985: Characteristics of Human Strategies to Cope with the Riverbank Erosion Hazard in the Jamuna Floodplain of Bangladesh. Mimeo, 22p.

The paper is written with the objective of delineating and analysing the type, nature and characteristics of human adjustment strategies to cope with the riverbank erosion hazard in the Jamuna floodplain. The Kazipur Upazila where the two thirds of the areas are chars and which constitute one of the worst areas effected by erosion provided the setting for the study. A description in general terms of the possible range of human options and choices in adjustment and a conceptual framework is provided. Distinction is made between purposive and incidental adjustments and also various modes of adjustments to cope with hazards that include acceptance, reduction and change. In the last section of the paper, the author describes adjustments to erosion hazard in Kazipur, making a distinction between community and individual responses. It is pointed out that the adjustment strategies at the community level were characteristically preventive, while, at the individual level

they were corrective. Different actual preventive and corrective measures were also delineated which depict people's adjustment from a micro perspective.

Key Words: Erosion/ Adjustment/ Options/ Community and Individual Response/ Preventive and corrective measures

Haque, C.E. and H.Q. Zaman, 1989: Coping with Riverbank Erosion Hazard and Displacement in Bangladesh - Survival Strategies and Adjustments. *Disasters*. Vol. 13, No. 4, pp. 300-314.

The paper is written with the triple objectives of identifying the magnitude of river channel migration and encroachment on land; in determining the extent and nature of population displacement caused by erosion and also to bring into focus the adjustment strategies within the socio-cultural system operating in the region. The paper begins with a description of the riverbank erosion problem and then brings into focus the extent of bank erosion and vulnerability of population from national and local level perspectives. The local scenario has been described by citing examples from Kazipur Upazila of Serajganj district. A number of tables and maps were used to support the arguments in the paper. It is pointed out that kinship, friendship and samaj play significant role in determining survival and adjustment strategies. The issues relating to politics, patronage and char violence and dynamics of local policies were brought into focus in the last section of the paper. It is pointed out that there should be a clear char land policy for Bangladesh which will help the displaced population.

Key Words: Erosion hazard/ Displacement/ Adjustment strategy/ Local and national perspective/ Politics/ Patronage/ Violence/ Char land policy

Haque, Chowdhury E., and Ziarat Hossain, 1988: Riverbank Erosion in Bangladesh. *Geographical Review*, Vol. 78, No. 1 (January, 1988), pp. 20-31.

Riverbank erosion causes incalculable human misery to a large segment of rural population who live in the Brahmaputra floodplain in Bangladesh. The reason for bank erosion is unpredictable channel encroachments into densely populated rural areas. The paper focuses on the magnitude and effects of riverbank erosion on 240 households who provided data for the

study. The paper begins with a discussion of channel characteristics and bank shifting in Kazipur Upazila. Later the data collected from a survey of Kazipur villages were presented. It is pointed out that erosion hazard cause damage not only to human habitat but also swept away houses, fields, trees and many other objects. The paper also reveals how the surveyed households perceive the causes of riverbank erosion. The various adjustment measures and perception of socio-economic changes by the displaced persons have been discussed. In the conclusion, it is emphasised that appropriate resettlement policy, land management and adoption of movable structures for shelter should be undertaken to minimize the effects of erosion.

Key Words: Riverbank erosion/ Channel encroachment/ Socio-economic impacts/ Perception of causes/ Migration pattern.

Haque, Chowdhury E.. 1986: Human Strategies for Coping with the Riverbank Erosion Hazard in the Jamuna Floodplain of Bangladesh. In Tony K. Stewart (ed.), Shaping Bengali Worlds, Public and Private. Asian Studies Center, Michigan State University, USA, pp. 271-280.

In this paper, attempts are made to analyse the nature and the characteristics of human strategies that are adapted to cope with the erosion hazard. First, various possible ranges of options in general terms are outlined. Second, the individual and community responses are delineated and then the impact of various adjustment strategies are discussed. The scenario for the study is the Kazipur Upazila of Serajganj district which is severely effected by erosion every year. Individual responses include abandonment of land, selling of livestock, cultivable and homestead land and also ornaments. The author calls these corrective measures. The community level responses are preventive in nature and include building of embankments, dropping bamboo baskets filled with bricks, and also building of cross-dams. It is also pointed out that in Kazipur most people take shelter on the bandh as an emergency and temporary adjustment.

