

United Nations Development Programme
Government of the People's Republic of Bangladesh

Assistance to Ministry of Relief in Coordination of Cyclone Rehabilitation (BGD/91/021)

FAP-11

FAP-11

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Final Report

Volume I

MAIN REPORT

Mott MacDonald International Ltd.
in association with
Asian Disaster Preparedness Centre
assisted by
House of Consultants Ltd.

February 1994

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United Nations Development Programme
Government of the People's Republic of Bangladesh

**Assistance to Ministry of Relief in
Coordination of Cyclone Rehabilitation
(BGD/91/021)**

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**Government of the People's Republic of Bangladesh
United Nations Development Programme**

**ASSISTANCE TO MINISTRY OF RELIEF
IN COORDINATION OF CYCLONE REHABILITATION
(BGD/91/021)**

The Final Report for the Project comprises the following volumes:

- Volume I : Main Report**
- Volume II : Natural Disasters affecting Bangladesh**
- Volume III : Organisation and Systems for Disaster Management in Bangladesh**
- Volume IV : Damage Caused by Disasters (Agriculture [including Livestock and Fisheries], Forestry and Infrastructure)**
- Volume V : Disaster Management Training Strategy**
- Volume VI : Concept Plan for Integrated Coastal Protection**

Volumes II/VI were published in December 1993.

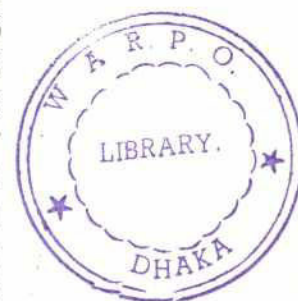
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**ASSISTANCE TO THE MINISTRY OF RELIEF
IN COORDINATION OF CYCLONE REHABILITATION
(BGE/91/021)**

FINAL REPORT

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LIST OF ACRONYMS AND ABBREVIATIONS

ADAB	Association of Development Agencies in Bangladesh
ADB	Asian Development Bank
ADP	Annual Development Program
ADPC	Asian Disaster Preparedness Centre, Bangkok
AFD	Armed Forces Division
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BBS	Bangladesh Bureau of Statistics
BDPC	Bangladesh Disaster Preparedness Centre
BDRCS	Bangladesh Red Crescent Society
BKB	Bangladesh Krishi (Agricultural) Bank
BMD	Bangladesh Meteorological Department
BPDB	Bangladesh Power Development Board
BRAC	Bangladesh Rural Advancement Committee
BRDB	Bangladesh Rural Development Board
BRRI	Bangladesh Rice Research Institute
BS	Block Supervisor (of DAE)
BWDB	Bangladesh Water Development Board
CDP	Community Development Programme (of BDRCS)
CDPC	Cranfield Disaster Preparedness Centre, Shrivenham, UK
CE	Chief Engineer
CEP	Coastal Embankment Project
CIDA	Canadian International Development Agency
CPP	Cyclone Preparedness Programme (of MOR/BDRCS)
CPPII	Cyclone Protection Project II
DAE	Department of Agricultural Extension
DANIDA	Danish International Development Agency
DC	Deputy Commissioner
DCMU	Disaster Coordination and Monitoring Unit
DHA	Department of Humanitarian Affairs of UN
DM	Disaster Management
DPHE	Department of Public Health Engineering
DPP	Disaster Preparedness Programme (of BDRCS)
DTW	Deep Tubewell
EC	European Community
ERD	Economic Relations Division
ESCAP	Economic and Social Commission for Asia and the Pacific
ESO	Emergency Standing Orders
FAO	Food and Agriculture Organization of the United Nations
FAP	Flood Action Plan
FFW	Food-for-Work
FPCO	Flood Plan Coordination Organization
FFWC	Flood Forecasting and Warning Centre (of BWDB)
GB	Grameen Bank
GoB	Government of Bangladesh



IBRD	International Bank of Reconstruction and Development
ICB	International Competitive Bidding
IDA	International Development Agency (World Bank)
IFRC	International Federation of Red Cross and Red Crescent Societies (formerly the League, LRCS)
INBAT	Institute for Business Administration, University of Dhaka
IRRI	International Rice Research Institute (Philippines)
LCB	Local Competitive Bidding
LGED	Local Government Engineering Department
LLP	Low Lift Pump
MDMR	Ministry of Disaster Management and Relief (Former Ministry of Relief)
MEF	Ministry of Environment and Forests
MFL	Ministry of Fisheries and Livestock
MIWDFC	Ministry of Irrigation, Water Development and Flood Control
MoC	Ministry of Communication
MoF	Ministry of Food
MoH	Ministry of Health
MoR	Ministry of Relief (now renamed Ministry of Disaster Management and Relief)
MoS	Ministry of Shipping
NGO	Non-governmental organization
NORAD	Norwegian Overseas Development Administration
ODA	Overseas Development Administration (U.K.)
ORS	Oral rehydration salts
PC	Planning Commission
PHC	Primary health care
Prodoc	Project Document
REB	Rural Electrification Board
RHD	Roads and Highways Department
SCF	Save the Children Fund
SPARRSO	Space Research & Remote Sensing Organization
STW	Shallow Tubewell
SWC	Storm Warning Centre (of BMD)
TBA	Traditional birth attendant
TAO	Thana Agricultural Officer
Tk	Taka (Bangladesh currency unit)
TNO	Thana Nirbahi Officer
TOR	Terms of Reference
T&T	Telegraphs and Telephones Department
UNDP	United Nations Development Programme
UNDRO	Office of UN Disaster Relief Co-ordinator (now DHA-UNDRO)
UNICEF	United Nations Childrens Fund
USAID	United States Agency for International Development
VGD	Vulnerable Group Development (Programme)
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organisation
ZRC	Zonal Relief Coordinator

DISASTER MANAGEMENT: BASIC CONCEPTS AND DEFINITIONS (Rev.2)

1. Introduction

There are significant differences in the definitions and usage of terms by various organizations, institutions, and individual experts concerned with disasters, both in Bangladesh and internationally. The definitions adopted represent a compromise between those proposed by UNDRO and other international authorities, and the present usage of terms in Bangladesh. The terms given have been widely discussed during the course of the project and may be regarded as the consensus view. They are presented in a logical, more-or-less chronological sequence, not in alphabetical order. An English/Bangla Glossary is included.

2. Overall Framework: Phases and Related Activities

Many people tend to think in terms of three phases, or stages: 'pre-disaster', 'disaster', and 'post-disaster'. However, there is an important sub-division to be made within the 'pre-disaster' phase, between 'normal' times and the period following a warning being given, when a number of emergency measures may have to be taken, including evacuation. There are also questions concerning the ending of the 'disaster' phase, and the start of the 'post-disaster' phase.

It is suggested that the most helpful categorization is:

- 1 'Normal'(time) phase
- 2 Emergency phase
 - a) Alert (or Warning) phase
 - b) Relief (or Survival and Basic Needs) phase
- 3 Recovery phase

In practice, the transition from one phase to the next is not necessarily clear cut, particular activities phase in and phase out progressively, and overlap with each other. For example, certain relief activities will continue, declining progressively, while recovery activities build up. Similarly, the 'recovery' phase gradually merges into 'normal', ongoing development, as illustrated in **Figure 1**.

However, the main focus of activities is significantly different during each of the three phases listed above, and they are therefore useful to conceptualize the process, and to define who does what, when.

Figure 2 provides a schematic outline of the phases and associated major activities.

3. Disasters and Disaster Management

A Disaster is an event, natural or man-made, sudden or progressive, that seriously disrupts the functioning of a society, causing human, material, or environmental losses of such severity that the affected community has to respond by taking exceptional measures. The disruption (including to essential services and means of livelihood) is on a scale that exceeds the ability of the affected society to cope using only its own resources.

Disaster Management includes all aspects of planning for and responding to disasters. It refers to the management of both the risks and the consequences of disasters, and includes:

- (i) the incorporation of preventive/mitigation measures into overall development plans and activities at all levels in disaster-prone areas: this may include structural and non-structural measures to reduce the likelihood (probability) of disaster occurring and the consequences of those that cannot be prevented;
- (ii) preparedness plans and related measures in disaster-prone areas to warn people of imminent threats and organize appropriate emergency responses, when necessary: this includes forecasting, warning dissemination systems, and standing arrangements for evacuation and the organization of rescue, relief and short-term rehabilitation activities;
- (iii) emergency response to disasters when they occur, including rescue, relief, short-term rehabilitation/repairs; and
- (iv) post-disaster reconstruction/long-term rehabilitation.