Key Words: Riverbank erosion/ Community and Individual Response/ Adjustment strategy

Hossain, Ziarat Md., 1988: Displacees of Riverbank Erosion in Urban Squatter Settlements in Serajganj, Bangladesh - The Process of Impoverishment. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement. Dhaka, Bangladesh, April, 1988. 25p.

The paper focuses on the issues of the process of marginalisation and impoverishment of a group of riverbank erosion - affected displacees currently living in the urban squatter settlements in Serajganj town. Serajganj town is not well developed and administratively prepared to receive a large influx of displacees which further put them into a process of pauperisation. It is pointed out that the problem is related not only to physical phenomena but also to social, economic, demographic and psychological aspects of the society. These on going processes further accelerate the problem of poverty of the displacees. In order to analyse the condition of displacees and process of pauperisation, the author used the results of a survey conducted on 207 dislaccce households. It is revealed that the land is the major loss of displacees which result in loss of all other means of livelihood, such as employment, income, housing and other socioeconomic activities. Change in occupational structure of heads of households is also significant. All these bring multiple socio-economic changes accentuating poverty which constrain any retreat from the current status quo.

Key Words: Riverbank erosion/ Population displacement/ Urban squatter/ Socioeconomic Change/ Poverty/ Pauperisation

Islam, Anwarul, 1987: Bhola Island - Some Impressions from Field Experience. REIS Newsletter, No. 3 pp. 16-17.

This short write up describes the experience of fieldwork in Bhola. The description is indepth and is ethnographic in nature.

Key Words: Erosion/ Field impression/Char control

Islam, Waliul and Ataur Rahman, 1987: Riverbank Erosion in Bangladesh - An Overview of Field Observation. REIS Newsletter, No. 3, pp. 13-15.

Experience on field surveys and data collection for the riverbank erosion impact study is described. Authors described the duration of the study, methods of data collection and also suggests the ways how future surveys can be made more effective.

Information generated from the various other erosion prone areas, such as Chandpur, Seraiganj, Sariakandi, Jamalpur, and Gaibandha is also described.

Key Words: Field observation/ Surveys/ Erosion prone areas

Hafizuddin, Hirza and K. Haudoob Elahi, 1987: Bankerosion and Consequent Impact on Human Habitat in Bhola. REIS Newsletter, No. 3, pp. 4-7.

Overtime changes of bankline of Bhola is compared with recent changes and its impact on human habitat. The data derived from micro study during 1985-86 are used. It is pointed out that in Bhola, erosion exceeded accretion during the last half century with significant impact on population structure and peoples' adaptation. Very high degree of population changes were recorded in six mouzas. Apart from loss of agricultural land, a large number of population are displaced who mostly stay near the effected areas. It is revealed that erosion phenomena has a significant bearing on population variations and related human occupations, such as housing, land occupation and bankline settlements.

Key Words: Erosion/ Accretion/ Population Variation/ Housing/ Bankline settlements.

Hafizuddin, Hirza, 1987: The Characteristics of Riverbank Erosion - Kazipur Case Study. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement, Dhaka, Bangladesh, April, 1988, 7p.

The paper discusses the physical characteristics of riverbank erosion and also emphasizes the environmental perception and human adjustment to flood. The study is located at the Kazipur Upazila. It is based on the interpretation of maps, toposheets, serial photos and a survey through a questionnaire. The characteristics of erosion are mapped which depict that bankline configuration changes drastically over the years and are sometime unpredictable. The paper ends with some general remarks that due to persistent erosion the loss and damage caused to properties, roads and human habitation is enormous.

Key Words: Riverbank erosion/ Environmental perception/ Human adjustment/ Loss and Damage to properties

Habib, A.Q.H. and Nazrul Islam, 1988: Urban Adjustment by Erosion Induced Migrants. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards and Population Displacement. Dhaka, April 1988, 16p.

The paper concentrates on the socio-economic features of urban in-migrants, particularly those who are pushed out due to riverbank erosion. The research was conducted in two squatter resettlement camps, namely Demra Bastuhara camp near Dhaka city and Dattapara Bastuhara camp near Tongi town. The paper contains information relating to the causes of migration, migrant's place of origin by sex and flight of migrants from villages. It also presents information regarding the migration process and adjustment strategies. It is revealed that urban ward migration due to erosion hazard is an involuntary type of movement where the migrants largely come from the lower socio-economic stratum. Although erosion affects all, when out migration starts the poor and destitutes leave the village first. The poor and the destitutes consider the city as a final destination or an ultimate place for getting a job.

Key Words: Riverbank erosion/ Urban squatter/ Resettlement/ Migration/ Causes/ Job opportunity

Rahman, Atiur, 1986: Impact of Riverbank Erosion - Survival Strategies of Displacees. ADAB News. Vol. XIII, No. 4, July -August, pp. 3-13.

Economic strategies for the survival of rural populations effected by riverbank erosion is described. The emphasis being on economic strategies, therefore, differs from similar other studies. It is emphasised that the survival strategy of the rural population has to be understood in the wider context of environment and society. The economic strategy is likely to be different due to differences in class and economic backgrounds. The author then delineates separately economic strategies of landless and landpoor households, small, middle and rich peasantry incorporating this into a model. The survival strategies of the displacees are also described. It is revealed that the displacees affected by riverbank erosions are the most wretched ones of the landless. It is pointed out that more indepth and wide ranging studies are needed to discern the actual situation and the economic strategies adapted by rural people. This analytical part is followed by an empirical examination of the model drawing data from two areas of Bhuapur and Hizla

Upazila where the author conducted brief but indepth investigation.

Key Words: Riverbank erosion/Economic strategies/ Peasant categories/ Human problems/ Erosion displacees

Rahman, H.H., 1988: Vulnerability Syndrome and the Question of Peasants' Adjustment to Riverbank Erosion and Flooding in Bangladesh. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement. Dhaka, Bangladesh. April, 1988, 31p.

Contrary to the widely held view that extreme natural hazards cause economic crisis and poverty, the paper raises the question whether the issue is so simple as to be presented in a cause and effect relationship. It is pointed out that the problem is much more deep-rooted and structural. The farmers response and adjustment strategy to any natural hazard vary depending upon their social class structure which is stratified. This affects the ability and inability of farmers to cope with hazards. The paper also investigates the reasons why the time-honoured adjustment experience which hitherto worked so well have faded out gradually. The author supports his argument from information derived from a total of 80 farm households. Field data from the study area reveal that people's sufferings and distress is not caused by extreme physical phenomena only rather natural hazards accentuate the prevailing socio-economic conditions. Existing social institutions, like land tenure are bound to be already vulnerable due to excessive population growth and other reasons which is altering the pattern of land use and the capacity to manage hazards.

Key Words: Riverbank erosion/ Peasants adjustment/ Economic crisis and poverty/ Institutions/ Social class structure/ Vulnerability/ Disintegration/ Agrarian relations/ Hazard management

Rogge, John R., 1988: Individual and Institutional Responses to Riverbank Erosion Hazards. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazards, and Population Displacement, Dhaka, Bangladesh, April, 1988. 25p.

Various responses to riverbank erosion hazards at individual, local and national levels are described. Although population displacement through riverbank erosion hazards is endemic

throughout Bangladesh, little exists in the way of institutionally initiated assistance to displaced. The paper draws attention to the many dimensions of the human and the institutional causes which in concert with one another, create an array of direct causes accentuating levels of poverty and marginalisation. Several impressive figures showing the interaction of variables to depict the process of marginalisation, the dimension of the direct causes of poverty and marginalisation, determinants of responses to population displacement and also the social, economic and psychological impacts of displacement on population are used in the paper. A distinction is also made between corrective and preventive measures. The adoption of preventive measures are constrained by lack of capital, low level of technology and fatalistic attitudes embodied in the people's strong religious faith. Locally and regionally the government's initiative to undertake measures to mitigate the sufferings of people are very inadequate which, in fact, reflects the national government's limited action toward the problem. Many tables are used to support the arguments in the paper. In the conclusion, the author argued that an array of radical structural adjustments and human interventions are needed to deal with the problem.