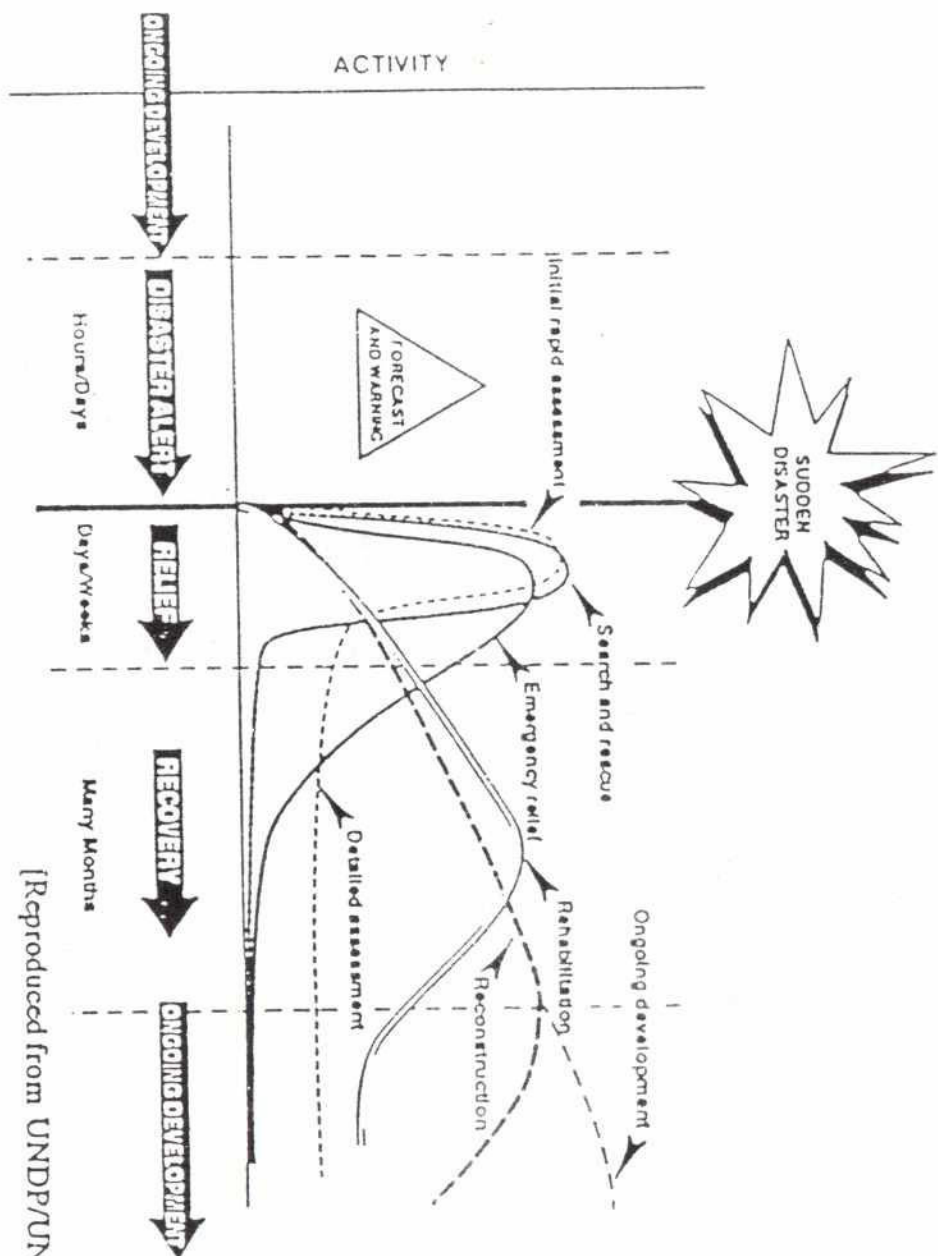
4. 'Normal' Time

'Normal' Time refers to a period when there is no current emergency, nor any immediate threat of a disaster, but long-term measures are taken in anticipation of the impact, at some unknown time in the future, of known hazards.

The measures to be taken during 'peace time' fall into two main categories:

- (i) preventive/mitigation measures to reduce vulnerability and risks on a long-term, permanent basis;
- (ii) preparedness arrangements to provide warnings (when possible) and establish contingency plans and capacity for emergency response (when required).

Disaster Prevention/Mitigation measures are designed to reduce, on a permanent basis, the adverse impact of floods, cyclones (including storm surges), and other hazards (potentially damaging events). The measures may be aimed at reducing the probability or intensity of particular hazards, or the vulnerability of the society and its assets to the impact of those that do occur.



[Reproduced from UNDP/UNDRO Disaster Management Manual]

Figure 1

Main Phases and Activities in Disaster Management

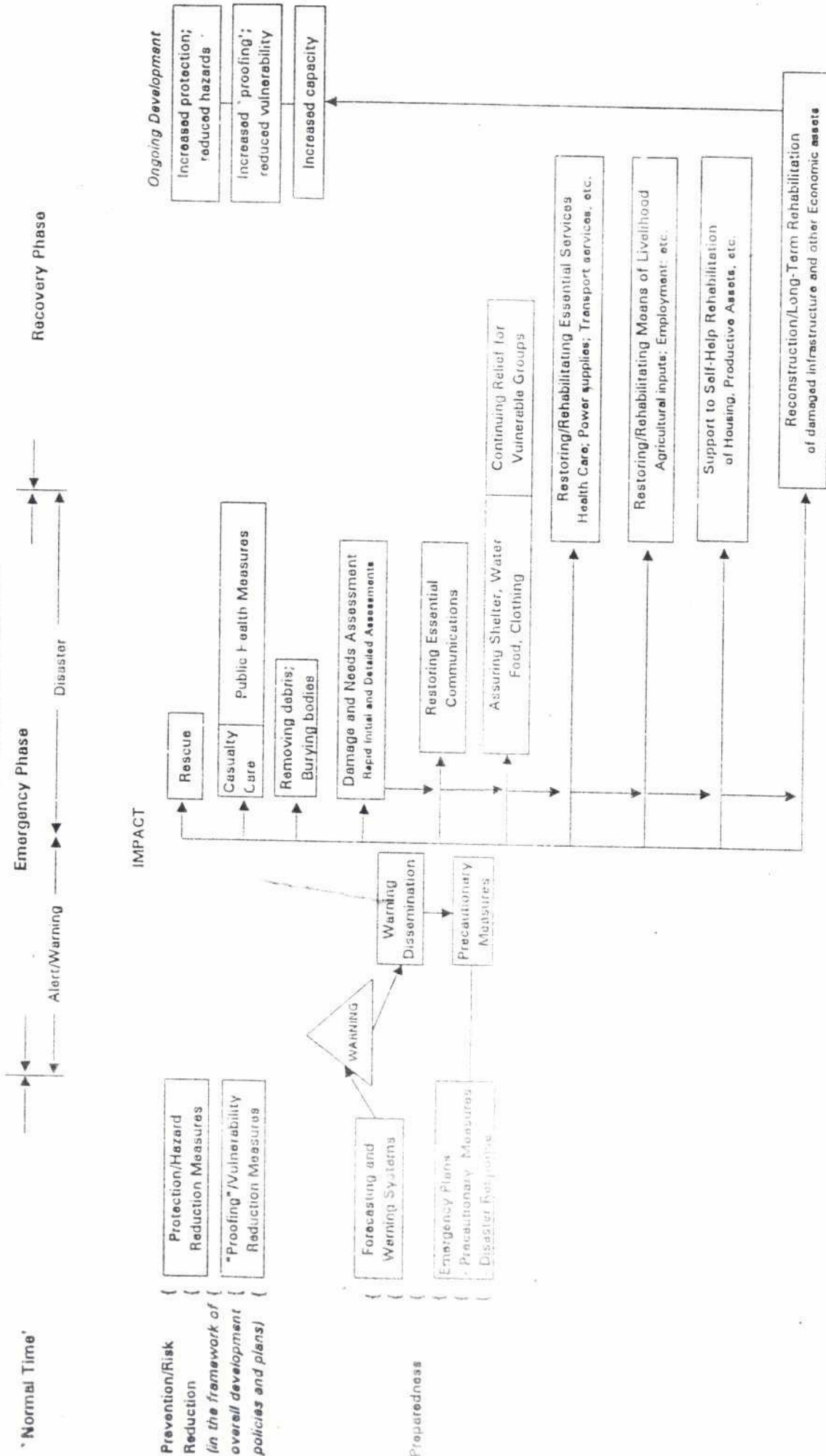


Figure 2

Specific measures can include:

- (i) **'Protection', or Hazard Reduction:** Embankments, drainage channels, afforestation, and other 'structural' or 'physical' measures to reduce the impact of floods or cyclones (including storm surges), or the likelihood and impact of floods. Adequate maintenance must be assured.
- (ii) **'Proofing', or Vulnerability Reduction:** This can take several forms:
 - Land use planning (or 'zoning') which seeks to ensure that people and economic assets are not located in hazardous areas, and that new developments do not create new risks -- sometimes referred to as hazard avoidance. Can be attempted through regulations or incentives.
 - Improvements in designs and construction standards for new buildings and other structures, and strengthening existing ones, to better withstand high winds, floods, earthquakes or other phenomena which are likely to occur in the locality -- sometimes referred to as hazard resistance. Can apply to engineered and non-engineered structures, and be attempted through regulations, incentives, and/or training.
 - Adoption by individual households and local communities of various measures to reduce the likelihood of losses of valuable assets (through improved storage arrangements, for example). Can be encouraged through public education and community mobilization.

Disaster Preparedness measures to ensure the readiness and ability of the society -- Government, other organizations, communities, and individuals -- to take precautionary measures in advance of an imminent threat, in cases where advance warnings are possible, and to organize timely response in the event of a disaster.

Preparedness involves:

- (i) Forecasting and warning dissemination systems for cyclones and floods (including potential breaches of embankments); and
- (ii) Operational capability (plans, procedures, resources) to ensure timely action at all levels -- by communities, Government, major institutions, NGOs, and other organizations -- when a warning is issued and following a disaster impact.

The latter includes arrangements (at local level) for the evacuation of people, livestock, and movable property, from threatened localities, and the implementation of other temporary, precautionary measures to protect lives and property when a warning is issued; and arrangements at all levels to organise search and rescue, provide relief, and make emergency repairs to restore essential services, when needed. Education, training, and practice drills, are essential at all levels.

Warning systems are arrangements to rapidly disseminate information concerning an imminent disaster threat to officials, institutions, and the population at large, in the areas at immediate risk.

Warnings normally concern cyclones or floods. A warning system involves links to forecasting systems; the organizational and decision-making processes to decide on the issuing of particular warnings; arrangements to broadcast the warnings by radio and through other mass media; and arrangements for the local dissemination of warnings and instructions within the communities at risk.

The effectiveness of any system depends on the prior education and training of officials and the population to the meaning of the warnings and the actions to be taken.

Vulnerability (Vulnerability analysis) is the extent to which a community, structure, service, economic activity, or geographic area is likely to be damaged or disrupted by the impact of a particular hazardous phenomenon.

Vulnerability analysis is the process of estimating the vulnerability to particular hazardous phenomena of specified elements (structures, services, or whole communities) at risk. Combined with an analysis and mapping of the hazards to which an area is prone, it provides a basis for planning relevant preventive and preparedness measures.

For engineering purposes, vulnerability analysis involves the analysis of theoretical and empirical data concerning the effects of particular phenomena on particular types of structures.

For more general socio-economic purposes it involves consideration of all significant elements in society, including physical, social and economic considerations (both short- and long-term), and the extent to which essential services (and local coping mechanisms) will be able to continue functioning.

5. Alert (or Warning) Phase and Activities

Alert (or Warning) phase is the period from the issuing of an alert or public warning of an imminent disaster threat to its actual impact, or the passage of the threat and the lifting of the warning. The period during which pre-impact precautionary, or disaster containment, measures are taken.

Precautionary (Emergency Risk Reduction) Measures are actions taken in response to a disaster warning to minimize or contain the eventual negative effects. This includes, as and where needed, evacuation and other precautionary measures, flood-fighting and similar measures. These precautionary (pre-impact) measures are pre-planned, and practised, as a part of preparedness, and put into effect when specified conditions arise.

Emergency Phase is the period during which exceptional (emergency) measures have to be taken to save lives and property, and to meet the basic needs of the survivors in respect of shelter, drinking water, food, and medical care.

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6. Impact and Post Impact Phase and Activities

Emergency relief is assistance provided to save and preserve lives, and meet the basic subsistence needs of disaster victims.

Relief includes material aid to enable affected families to meet their basic needs for shelter, clothing, water, and food (including the means to prepare food), and emergency medical care. Relief supplies and services are provided free of charge -- on a humanitarian basis -- in the days and weeks immediately following a sudden disaster. They may need to be provided for extended periods in the case of severe drought and population displacements (refugees or internally displaced people).

Emergency relief measures are planned and implemented on the basis of the (post-impact) assessment, but may be initiated on the basis of past experience and preparedness plans until sufficiently comprehensive assessment data are available.

Damage and Needs Assessment (post-impact) is the process of determining the impact of a disaster on a society; the needs for immediate, emergency measures to save and sustain the lives of survivors; and the possibilities for facilitating and expediting recovery.

Assessment is an interdisciplinary process undertaken in phases and involving on-the-spot surveys and the collation, evaluation and interpretation of information from various sources concerning both direct and indirect losses, short- and long-term effects. It involves not only determining what has happened, what resources are available to the affected communities, and what assistance might be needed, but also defining objectives and how relevant assistance can actually be provided to the victims, considering both short-term needs and long-term implications.

Damage assessment is the preparation of specific, quantified estimates of physical damage resulting from a disaster, and recommendations concerning the repair, reconstruction or replacement of structures and equipment, and the restoration of economic (including agricultural) activities.

7. Recovery Phase and Activities

Recovery Phase is the period, following the emergency phase, during which actions are taken to enable victims to resume normal lives and means of livelihood, and to restore infrastructure, services and the economy in a manner appropriate to long-term needs and defined development objectives.

Recovery encompasses both rehabilitation and reconstruction, and may include the continuation of certain relief (welfare) measures in favour of particular disadvantaged, vulnerable groups.

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Short-term rehabilitation and repairs are actions taken in the aftermath of a disaster to enable basic services to resume functioning, to assist victims' self-help efforts to repair dwellings and community facilities, and to revive economic activities, including agriculture.

Rehabilitation focuses on enabling the affected populations (families and local communities) to resume more-or-less normal (pre-disaster) patterns of life.

Reconstruction/Long-term rehabilitation is the permanent reconstruction or replacement of severely damaged physical structures, the full restoration of all services and local infrastructure, and the revitalization of the economy (including agriculture).

Reconstruction must be fully integrated into ongoing long-term development plans taking account of future disaster risks and possibilities to reduce those risks by the incorporation of appropriate mitigation measures. Damaged structures and services may not necessarily be restored in their previous form or locations. Reconstruction may include the replacement of any temporary arrangements established as a part of emergency response or short-term rehabilitation.

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**ASSISTANCE TO MINISTRY OF DISASTER MANAGEMENT AND RELIEF
IN COORDINATION OF CYCLONE REHABILITATION
(BGD/91/021)**

FINAL REPORT

VOLUME I - MAIN REPORT

SUMMARY

Project Objectives

S.01 The objectives of the Project may be stated as :

- i) to strengthen the Government's capability to co-ordinate and monitor disaster related activities through the Ministry of Relief (now Ministry of Disaster Management and Relief) by establishing the Disaster Coordination and Monitoring Unit (DCMU);
- ii) to review existing procedures and organisational structures for disaster management with a view to their integration, reinforcement or expansion, as required, and to assess training needs and initiate preliminary training activities;
- iii) to prepare a project document and other related documents for a Comprehensive Disaster Management Programme within the context of the Flood Action Plan; and
- iv) in conjunction with the Flood Action Plan, to prepare a Concept Plan for the integration of measures to protect coastal areas from the effects of cyclones and tidal surges.

Introduction

S.02 This Report discusses activities throughout the period of the Project and summarises the findings, proposals and follow up action initiated. It has been prepared in accordance with Clause 2.2 of the Contract concluded between UNDP/OPS and Mott MacDonald (the Contractor) on 27 May 1992 as modified by its four Addenda. The Contractor supplied personnel to assist the MDMR in undertaking various tasks related to the objectives given in S.01 above. Under separate contractual arrangements, UNDP/OPS engaged the House of Consultants Ltd (HCL) to provide Bangladesh experts to assist MDMR.

S.03 UNDP assistance was provided in accordance with Project Document BGD/91/021, which was signed on 19 August 1991. Apart from the supply of staff, UNDP provided: training, staff travel, office facilities and equipment.

S.04 The Project was originally scheduled to end on 20 February 1993. Following discussion at the Tripartite Review Meeting on 28 January 1993, it was agreed that it should be extended for six months to 20 August 1993. Subsequently, in June 1993, MDMR requested that it be extended for a further four months and, finally, in December 1993, by a further two months, to 28 February 1994, to enable it to fully achieve its objectives and to put in place the proposed follow-on 'Support to Disaster Management project' (BGD/92/002).

Background

S.05 Bangladesh is perhaps the most disaster prone country in the world. Over the last twenty years, there has been on average, one significant natural disaster each year.

S.06 Although the natural resilience of the people, born of centuries of surviving droughts, floods and cyclones, enables most of them to return to 'normal' life comparatively quickly, many thousands are dispossessed every year and they swell the ranks of the impoverished. Improvement of the systems and procedures for dealing with recurrent disasters would reduce losses and increase the speed and efficiency of emergency response and subsequent recovery.

S.07 UNDP responded to GOB requests for assistance with its disaster management activities and supported the Flood Policy Study, which was undertaken following the floods of 1988. This study led to the preparation of Flood Action Plan (FAP), which included a project 'FAP:11' which was entitled Disaster Preparedness.

S.8 The project document for FAP:11 was being prepared when the cyclone of 1991 struck. GOB requested immediate assistance to provide emergency support and to finalise the preparation of FAP:11 and this project (BGD/91/021) was formulated.

Project Organisation

S.9 The project organisation was complex and involved nine different bodies. The executing agencies were the MoR (now MDMR) for GOB and OPS for the donor (UNDP). A GOB project Steering Committee oversaw the work. The Flood Plan Coordination Organisation (FPCO) also had a role to ensure that project outputs were in conformity with other FAP approaches.

S.10 The work of the international Contractor, who was associated with the Asian Disaster Preparedness Centre, of the Asian Institute of Technology, Bangkok, Thailand and of the local experts was guided by a Professional Panel engaged directly by UNDP/OPS.

Activities

S.11 Mobilisation commenced following the arrival of the Contractor's Team Leader on 20 March 1992.

S.12 TOR for the Local Experts were finalised and a call for tenders issued on 30 March 1992. The offers were reviewed and recommendations made to OPS on 25 April. OPS awarded the Contract to the recommended local firm, HCL, on 24 May.

S.13 The composition of the Professional Panel given in the Project Document was reviewed in the light of a more detailed appreciation of the project requirements. A greatly altered Panel was proposed and agreed by GoB and UNDP

S.14 Government were unable to post counterpart staff in the initial period of the project, but with the creation of the Disaster Management Bureau, staff were gradually made available. The first Directors (Senior Specialist) level GoB staff were posted to DMB in late April and early May 1993. With the appointment of Mr. Akramul Islam as DG on 24 August 1993, the Bureau was fully staffed professionally, apart for the post of Director (Training).

S.15 Since the commencement of the Project, more than 120 agencies have been contacted and some 470 meetings held. Eight Informal Discussions/Workshops have been arranged, seven in Dhaka and one in Noakhali.

S.16 A library of disaster-related literature has been established and more than 700 publications are held.

S.17 Field trips were made to cyclone, flood and 'flash flood' prone areas to understand community responses to such disasters and to observe at first hand the damage caused and the progress of reconstruction works.