Key Words: Riverbank erosion/ Poverty/ Impoverisation, and marginalisation/ Population displacement/ Impacts of displacement/ Preventive and corrective measures/ Structural adjustment

Rogge, J.R., 1985: Some Comments on the Problems and Potentials of Survey Research - the Case of a Rural Survey of Riverbank Erosion Displacees in Bangladesh. RETS Newsletter, No. 2, pp. 6-8.

This is a paper on methodology on the research project on the impact of Riverbank Erosion focusing mainly on the problems and potentials of survey research. Describing the development of survey research, the author concentrates on the aims of the survey. The paper also provides a format of the survey that is likely to be conducted during the project. Although brief, the paper appear very informative.

Key Words: Survey research/ Questionnaire/ Sampling/ Pre-test.

Romanowski, J., 1987: Impact of Riverbank Erosion on Agricultural Productivity - A Case of Bangladesh. In V.S. Pendakur and O.P. Dwivedi (eds.), South Asia Horizons. Canadian Association of Asian Studies. University of Montreal, pp. 10-26.

This is a preliminary paper prepared for further study of the establishment of a rigorous model of riverbank erosion impact on Bangladesh agriculture. The paper begins with a very general description of the features of Bangladesh agriculture, productivity of land, agrarian structure and relationship of land to people. It is pointed out that riverbank erosion exacerbates the conditions of agriculture by reducing the productivity of the land, intensifying the over supply of agricultural labour and destroying the meagre capital stock of the countryside. The author argues that it is only the landlords who can effectively handle the problems of erosion by using their economic, social, and political leverage and they can even benefit by asserting control of newly-emerged alluvia known as char lands.

Key Words: Riverbank erosion/ Agrarian structure/ Land/ Unemployment/ Productivity.

Romanowski, Jacek T., 1988: Impact of Riverbank Erosion on Agricultural Productivity. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood Hazard and Population Displacement. Dhaka, April, 1988, 4p.

Agricultural wealth and productivity of a selected group of households effected by riverbank erosion is the subject matter of this paper. The selection of the respondents was based on the desire to ascertain the effects on productivity of distance from river, of socio-economic status, and of the general processes of development in the region. It is argued that riverbank erosion effects all categories of farmers which erode not only the land but also the jobs which the land could provide. Therefore, from the point of view of effected people, the author considers erosion both as a hazard and a process. It is pointed that the impact of hazard as a process is clear but its effect as a factor which effects the people's conditions and strategies of coping is likely to be significant in effecting agricultural productivity. The paper also attempts to prove (or disprove) that riverbank erosion hazard and erosion process yield measurable impacts on agricultural productivities of land, labour and capital.

Key Words: Riverbank Erosion/ Hazard/ Process/ Effects of erosion/ Agricultural productivity.

Saleheen, Hesbah-us, 1988: Mobility Characteristics of Displacees -- A Case Study from Riverbank Erosion Hazard Area. Paper Presented at the International Symposium on the Impacts of Riverbank Erosion, Flood hazards and Population Displacement. Dhaka, Bangladesh, April, 12p.

The mobility characteristics of the displacees of riverbank erosion of Kazipur Upazila of Serajganj district is described. It is pointed out that although displacement through erosion is not a new phenomenon in the area, the pace of displacement has been accelerated after the massive erosion of Jamuna in 1983. Rural to urban movement of displacees is a widespread feature in the region and the out migration of villagers can be seen as a part of forced movement of people from homestead. The author argues that mobility of people can be seen as a process accelerated both by a natural and economic push. Regarding the specific mobility features, the paper reveals that in general the displacees want to remain close from their homestead and surroundings. It is also observed that those individual who move away from an area were different in many ways than those who remain in their original place of residence. Several tables with figures are used to support the arguments in the paper.

Key Words: Riverbank erosion/ Mobility/ Socio-economic background/ Migration

Saleheen, Hesbah-us, 1987: Displacees of Riverbank Erosion - Some Theoretical Consideration, RETS Newsletter, No.3, pp. 12-13

The paper draws attention to some theoretical issues relating to riverbank erosion displacees. These issues relate to time and space dimension, individual decisions regarding employment, wage, migration and also the problems of social and community bonds.