S.18 A nationwide disaster preparedness slogan competition was held to select the most effective slogans to raise awareness of the actions that the public should take to reduce the effects of cyclones and floods. In all, 231 participated in the contest. Prizes were distributed by the Hon'ble President of Bangladesh on the occasion of the National Disaster Preparedness Workshop held on 29 April 1993.

S.19 Special studies, with the focus on disasters, that were not included in the TOR were undertaken. These included social and gender issues, telecommunications, public accounting, afforestation to mitigate the effects of storm surges and hazard mapping.

Outputs and Findings

S.20 Largely due to the delay in project start up from the originally proposed August 1991 to the actual March 1992, it was found necessary to redefine the specific objectives, output and activities. The modifications related mainly to activities that were proposed in relation to the immediate aftermath of Cyclone 1991. These changes were agreed in September 1992 at the review of the project Inception Report.

S.21 The reports that were prepared are listed in **Table S.01**.

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TABLE S.1

Major Project Outputs

Reports	Date Issued
Inception Report	20 June 1992
Quarterly Report (20 June - 20 September 1992)	20 October 1992
Draft Terms of Reference for 'FAP:11'	18 November (Revised 14 December 1992)
Draft Programme Support Document for Support to Disaster Management (SCDMP)	24 November 1992 (Latest version 9 February 1994)
TAPP for SCDMP	24 November 1992 (Latest version 26 January 1994)
Status Report	15 December 1992
Quarterly Report 20 September - 20 December, 1992	10 January 1993
Draft Final Report (Vol I, III/VI)	20 February 1993
MIS User Manual	15 May 1993
Hazard Maps	15 May 1993
Quarterly Report (20 February - 20 May 1993)	28 June 1993
Coastal Area: Physical Infrastructure Map	19 August 1993
Quarterly Report (20 May - 20 August 1993)	10 September 1993
Standing Orders for Disaster (Draft)	February 1994
Final Report	
Volume I: Main Report	February 1994
Volume II: Natural Disasters Affecting Bangladesh (including Social and Gender Issues, Natural Resources and Environment)	December 1993
Volume III: Organisation and Systems for Disaster Management in Bangladesh	December 1993
Volume IV: Assessment of Damage Caused by Disaster (Crops, Livestock, Fisheries and Forest and Infrastructure)	December 1993
Volume V: Disaster Management Training Strategy	December 1993
Volume VI: Concept Plan for Integrated Coastal Protection	December 1993

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Objective 1 : To strengthen the Government's capability to co-ordinate and monitor disaster-related activities, through the Ministry of Disaster Management and Relief

S.22 The Disaster Coordination and Monitoring Unit (DCMU) was inaugurated on 17 June 1992 by the Honourable State Minister of Disaster Management and Relief. It occupied some 5,000 sq.ft. of the first floor of a rented building located at House 38, Road 11, Dhanmondi Residential Area, Dhaka. The Unit had two (T&T) telephone lines and a rented internal fax machine. New telecommunication equipment was also supplied but has yet to be installed to ensure more effective disaster-time coordination.

S.23 In the first ten months of the project period, MDMR were unable to post full time staff to the project and operations were almost wholly a technical assistance operation. During the extended period, with the creation of the Disaster Management Bureau, the posting of full time officers and their exposure to the need for improved disaster preparedness and response, operations were transferred increasingly from the technical assistance personnel to GoB staff.

S.24 Basic data collection relating to administrative areas, population, infrastructure facilities (including health, nutrition, food and relief storage and telecommunications), NGO operations, and key contacts was carried out. These data were incorporated into computerised databases. MISs were developed to cater for :

- donor contributions
- initial damage and needs
- agricultural and infrastructure damage
- baseline data on demography/health
- telecommunication facilities

S.25 Apart for routine training on a day-to-day basis for DMB personnel, five Workshops were held to demonstrate the systems operated by DMB.

S.26 During the 1993 flood season, a daily situation report was prepared and sent out by fax to key agencies in Dhaka.

S.27 The project cooperated with Consultants developing geographical information systems (GIS) under FAP:19 to evaluate the value of GIS in disaster management.

S.28 Infrastructure damage assessments made at various times by different GOB agencies and consultants were compared and differences investigated. These largely resulted from the level of resources allocated to the investigations and the time that had elapsed since the disaster event.

S.29 Agricultural damage assessments were made by many agencies and the results were not conformed. There is a pervasive belief that losses and damage are overestimated in order to obtain more assistance. Other deficiencies in the present system which could be partially rectified by training include :

- use of similar damage assessment methodology
(previous experience, field visits, discussions with farmers)
- use of similar reporting formats
- reconciliation of data at all levels, probably by the civil administration

S.30 The progress of the reconstruction works initiated to repair the damage caused by the 1991 cyclone were reviewed. Many 'First Priority' reconstruction works, which were due to be completed by 30 June 1992, were still in progress at February 1993 largely due to procurement delays.

Objective 2 : Review procedures and organisational structures; assess training needs and commence training

S.31 The line-by-line review of the existing Emergency Standing Orders (ESOs) revealed that most issues were covered to some extent, except the overall planning of prevention/mitigation measures. All concerned agencies were approached for detailed comments and many responded. The comments were considered and the two main ESOs for Flood and Cyclone were themselves consolidated into a single Standing Order for Disaster. A further draft, fully reflecting the revised disaster management set-up established in the period April/October 1993, was issued in February 1994.

S.32 An 'ad hoc' Working Group consisting of BMD, CPP, DCMU and the Professional Panel was convened to consider the need for improvements to the present Wind Storm Warning System and to prepare a revised format for the warning if necessary. There was considered to be a need for particular messages for each group of people likely to be affected:-

- ports and shipping
- fishermen
- inhabitants of coastal areas
- inhabitants of inland areas

S.33 The project Steering Committee appointed a sub-committee with Joint Secretary, Ministry of Defence, as Chairman to finalise revised arrangements for cyclone warnings. Unfortunately, little progress was made.

S.34 BWDB Flood Forecasting and Warning Centre is able to predict water levels in the major rivers with increasing accuracy. Such predictions are vital for the operation and maintenance of major water control works and river transport. However, it is accepted that the present arrangements do not provide adequate information for the population in the flood prone areas.

S.35 Under FAP:10 (to be funded by Denmark) the development of an improved forecasting system is planned. This will involve collaboration between various Flood Action Plan projects, notably FAP:18 Topographic Mapping, FAP:19 Geographical Information Systems and FAP:25 Flood Modelling/Management. Once improved local area forecasts are technically feasible, field testing will be required. Dissemination arrangements would then

to developed under the follow-on 'Support to Disaster Management' project to BGD/91/021 (See S.45 below).

S.35 Following field visits, discussions and literature reviews, a Position paper on disaster management issues was widely distributed. This paper:

- highlighted the hazards, vulnerability and risk factors,
- suggested some basic propositions regarding disaster management,
- detailed the organisational structures developed to deal with cyclone 1991,
- summarised the disaster management tasks that have to be performed,
- highlighted the need for inter-agency cooperation.

S.37 On the basis of detailed discussions of the issues raised in the Position Paper proposals for a new organisational structure for disaster management were prepared (Figure S.01). This involved:

- the re-designation of the MDMR as Ministry of Disaster Management and Relief (MDMR)
- a policy making National Disaster Management Council (NDMC) chaired by the Prime Minister, overseeing
- a Secretary level executive Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) chaired by the Minister of 'DMR', which would direct and be serviced a Disaster Management Bureau (DMB), placed administratively under MDMR.

S.38 These proposals were endorsed by the Project Steering Committee in its third meeting on 28 January 1993 and over the period April to October 1993, the new organisation was put in place. The role of the DMB is summarised in Table S.2.

S.39 Training activities focused on discussions with a wide range of concerned officials and others and visits to training establishments and organisations that have started to provide disaster management training. Informal Discussions to consider training issues relating to disaster management were held in DCMU/DMB. Participants were drawn from GOB (civil and military), donor and NGO communities. There was a consensus for the need for awareness creation at the grassroots level amongst the population in disaster prone areas, for more formal training of GOB and NGOs officials at all levels and for the sensitising higher level officers to the issues involved. It was considered that joint civil/military/NGO training should be encouraged wherever possible.

S.40 Participants at one training discussion were requested to devise messages which might form the basis for a grassroots level disaster management campaign. This idea developed further and a national competition was devised.

S. Under the follow on project, a Task Force on Disaster Management Training and Awareness will oversee all relevant actions. This Task Force was created at the IMDMCC meeting held on 15 February 1994.

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TABLE S.2

Duties of DMB

During 'normal time':

- developing a National Disaster Plan, and associated practical guidelines for those responsible for implementation;
- helping line ministries and agencies to develop and test their own contingency plans;
- helping district- and thana-level authorities to develop and test their own disaster action plans;
- working with local authorities, BDRCS/CPP, PVDOs and others to help union councils and village communities in high-risk areas to develop their own action plans and increase their own coping capacity;
- collaborating with existing training institutes, training materials development units, and PVDOs already engaged in relevant training activities, to co-ordinate and promote the production of curricula and relevant training materials for various target groups;
- collaborating with line agencies, local authorities, existing training institutes, and relevant PVDOs, in planning and organizing training for a wide variety of government personnel, elected officials and others;
- establishing facilities, information systems, operating procedures, and telecommunications systems, for a national emergency operations centre (EOC/control room), for immediate use when an emergency arises;
- establishing arrangements for the mobilization of additional personnel for the EOC and to assist local authorities in the field, when required;
- maintaining an up to date inventory of the location, condition and ownership of all potentially life saving infrastructure including cyclone shelters, killas, embankments, flood platforms and the like;
- providing a documentation and information service on disaster management for line agencies and others;
- working with the Planning Commission and concerned line agencies to increase awareness of disaster risks and ensure that such risks, and possibilities to reduce them, are considered and appropriate measures incorporated in development planning;
- monitoring and reporting to the Government/Parliament on the risks faced; the vulnerability of people and economic assets to known hazards; the status of preparedness in the country; and any delays/bottlenecks in the implementation of disaster prevention/preparedness programmes and projects.