Key Words: Erosion displacees/ Household adjustment/ Social and community bonds

Weist, Raymond E., 1988: Domestic Group Dynamics in the Resettlement Process Related to Riverbank Erosion in Bangladesh. Paper presented at the International Symposium on the Impact of Riverbank Erosion, Flood Hazard and the Problem of Population Displacement, Dhaka, April, 1988, 23p.

Taking household as unit of research, the paper attempts to examine how riverbank erosion impacts upon rural Bangladesh at the level of domestic groups are effected by displacement and

settlement. It also discusses the implications of household structure differentials in terms of practical assistance and targeted support. Methodologically the paper is unique because it combines the survey and indepth anthropological approach to collect data. The perspective is anthropological in the sense of treating phenomena in a holistic manner. It is pointed out that households do not exist in isolation but relate to other households, both developmentally and experientially. From a macro-structural perspective family fragmentation is a process which is facilitated by riverbank erosion and displacement. A distinction is made between nuclear and extended households, which the author thinks is subject to fragmentation due to economic and political conditions within households as well as external to the household surroundings. It is observed that domestic groups undergo transformation overtime as a part of the natural development cycle. The paper concludes with a note that kin-based domestic arrangements shall continue which conform to the dominant ideology and cultural tradition of the society. However, the author feels that extended families do offer safeguards and sanctuary that can be extended through development projects efforts which emphasise meaningful control through participant control.

Key Words: Riverbank erosion/ Household/ Domestic groups/
Settlement and resettlement/

Weist, Raymond E., 1987: Riverbank Erosion Impact in Bangladesh - An Assessment of Findings and Approaches. In V.S. Pendakur and O.P. Dwivedi (eds.), South Asia Horizons. Canadian Association of Asian Studies, University of Montreal, pp. 47-49.

In this paper, the author highlighted the findings and issues raised in similar other papers in the panel. It is pointed that all the papers in the panel drew attention to the overwhelming land shortage condition that which is severely aggravated by the regular but unpredictable riverbank erosion. Some aspects of the consequences of widespread population displacement have been also brought into focus.

Key Words: Riverbank erosion/ Multidisciplinary research/
Impacts/ Population displacement.

Zaman, H.Q. and R.E. Weist, 1985: Local Level Socio-economic and Political Dynamics of Accretional and Depositional Land Utilisation. Paper Presented at the Workshop on the Impact of Riverbank Erosion and Flood Hazard in Bangladesh. Jahangirnagar University, Savar, Dhaka, Bangladesh, 16p.

An attempt is made to give a general overview of the social and political dynamics of the problem of resettlement, land conflict and violence which is further elaborated later through intensive fieldwork. The paper begins with a description of the problem of riverbank erosion and accretion of lands known as char. Existing rules governing char land administration, the inadequacy and the problems of implementation of these rules were also elaborated. It is revealed that the use of violence, dispossession, murder and confiscation of crops have become local practices and part of char life. The paper proposes that in the study of char village, the problem is to be treated at two levels: (a) an examination of the interrelationship of relocation and domestic group dynamics, and (b) a study of political economy of resettlement in char lands. The paper also contains discussion on these two issues. The authors then quite vividly describes the landless, the landlords and the land grabbing and the conflicts and violence associated with land control and settlement.

Key Words: Erosion/ Depositional land/ Settlement/ Social and political dynamics/ Domestic groups/ Land control and grabbing

Zaman, H.Q., 1986: The Role of Social Relations in the Response to Riverbank Erosion Hazards and Population Resettlement in Bangladesh. Studies in Third World Societies. No. 36. (Special Issue on Natural Disasters and Cultural Responses. Guest Editor: Anthony Oliver Smith), College of William and Mary, Williamsburg, Virginia, USA, pp. 177-199.

Taking a position that the behavioural approach to natural hazard studies is inadequate, the author argued that the individual response to natural hazards should be studied in broader socio-political and historical context. This approach is useful for understanding the individual, the family, and community responses. The author applies this idea by examining aspects of social and cultural life of people who are displaced by riverbank erosion in the Brahmaputra - Jamuna floodplain. Attention has been paid to how friends, relatives, corporate groups, village factions and patronage systems influence adjustment and resettlement options of the erosion displacees. Later in the paper, the author uses examples of several hundred displaced households drawn from one of the most erosion-prone

areas in Bangladesh and their responses and measures of adjustments. The paper concludes with an overview of village factions and patronage systems demonstrating how these effected the settlement and resettlement and the consequent survival strategies of the displaced.