During an 'emergency':

- ensuring the effective dissemination of appropriate warnings, of floods and cyclones, through collaboration with BMD, BWDB, CPP, Radio, TV, and local authorities in particular;
- activating and operating the national Emergency Operations Centre (EOC, equivalent to a control room); receiving and analysing information and making specific recommendations for action; arranging rapid reconnaissance and assessment missions, where needed; providing advice and guidance to local authorities in relation to damage and needs assessment, and relief and rehabilitation assistance operations; etc.
- providing secretariat services and expert advice to the IMDMCC, and helping to ensure co-ordination between line agencies and between Government and PVDOs in relation to relief and short-term rehabilitation activities;
- monitoring the progress of rescue, relief and short-term rehabilitation activities, identifying problems and unmet needs, and taking action to resolve/meet them or bring them to the attention of the IMDMCC for resolution;
- providing information to and liaising with ERD concerning requirements for international assistance, and with MoInfo.

During post-disaster 'recovery':

- co-operating with the Planning Commission and line agencies, as required, in compiling data on reconstruction requirements and in co-ordinating the preparation of an integrated reconstruction programme;
- ensuring that risk reduction measures are built into all reconstruction programmes as much as possible;
- undertaking a final evaluation, or at least a "post mortem", on the emergency operation, drawing lessons and feeding them back to the IMDMCC and into training activities and up-dated guidelines.

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Objective 3 : Preparation of a Comprehensive Disaster Management Programme within the context of the Flood Action Plan

S.42 Following the floods of 1987 and 1988, GOB requested donor assistance in developing a strategy to combat the effects of similar events in the future. The Flood Policy Study was funded by UNDP and resulted in the development of a Flood Action Plan (FAP). FAP comprises interrelated activities under 26 projects, of which two directly address disaster management aspects :

FAP:10 Improving Flood Forecasting and Warning Systems

FAP:11 Disaster Preparedness

S.43 A UNDP supported project (BGD/88/013), which was completed on 30 November 1992 addressed improvements in flood forecasting and included the preparation of Terms of Reference for the FAP:10 project.

S.44 UNDP indicated to GOB that they would be prepared to consider supporting more comprehensive disaster management activities, and four draft/outline documents for 'FAP:11' were prepared by Cuny (1988), Curtin (1989), Oakley (1990) and FPCO (1991).

S.45 Following a review of the various draft documents, discussions with concerned agencies and at various specially convened meetings and workshops and consideration by the project team, a draft Programme Support Document (PSD) for a longer term project to follow on from this project, BGD/91/021, was published on 24 November 1992.

S.46 Discussions were held to decide whether the follow on project previously designated FAP:11 of the Flood Action Plan should remain within the FAP umbrella or whether it should be an Mor (now MDMR) initiative. The Project Steering Committee considered that it should be the latter. However, there will need to be very close coordination and cooperation between MIWDFC and its agencies and the DMB.

S.47 The draft proposed that the follow on project be titled 'Support to Disaster Management'. Its activities should focus on non-structural (non-engineering) ways of reducing risks, and on improving preparedness, including warning systems and arrangements to ensure timely and effective precautionary measures, rescue, relief, and rehabilitation, when required. It would seek to enhance public awareness and local-level capabilities, while also strengthening national-level institutions.

S.48 The draft PSD and related TAPP were discussed 'thread-bare' by all concerned between November 1992 when first presented up to final approval in early 1994. The TAPP was approved by the Planning Commission at an SPEC meeting on 7 December 1993 while the UNDP document was approved at a PAC meeting in New York on 24 January 1994.

S.49 In approving the PSD, UNDP decided that as no Disaster Management Programme was in place in Bangladesh, the intervention should be a 'Project and the PSD be converted to a Prodoc.

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S.50 In the final months of the project period, four donors have confirmed their interest in supporting the follow on project: UNDP, UNICEF, ODA and US:AID. Final negotiations with GoB are expected to be completed in March 1994.

Objective 4 : Concept Plan for Integrated Coastal Protection

S.51 The Concept Plan for Integrated Coastal Protection was formally presented to the Professional Panel, FPCO and other interested agencies on 4 October 1992. It is presented in full in **Volume VI** of this Final Report.

S.52 The Plan had the following policy objectives:

- prevention of loss of life
- prevention of damage to valuable infrastructure
- economic protection and management of productive land areas preservation of mangroves and other environmental resources

S.53 The elements of the Concept Plan may be summarised as:

- sea facing and similar embankments plus afforestation
- multipurpose shelters and 'killas'
- cluster villages and house strengthening, water supply and electricity
- transport systems (roads, helipads, drop zones, landing strips, waterways and landings/jetties)
- health facilities
- storage facilities
- cyclone forecasting, warnings and dissemination
- landuse planning and land registration
- internal drainage and water management

S.54 The effective integration and prioritisation of these activities, which are in many different sectors, calls for coordinated inter-ministerial policies and decision-making. For this to be achieved, direction will be needed at the highest level, and it is suggested that a Coastal Area Development Committee be established within the Planning Commission to assure overall responsibility.

S.55 Key points that emerged from the preparation of the Concept Plan were:-

- the large number of agencies that have or are planning, development activities in the coastal area;
- using estimates prepared by the agencies themselves, investments of \$912M during the period up to 2000 had been identified;
- given such a large investment, there is a need to prioritise the development projects; and
- the need for a high level Coordination Committee to oversee development.

S.56 At the National Seminar to consider the Multi Purpose Cyclone Shelter Programme (BUET, 1992) a number of speakers also highlighted the need for a overall plan for the Coastal Area.

Special Studies

Social and Gender Issues

S.57 Against the backdrop of repeated disasters like cyclones, storm surges, floods and riverbank erosion, not only is poverty increased, but the hardship and misery of poor are intensified. The fruits of development are removed both by the disasters and the consequent unproductive expenditure required for the response. The Government is forced to divert its limited resources, earmarked for overall development activities, to provide relief, rehabilitation and reconstruction of infrastructure activities leading to a negative impact on the country's economic growth and development.

S.58 In most cases women, children, the elderly and infirm become victims in greater numbers as they are the most vulnerable. This is evident from the 1991 cyclone records which reveal that disproportionately more women, children and the elderly died, a finding similar to that for the 1970 cyclone. On one island south of Moghna, a survivor claimed that no women had survived. Information from news media indicated that 85 percent of the deaths were of women and children. Eye witnesses expressed the same views.

Telecommunications

S.59 A vital element in any disaster preparedness and response system is communications. The existing telecommunications system and the improvements proposed under the MPCSP were reviewed. It was proposed that any funds available should go to improving 'normal' communications rather than spending large sums on systems used mainly at time of disasters. The Police network was proposed as the major 'disaster' time system.

Public Sector Accounting

S.60 The investigations into Public Sector Accounting issues revealed that significantly more special assistance was received by Bangladesh than UNDP recorded as being pledged at the end of July 1992. The difficulty that some donors had in clearing relief related material through customs was highlighted as were the apparently unreconcilable records of NGO receipts and expenditures on relief related activities.

Forestry

S.61 The amount of damage suffered in the forestry sub sector was reviewed following the cyclone of 1991. The best estimate made by the MoEF is that the damage amounted to:

	(Tk Lacs)
- Department of Forests Plantations	9 753
- Forest Industries Development Corporation	2 042
- Homestead Forestry	23 559
- Private Rubber Plantations	384
	<hr/> 35 742 (US\$ 98 M)

S.62 Proposals for improving coastal afforestation were also reviewed and many recommendations put forward.

Natural Resources and Environment including Hazard Mapping

S.63 The detailed terms of reference included the preparation of hazard maps at a scale 1/1,000,000. This work has been substantially completed and the preparation of maps is in hand. Hazard and related risk indices for all thanas and districts in Bangladesh were developed.

CHAPTER 1

INTRODUCTION

1.1 Background

This Final Report was prepared in accordance with Clause 2.2 the Contract concluded on 27 May 1992 between the United Nations Development Programme (UNDP) and Mott MacDonald Limited (termed the Contractor) as amended on 21 September 1992, 11 March 1993, 17th September 1993 and 16 February 1994.

The Contractor provided staff to assist the Government of Bangladesh, and more particularly the Ministry of Relief (now Ministry of Disaster Management and Relief) and its Disaster Management Bureau (DMB), on a number of specific tasks, as defined in the amended Terms of Reference, which are reproduced in Annex A to this Report. Under separate contractual arrangements with UNDP, Bangladesh experts were provided to support the MoR/DMB. These experts were supervised and directed by the Contractor's personnel.

1.2 UNDP Assistance

UNDP assistance to MoR/MDMR was provided in accordance with Project Document BGD/91/021 which was signed on 15 August 1991 on behalf of the Government of Bangladesh (GOB) and on 19 August 1991 on behalf of UNDP.

The UNDP assistance covered provision of:

- technical assistance staff both international and national
- training
- staff travel
- office accommodation, facilities and supplies
- expendable equipment, including computer supplies, software, stationeries and the like
- non-expendable equipment, including data processing equipment, air conditioning, transport and communication equipment

The assistance was provided over an initially ten, subsequently twenty four, month period to:

- establish a Disaster Coordination and Monitoring Unit (DCMU) within the MDMR, subsequently subsumed into the Disaster Management Bureau;
- review disaster management procedures of Government and non-government agencies;
- review damage assessment methodology and short term repair and rehabilitation activities following the 1991 cyclone;
- initiate training in disaster management/preparedness;



- prepare documentation for a follow-on project, initially proposed as FAP:11 Disaster Preparedness, but subsequently termed a Programme Intervention entitled 'Support to Disaster Management'(BGD/92/002)
- prepare a Concept Plan for integrated coastal protection.

1.3 Structure of the Final Report

The Final Report comprises a main volume and five supporting volumes addressing particular topics. This main volume contains of **five Chapters** and **six Annexes**.

Chapter 2 discusses the natural disasters that occur in Bangladesh, and the background to the project drawing on the Project Document and other published information.

Chapter 3 outlines the organisational structure of the Project which involved a Steering Committee, Professional Panel, counterpart staff, and technical assistance personnel, together with inputs from the UNDP office in Dhaka and the UNDP Office for Project Services (OPS) in New York.

Chapter 4 describes the inputs and activities in general that have been carried out and highlights the difficulties that have been encountered.

Chapter 5 summarises the findings and outputs of the Project team under the headings and Immediate Objectives given in the TOR.

1.4 Acknowledgements

The Consultants would like to acknowledge the support that has been given to date by:

Mr. K. A. Hafiz, Assistant Resident Representative, UNDP, Dhaka, March 1992/September 1993.

Ms. Sylvia Islam, Programme Officer, UNDP, Dhaka, September 1993/February 1994.

Mr. A. Z. M. Hossain Khan, Joint Secretary, MoR/MDMR, and Project Director, March 1992/December 1993.

Mr. Akramul Islam, Director-General, DMB, August 1993/February 1994

Mr. Mohammed Siddiquer Rahman, Chairman, Professional Panel, and former Cabinet Secretary

CHAPTER 2

BACKGROUND

2.1 Incidence and Impact of Natural Disasters

The major natural disasters to which Bangladesh is subjected are cyclones, floods, river bank erosion, tornadoes, and droughts. The country is also in a seismic zone and in the past major earthquakes have occurred. **Table 2.1** lists major disasters with loss of life over the last 400 years. Data given in **Appendix C** indicate that Bangladesh is the most disaster prone country of the world in term of loss of life over the last 30 years.

Major cyclone events are fortunately rare but, in the last fifty years, they have been responsible for the largest number of disaster-related deaths as well as considerable losses to agriculture and damage to infrastructure in the coastal areas. (**Table 2.2** and **2.3**).

Experience in 1991 (and before) demonstrated the effectiveness of coastal embankments and associated afforestation in reducing losses and damage and the life-saving potential of any form of pucca building, provided they are sufficiently accessible and people understand the seriousness of the threat in time.¹

Data appear to show a declining trend in the total area flooded each year, but with wide annual variations as illustrated by the exceptional floods in 1987 and 1988 (**Table 2.4**, **Figure 2.1**). Various factors are assumed to be at work, including river embankment construction in both Bangladesh and India, as well as changes in local and regional rainfall.

Extensive river floods cause great disruption and damage to infrastructure, and the loss of crops and other property can be the "last straw" for subsistence farmers and others already struggling to survive. However, there is little evidence of any significant negative effects on aggregate agricultural production: in fact, major floods are typically followed by bumper harvests.² In some areas, cropping patterns have been modified over the years, benefiting from increased irrigation, to reduce reliance on aman and other crops vulnerable to monsoon flooding.

Flash floods cause considerable, localized damage to crops, fish ponds, property, and infrastructure, particularly in the north, north-east and east of the country.

River bank erosion along many rivers, both major and minor, carries away land and destroys houses and other structures. Close to a million people are displaced every year as a direct result of erosion.

¹ People evacuate to safer sites if (i) they are convinced that their lives are in immediate danger; (ii) they assess the risk of death to be greater than the risk of their land and property being stolen in their absence; and (iii) there is time to reach known safe sites.

² Floods indirectly contribute to the concentration of land ownership and wealth: small landowners who lack resources to carry them over, and cannot obtain credit, are forced into "distress selling"; their land is bought up by rich landowners who then profit from the subsequent bumper crop.

TABLE 2.1
Bangladesh : Major Natural Disasters

Year	Type of Disaster	Deaths
1644-45	Floods	+
1648	Floods	+
1769-70	Drought	+
1783-84	Drought	+
1797	Cyclone	+
1833	Earthquake	+
1822	Cyclone	+
1865-66	Drought in West Bengal, present Bangladesh largely escaped	40,000
1871	Floods (Rajshahi)	135,000
1873-74	Drought	+
1876	Cyclone	100,000
1885	Floods (Rajshahi/Dinajpur)	
1892	Floods (Rangpur/Dinajpur)	
1896-97	Drought	+
1897	Earthquake	+
1897	Cyclone	+
1898	Cyclone	175,000
1906-7	Floods in Eas. Bengal	
1901	Cyclone	+
1909	Cyclone (2)	+
1911	Cyclone	+
1917	Cyclone	+
1918	Earthquake	+
1918	Floods	
1919	Cyclone	+
1922	Cyclone	+
1922	Floods	
1923	Cyclone	+
1926	Cyclone	
1936	Cyclone	
1941	Cyclone	+
1942	Cyclone	+
1943-44	Drought, irregular rain, transport dislocation and War, includes West Bengal	3,000,000
1947	Earthquake	
1950	Earthquake	
1954	Earthquake	
1955	Floods	+
1957	Earthquake	
1960	Cyclone (2)	11,149
1961	Cyclone	11,468
1963	Cyclone	11,520
1964	Cyclone	196
1965	Cyclone	19,270
1966	Cyclone (2)	850
1969	Cyclone	75
1969	Tornado	922
1970	Cyclone	300,000
1972	Drought	+
1973	Cyclone (2)	103
1974	Cyclone	20
1974	Floods followed by famine	30,000
1975	Cyclone	5
1975	Floods	+
1977	Cyclone	+
1978/79	Drought	+
1981	Cyclone	2
1982	Drought	+
1983	Cyclone(2)	343
1984	Floods	+
1984	Cyclone	
1985	Cyclone	11,069
1986	Cyclone	14
1987	Floods	1,657
1988	Floods	2,379
1988	Cyclone	5,708
1989	Drought	+
1991	Cyclone	138,868

Source : BBS, 1990; Munir-uz-Zaman, 1990; CDL, 1992a; Kafiluddin, 1991; ADB 1991a; Mahalanobis, 1927

+ : No data found

TABLE 2.2
Weather Disturbances in the Last 100 + Years

Month Period of Record	Severe Cyclonic Storms	Severe Cyclonic Storms	Severe Cyclonic Storms Hurricane force core		Probability of Severe Cyclonic Storms with Hurricane force core
	1891/1991	1877/1990	1877/1990	1893/1985	
Location	in Bay of Bengal	S t r i k i n g	B a n g l a d e s h	C o a s t	
J	1	0	0	0	0.00
F	1	0	0	0	0.00
M	1	0	0	1	0.01
A	10	2	2	3	0.03
M	33	14	10	11	0.12
J	6	12	2	1	0.01
J	8	5	0	0	0.00
A	4	2	0	0	0.00
S	14	2	1	1	0.01
O	31	17	11	12	0.13
N	47	10	5	3	0.03
D	21	8	6	3	0.03
Total	177	72	37	35	—
Annual events	1.77	0.64	0.33	0.38	0.37
Source :	Matsuda, 1991		CDL, 1992,	UNCRD, 1991	

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TABLE 2.3

**Severe Cyclonic Storms with Hurricane
Force Core in Recent Years**

Date	Maximum windspeed (km/hr)	Storm surge height (m)	Deaths (nr)
09 October, 1960	160	3.0	3,000
30 October, 1960	208	4.0-6.0	5,149
09 May, 1961	144	2.4-3.0	11,466
28 May, 1963	200	4.2-5.1	11,520
11 May, 1965	160	3.6	19,279
14 December, 1965	208	4.6-6.0	873
01 October, 1966	144	4.6-6.1	850
12 November, 1970	224	6.0-9.1	300,000
25 May 1985	152	3.0-4.6	11,069
29 November 1988	160	1.5-3.0	5,708
29 May, 1991	255	4.0-5.0	140,000

Source: Chowdhury A.M., 'A Report on May 1985 Cyclone', SPARRSO 1985 and 'A Report on April 1991 Cyclone' 1991.

TABLE 2.4
Flood Affected Areas Since 1954

Year	Flood affected area (sq.km)	Proportion of total area (%)
1954	36920	25.64
1955	50700	35.21
1956	35620	24.74
1957/1959	NA	NA
1960	28600	19.86
1961	28860	20.04
1962	37440	26.00
1963	43160	29.97
1964	31200	21.67
1965	28600	19.80
1966	33540	23.29
1967	25740	17.87
1968	37440	26.00
1969	41600	28.89
1970	42640	29.61
1971	36475	25.33
1972	20800	14.44
1973	29900	20.76
1974	52720	36.61
1975	16590	11.52
1976	28418	19.73
1977	12548	8.71
1978	10832	7.52
1979	NA	NA
1980	33077	22.97
1982	3149	2.19
1983	11112	7.72
1984	28314	19.66
1985	11427	7.93
1986	4589	3.19
1987	57491	39.92
1988	120973	84.00*
1989	9000	6.20

Source : B.W.D.B.
Miah, M.M. 1988

Historically, drought-induced famines were a major killer, but the effects of drought have been reduced by increased access to irrigation and by the provision of food aid.