Key Words: Riverbank erosion/ Floodplain/ Kinship/ Patronage system/ Social relations/ Response and adjustment strategies.

Zaman, H.O., 1987: Endemic Land Conflict and Violence in Char Villages of Bangladesh. In V.S. Pendakur and O.P. Duivedi (eds.), South Asia Horizons. Canadian Association of Asian Studies. University of Montreal. pp. 50-57

The paper highlights the endemic land conflict and violence centering around char land which have become a regular event in contemporary Bangladesh. It is based on secondary mostly daily and weekly news paper reports. The paper begins with a description of char land administration and a review of land laws which is felt inadequate to protect the rights of common people. Discussion on the nature and type of land conflicts can also be found. It also contains several case studies which provide background information that are helpful to identify the structural factors responsible for endemic land conflict over char land.

Key Words: Char land/ Land conflict and violence/ Land laws/ Land survey/ Policy.

Zaman, H. Q., 1986: Socio-Economic Profile of Squatters on the Brahmaputra Right Bank Flood Embankment. Journal of Indian Anthropological Society. Vol. 21, No. 3, November 1986, pp. 209-218.

The paper draws attention to rural squatting caused by population displacement due to riverbank erosion. It is pointed out that squatting is not only an urban phenomenon rather it is also a rural phenomenn as is obvious from the case study of squatters population of Kazipur Upazila where over 30,000 people have been displaced between 1972 and 1982. The data for the paper were drawn from 182 households who are clustered into a major squatting location between Kudhandi village and Meghai Market centre of the Upazila. Socio-economic background of households, their occupation and income were also discussed. The paper also contains displacement history where data pertaining to

displacement, land lost by riverbank erosion and squatting of the embankment were presented. In the conclusion, the author discusses the future resettlement options. It is pointed that the displacees population cannot occupy the embankment permanently so their future is uncertain. The author suggests that the only visible policy option that can be considered is the resettlement of the displacees using khas land and newly emergent char land.

Key Words: Riverbank erosion/ Squatters/ Flood embankment/ Settlement and Resettlement/ Policy options

Zaman, H.Q., 1987: Endemic Land Conflict and Violence in Char Villages of Bangladesh. RETS Newsletter, No. 3 pp. 8-11.

This is a brief overview of endemic land conflict and violence in char villages based on news of land conflict and violence published in a local vernacular between 1978-82. A total of 40 cases were reported from nine districts. From these reports the author discusses various aspects of land conflict and violence. The brief overview reveals some important facts: absence of police in maintaining law and order, inappropriate, and faulty revenue survey, corruption of revenue officials and violence of Jotedars backed by local political leaders to grab land.

Key Words: Violence/ Land control/ Terror/ Jotedars

Zaman, H.Q., 1988: The Socio-economic and Political Dynamics of Adjustment to Riverbank Erosion Hazard and Population Resettlement in the Brahmaputra - Jamuna Floodplain. A Ph.D. Dissertation, Department of Anthropology, University of Manitoba, Winnipeg, Manitoba, Canada.

This dissertation using primary data from the riverbank erosion study project describes and explains human responses and adjustment of displacees as a result of riverbank erosion displacement in the Brahmaputra - Jamuna floodplain. The scenario was micro-level social, economic and political environment which significantly influences the local adjustment strategies and also the options available for settlement. Both survey and indepth anthropological data have been used which contrasts with the behavioural approach commonly used in natural hazard studies. The author argues that this kind of approach is inadequate to understand human responses to hazards. It is pointed out that the people effected by riverbank erosion have

differential responses and adjustment strategies. The endemic fought for char land has been also brought into focus. This is accentuated by insufficient land for subsistence and survival for the most households. The author nicely describes the political economy of char land settlement, the development of dependent relations between patrons and dependent clients. In sum, the dissertation deals with the gamut of issues relating to displacees due to riverbank erosion, their adjustment and resettlement and endemic conflict in the newly accreted char land.