Nevertheless, drought remains a threat to the livelihoods of many subsistence farmers and agricultural labourers, particularly in the north-west of the country.

Tornadoes cause localized devastation in widely scattered areas, and demand an immediate response. A seismic zone extends across the country and there is a risk of earthquakes that could cause serious damage to infrastructure including embankments and other flood control structures. Landslides can occur in the hilly areas due to heavy rainfalls.

2.2 "Man-made" Disasters

Increases in population, population density, and industrialization in urban areas have considerably increased the risks associated with major fires, industrial and other accidents. These risks are further increased by the growth of unplanned squatter settlements as increasing landlessness, unemployment and poverty, forces people to migrate from the rural areas.

The Rohingya refugee influx of 1992 highlighted the implications of, and the need to be able to respond to the considerable demands imposed by, population displacements, arising from political or other causes.

2.3 Demography and Land Use

Population density is increasing in all parts of the country, both rural and urban, where density is increasing most rapidly (Table 2.5). The number of people "at risk" in each disaster-prone area is therefore increasing. Within the total, the number of very poor people, who are vulnerable to any level of disaster, is increasing.

The pressure on land is such that newly-formed islands, 'char' land, is immediately occupied for agricultural use while, at the same time, existing land in many riverine and coastal areas is continually being lost to erosion. Increasing numbers of poor people have no option but to live and work (farm) in locations that are known to be exposed to considerable risks both along the coast and in flood-prone areas. In some cases, whole families migrate to exposed, but fertile, char areas, often working land that is owned by landlords who live in safer areas inland. The coastal area also attracts large numbers of transient/seasonal workers for fishing, harvesting, salt and shrimp production. As not all of these people are indigenous to such hazardous areas, traditional coping mechanisms are not uniformly practised.

2.4 Disaster and Development : Priorities for Action

The various disasters and disaster risks referred to above have caused, or have the potential to cause, major setbacks to the process of development, both locally and nationally. Setbacks result from both direct losses of assets and the indirect costs associated with the diversion of resources to meet short-term relief and repair/rehabilitation needs. Loss of life, suffering, injury and disease is contrary to development and welfare and weakens manpower resources, development is decelerated and poverty accentuated.

02

Figure 2.1
Flooded Areas 1954/1992

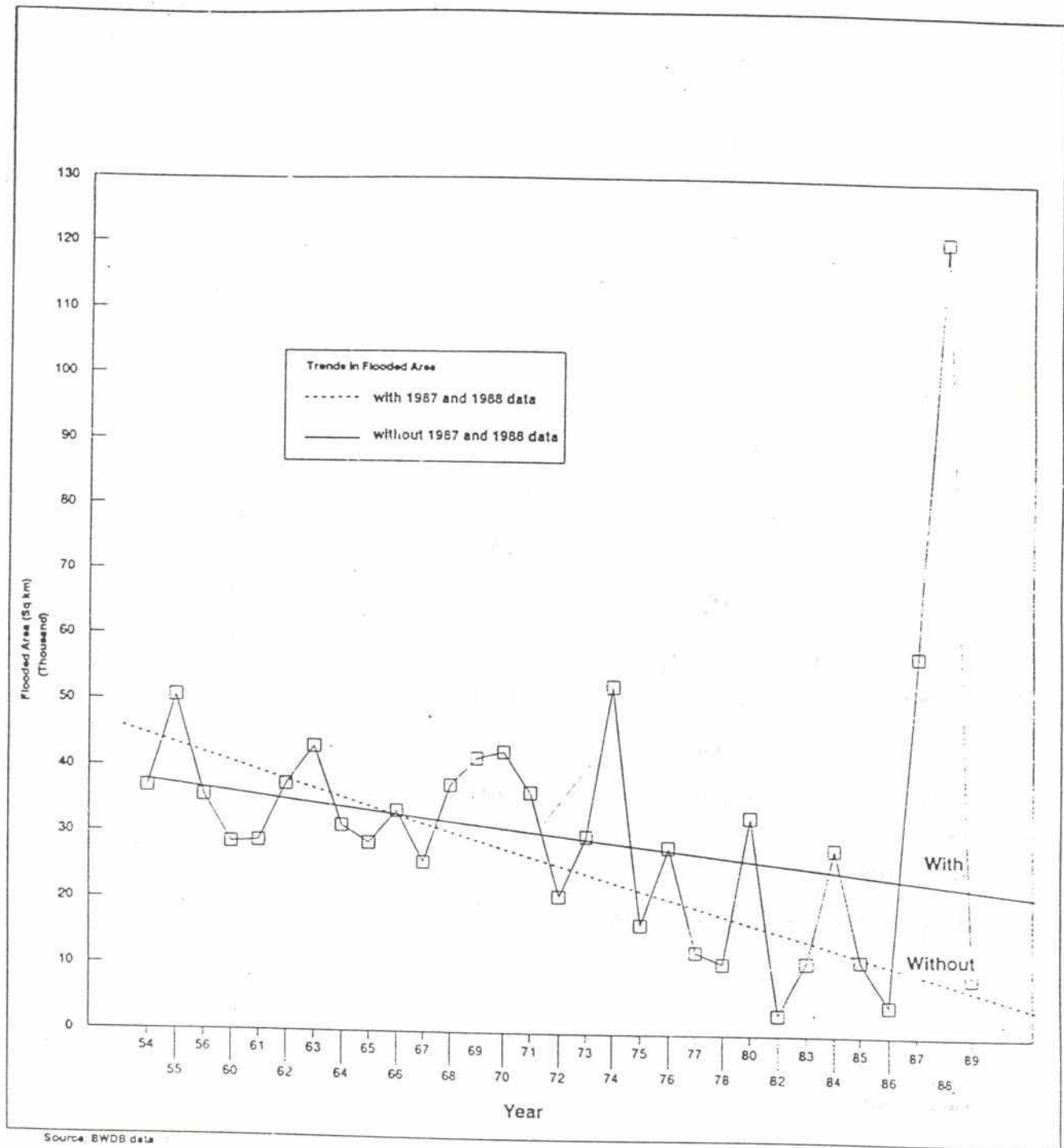


TABLE 2.5

Bangladesh : Population Statistics

Year	Population ('000)		Rural Man/Agricultural ⁽¹⁾ Land Ratio (People/ha)
	Total	In Rural Areas	
1891	24,668	24,131	1.96
1901	28,928	25,644	2.09
1911	31,555	27,889	2.27
1921	33,254	30,152	2.45
1931	36,690	35,564	2.89
1941	39,785	38,440	3.13
1951	41,932	40,112	3.26
1961	50,841	48,199	3.92
1974	71,478	65,205	5.30
1981	87,120	73,892	6.01
1985	99,000	80,000	6.51
1990	112,000	89,000	7.24
1995	122,000	98,000	7.97
2000	132,000	105,000	8.54

Source : BBS, 1990

⁽¹⁾ Area of Agricultural Land = 12,295,500 ha

80

Attention to, and improved performance in, disaster management are essential for economic as well as humanitarian reasons. The various aspects of disaster management directly influence, and are themselves affected by, 'development'. They are, and must be considered and planned as, an integral part of the development process, not as separate, peripheral activities.

2.5 Host Country Objective, Strategy and Programme

The objective of Bangladesh can be summarised as to strengthen national capability at all levels of government to respond effectively to disasters stemming from the impacts of natural hazards including cyclones and storm surges, monsoon and flash floods, earthquakes and droughts with the initial emphasis being on cyclones and floods.

The Government is in the process of elaborating a comprehensive action plan for flood control and mitigation which recognises the importance and benefits of flooding as well as the potential harm of severe floods. Experts supported by UNDP prepared a Flood Control Policy Report which recommended a programme to protect major areas and infrastructure and proposed other works designed to limit rather than prevent flooding. The World Bank undertook an analysis of the proposals and options and prepared an Action Plan for Flood Control proposing limited embankment and drainage works.

More detailed planning for these interventions now termed the Flood Action Plan (FAP) commenced in 1990. A series of 26 studies and action research activities have been and are being undertaken. (Table 2.6) This phase of FAP is due for completion by 1995/96.

As described above floods are not the only threat to Bangladesh. Cyclones and their associated storm surges together with droughts have seriously impaired development efforts. Tornadoes have similar effects in localized areas. Many of the 'proofing' and preparedness techniques for these disasters, particularly the other sudden-onset disasters, are similar to those for floods.

2.6 Disaster Management Concepts and Programme

The concept of comprehensive disaster management is relatively new to Bangladesh where many people have understood 'disaster management' to mean only the management of an actual disaster situation, i.e. to be concerned only with the response to disasters. The prevention/mitigation of and preparedness for disasters have been considered separately, if at all.

This is the first project that has considered disaster management in its wider context, including prevention measures and preparedness as well as response. Under this project basic concepts and definitions relating to disaster management have been defined (See definition section at the front of this Report). Comprehensive disaster management comprises various activities under a number of headings, these are discussed in more detail in Chapter

5.