Key Words: Riverbank erosion/ Displacement Settlement and resettlement/ Adjustment/ Subsistence and Survival/ Char land/ Dependent relations

Zaman, H.Q., 1988: Jore Jar Jomi Tar-A Case for Reform in Char Land Policies and Administration in Bangladesh. A paper presented at the International Symposium on the Impact of Riverbank Erosion, Flood Hazard and Problem of Population Displacement. Dhaka, April, 1988, 27p.

The paper contains a general overview of erosion and accretion of lands in Bangladesh and in Kazipur Upazila of Serajganj district a discussion on the power structure and violence in char areas. Data and information from both secondary and primary sources are used. The method of study is anthropological and analysis is done with a holistic perspective. The author uses a concept called "char land subculture" to show the dichotomy between the main land and char culture. It is pointed out that the people on the mainland consider the char culture as inferior and tough because of the poor, tough, uncertain but necessarily repeated and habitual adjustment to everyday risks of riverine hazards, erosion and displacement. The section on power and violence presents some case studies as well as description of conflicts centering on the possession of char land. It is pointed out that the main problem of char land administration is the lack of any proper census relating to char land and settlement in the new chars. It also describes how delayed survey and settlement helped the jotedars and talukdars to establish their control over char land. The last section contains a discussion on policy options for future where the author recommends the immediate formation of a high powered commission with the objectives for reformulation of a comprehensive char land policy for Bangladesh.

Key Words: Riverbank erosion/Accreted land/ Land control/ Power/ Violence/ Land policies/ Land administration

Zaman, Q.H., 1986: Rural Bastees - A Socio-economic Profile of Squatters on the Brahmaputra Right Bank Flood Embankment. Paper presented for the 20th Bengal Studies Conference. Lake Geneva, Wisconsin, USA, May, 16-18, 17p.

Attention has been drawn to the fact that rural squatting is happening in areas where there is a large scale population displacement as a result of riverbank erosion. This development is considered important because so long squatting has been primarily considered as an urban phenomenon. In the Kazipur Upazila, the Brahmaputra right bank embankment built by Water Development Board, is considered by displacees as a right location for taking shelter and building huts forming innumerable squatting locations. From the socio-economic backgrounds of the sampled displacees it is revealed that most displacees are poor and have agricultural wage labour as their main occupation. The paper also contains a section on displacement history that include a description on the number of displacement, amount of land lost and also years of residence on the embankment. Future resettlement options is described in the last section, which the author feels is bleak. This is due to lack of a firm government policy regarding khas and newly remerged char land.

Key Words: Displacement/ Urban and rural squatting/ Socio-economic backgrounds/ Resettlement/ Future options.

Zaman, Q.H., 1989: The Social and Political Context of Adjustment to Riverbank Erosion Hazard and Population Resettlement in Bangladesh. Human Organization, Vol. 44, No. 3, pp. 196-205.

Using both survey and indepth anthropological data drawn from the villages effected by riverbank erosion in the Jamuna floodplain, the paper describes the social and political context of adjustment to riverbank erosion. It is pointed out that an understanding of the socio-economic and and political factors of adjustment to riverine environment and hazard reveals social composition and local sociopolitical dynamics of adjustment and resettlement. The author views individual responses from the socio-political and historical context. The paper also describes the socio-economic and political dynamics of population resettlement with an indepth focus on the processes and the complexities. Further observations include that there is a significant connection between rural social structure and adjustment behaviour of the riverbank erosion displacees. Regarding policy options for resettlement of the riverbank

erosion displacees, the paper argues for inter-district relocation which may ease population pressure by moving excess population to more sparsely populated areas.

Key Words: Riverbank erosion/ Population displacement/ Adjustment and resettlement/ Social adjustment/ Endemic conflict.

Zaman, O.H., 1989: Patron-based, Non-kin Segmentary Model - The Dynamics of Political Alliance in Riverine Bangladesh. Paper presented at the 1989 Annual Meetings of the American Anthropological Association, Washington, D.C., November, 15-19. 30p.

The paper makes an ethnographic description and analysis of the lathiyali system which play a crucial role in determining the access to and control of newly accreted land known as char. It is pointed out through an example and indepth analysis that the development of of lathiyali institution which is designated as a patron-based segmentary system depicts an adaptive response to displacement caused by riverbank erosion in the floodplain Bangladesh. Due to endemic erosion of land in the floodplain, most households have insufficient land and fight with one another for land. Such a situation of non-availability and unequal distribution of land force peasants to develop asymmetrical patron-client ties with local landed elites. The use of lathiyali by the local elites to establish their control over the depositional land has become significant. The author calls this a patron-based segmentary political structure. This is different from kin-based segmentary model, hitherto made popular by anthropologists to explain political order of non-state societies. The paper contains detail description of char villages, samaj, village leadership and the structure of segmentary alliance, relationship of the Lathiyals, the Talukdars and the state. It is pointed out that the existing segmentary lathiyali system will continue to dominate as an important political structure in the riverine Bangladesh characterised by riverbank erosion and emergence of char lands.

Key Words: Segmentary model/ Riverbank erosion/ Char land/ Patron-client relations/ Lathiyali system/ Floodplain/ Bangladesh.

ANNEXURE 1

A LIST OF TECHNICAL LITERATURE AND ANNUAL REPORTS OF BWDB

In this section, we provide a list of technical literature on flood, cyclone and riverbank erosion. We divide the whole set into two parts. First is the technical papers and reports. Second is the annual reports on flood published by Bangladesh Water Development Board (BWDB). Before the independence BWDB was known as East Pakistan Water and Power Development Authority (EPWAPDA). For publications preceeding independence we used EPWAPDA as the proper citation. This is what we found in our literature search otherwise readers might be confused.

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areas and also damage. Many charts, graphs and tables are also used in these reports. We give below the list of available reports that we could locate at the Department of Water resources and Engineering of the BUET, Dhaka.

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2. Library of the Department of Water Resources and Engineering, Bangladesh University of Engineering and Technology (BUET), Dhaka
3. Department of Geography, Jahangirnagar University, Savar, Dhaka
4. Department of Geography, Dhaka University
5. Library of Master Plan Organization (MPO), Dhaka
6. For Specialised Journal Articles Publishers of the Journals or the Specialised Institutions on the Subject may be Contacted

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ANNEXURE 5

**LIST OF ORGANIZATIONS AND PERSONS
CONTACTED / CONSULTATED**

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1. Dr. Edward Clay, Director, Relief and Development Institute, UK
2. Dr. Hugh Brammer, Consultant Tropical Agricultural Development, UK
3. Dr. David Turton, Editor, Disasters (UK)
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5. Mr. Brian Ward, Director, ADPC, AIT, Bangkok
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12. Mr. Richard Holloway, Coordinator, PACT Bangladesh/PRIP
13. Dr. Atiur Rahman, Senior Research Fellow, BIDS, Dhaka
14. Dr. Moudood Elahi, Professor of Geography, Jahangirnagar University
15. Mr. Nurul Islam Nazem, Assistant Professor of Geography, Jahangirnagar University
16. Mr. Robin Gomes, Welfare Director, CARITAS, Bangladesh
17. Mr. Khandker A. Hafiz, Programme Officer, UNDP, Dhaka

Organizations / NGOs / Library

1. Master Plan Organizations (MPO)
2. Department of Water Resources and Engineering, BUET, Dhaka
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4. Director, Flood Control, BWDB
5. Director General, Geological Survey of Bangladesh
6. Librarian, Bangladesh Academy for Rural Development (BARD), Kothari, Comilla
7. Librarian, CIRDP Library, Dhaka
8. Library, Ground Water Hydrology, BWDB
9. Bangladesh Beghul Parishad, Dhaka University
10. Seminar Library, Department of Geography, Dhaka University
11. Centre for Social Studies, Dhaka University
12. Library, SPARRSO, Dhaka
13. Rangpur Dinajpur Rural Service (RDRS), Dhaka
14. Bangladesh Rural Advancement Committee (BRAC), Dhaka
15. Proshika, Dhaka
16. Nisera Kati, Dhaka
17. CARE - Bangladesh, Dhaka
18. Association for Social Advancement (ASA), Dhaka
19. ADAB Library
20. Community Development Library, Dhaka

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Kindly Note : There may be some inadvertent typing mistakes in the report which is sincerely regretted.