TABLE 2.6
Flood Action Plan Projects

FAP	Description
1.	Brahmaputra Right Embankment Strengthening
2.	North West Regional Study
3.	North Central Regional Study
3.1	Jamalpur Priority Project
4.	South West Area Water Management Study
5A.	South East Regional Study
5B.	Meghna Estuary Study
5C.	Chittagong Coastal Area Study
6.	North East Regional Study
7.	Cyclone Protection Project
8A.	Greater Dhaka Protection Project
8B.	Dhaka Integrated Flood Protection Project
9A.	Secondary Towns Protection Project
9B.	Meghna Left Bank Protection Project
10.	Flood Forecasting and Early Warning Project
11.	Disaster Preparedness Programme
12.	FCD/I Agricultural Review
13.	O&M Study
14.	Flood Response Study
15.	Land Acquisition and Resettlement
16.	Environmental Study
17.	Fisheries Study and Pilot Project
18.	Topographic Mapping
19.	Geographical Information System (GIS)
20.	Compartmentalization Pilot Project
21.	Bank Protection Pilot Project
22.	River Training and Active Flood Plain Management Pilot Project
23.	Flood Proofing Pilot Project
24.	River Survey Programme
25.	Flood Modeling/Management Project
26.	Institutional Development Programme

CHAPTER 3

PROJECT ORGANISATION

3.1 Introduction

The project organisational structure was complex and involved the following parties :

- National Disaster Prevention Council
- Project Steering Committee
- Flood Plan Coordination Organisation
- Ministry of Relief
- Disaster Management Bureau
- UNDP : Office for Project Services
- UNDP : Field Office, Dhaka
- Professional Panel
- International Experts
- Local Experts : Core Team, Visiting Consultants

Figures 3.1 and 3.2 show diagrammatically the relationships involved both before and after the creation of the DMB in the periods 19 March 1992 to 31 March 1993 and from 1 April 1993 to 28 February 1994.

In this Chapter, the role of each party is outlined.

3.2 Project Executing Agencies

There were two executing agencies the Ministry of Relief (MOR) from the GOB side and the UNDP Office for Project Services (OPS) from the donor side.

(a) Ministry of Relief

MOR was to provide the National Project Director (Joint Secretary), five professional staff and ten office support staff to man the Ministry's Disaster Coordination and Monitoring Unit (DCMU).

Institutional proposals concerning disaster management in Bangladesh were made during the initial ten months of the Project. These were accepted in principle at the high level Project Steering Committee meeting held on 28 January 1993. This led to the creation of the Disaster Management Bureau (DMB) under the Ministry of Relief in April 1993.

The role of the Disaster Coordination and Monitoring Unit (DCMU) that was created as an interim measure under the Project in early June 1992 was subsumed into the DMB following the latter's creation.

(b) OPS

As detailed in the Project Document, the executing agency on behalf of UNDP was the

(b) OPS

As detailed in the Project Document, the executing agency on behalf of UNDP was the Office for Project Services (OPS). OPS contracted two firms of consultants to supply personnel to assist the establishment and work within DCMU. OPS also engaged a Professional Panel of senior Bangladesh-based personnel to advise and oversee the work of the project.

The consulting firms were: Mott MacDonald (UK) in association with the Asian Disaster Preparedness Centre of the Asian Institute of Technology (Thailand), who provided international experts; and the House of Consultants (Bangladesh) who provided a Core Team of four local experts together with various short term visiting consultants.

OPS also provided the following for the DCMU :

- office accommodation, furniture, equipment and consumables
- computer hard and software
- funds for training
- transport
- communication equipment

3.3 UNDP Field Office Dhaka

The UNDP Field Office Dhaka assisted OPS in the performance of its duties, undertaking such duties as were specifically allocated to it from time to time by OPS, including acting as a monitoring and supervising agency.

3.4 Project Steering Committee

The Steering Committee oversaw the implementation, coordination and supervision of the activities of the Project. The Committee members and its terms of reference are given in **Table 3.1**. The Additional Secretary, Cabinet Division; Secretary, Home Affairs and Chairman, Professional Panel were subsequently added. The Ministry of Disaster Management and Relief acted as the Secretary of the Committee. The various studies prepared under the project were submitted to the Committee for review. Three meetings of the Steering Committee were held.

3.5 National Disaster Prevention Council

Project reports should have been submitted to the National Disaster Prevention Council. However, this Council, which was set up under a previous GoB administration had not functioned under the present administration, which came to power in early 1991.

3.6 General Coordination

The Project was an exercise in coordination and therefore linkages for disaster related activities were established with concerned GOB ministries and agencies, with NGOs and private organisations. MDMR/DCMU/DMB's role is essentially to act as a catalyst and to

Figure 3.1
Project Organisation
19 March 1992/31 March 1993

NATIONAL DISASTER PREVENTION COUNCIL

PROJECT STEERING
COMMITTEE

MINISTER OF RELIEF

SECRETARY, MINISTRY OF RELIEF

JOINT SECRETARY (PROGRAMME)
MINISTRY OF RELIEF

United Nations Development
Programme
Office for Project Services,
New York

United Nations Development
Programme
Field Office, Dhaka

DISASTER CO-ORDINATION AND
MONITORING UNIT

PROJECT DIRECTOR
Counterpart Professional Staff
Support Staff

MOTT MACDONALD/ASIAN DISASTER
PREPAREDNESS CENTRE

- Team Leader
- Disaster Management Specialist
- Management Information System Specialists
- Coastal & Hydraulic Engineering Specialist
- Training/Planning Specialists
- Local Disaster Management Specialist

HOUSE OF CONSULTANTS
LOCAL EXPERTS

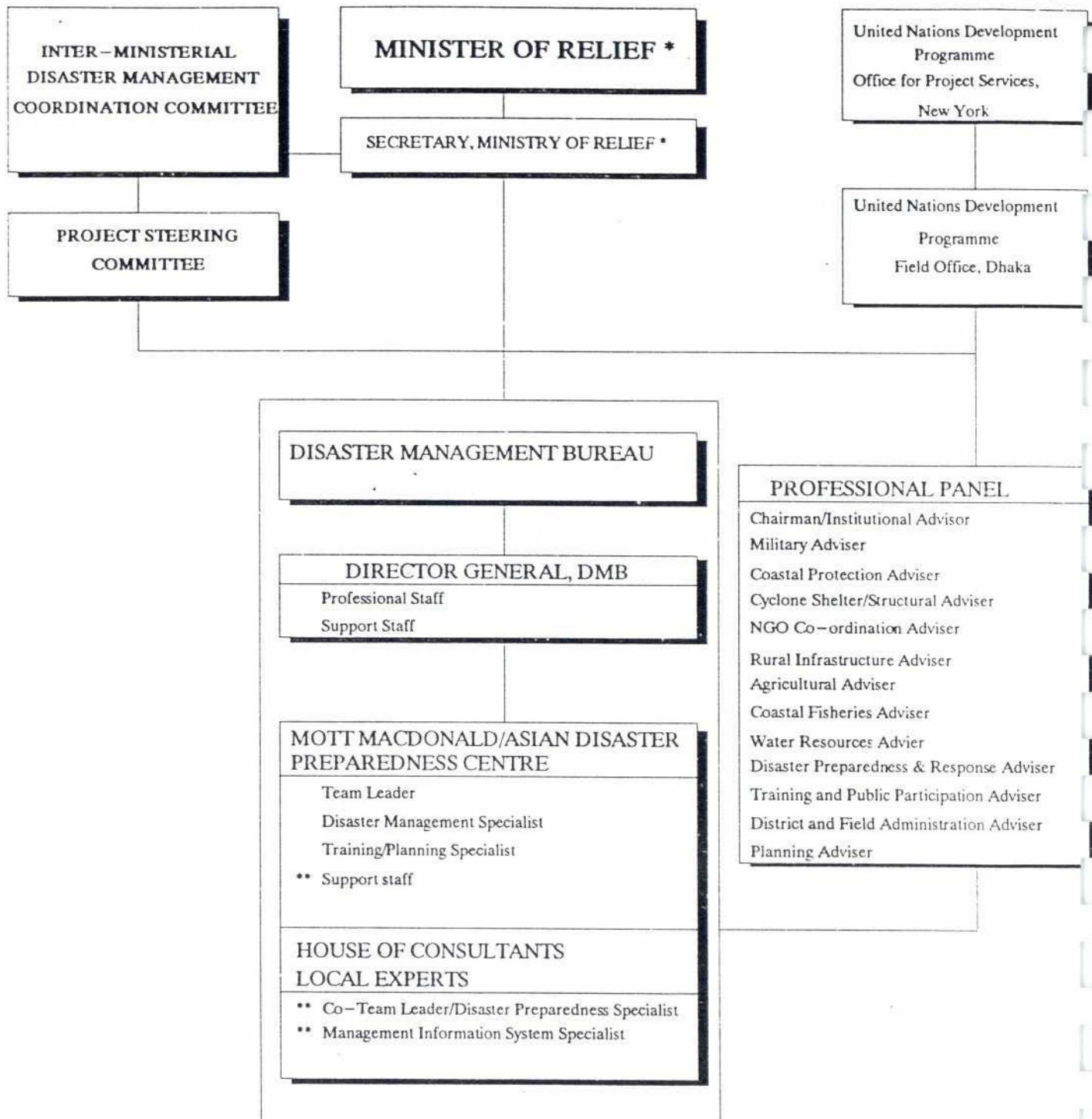
- Co-Team Leader/Disaster Preparedness Specialist
- Natural Resources Specialist
- Rural Infrastructure Specialist
- Management Information System Specialist
- Visiting Consultants

PROFESSIONAL PANEL

Chairman/Institutional Advisor
Military Adviser
Coastal Protection Adviser
Cyclone Shelter/Structural Adviser
NGO Co-ordination Adviser
Rural Infrastructure Adviser
Agricultural Adviser
Coastal Fisheries Adviser
Water Resources Adviser
Disaster Preparedness & Response Adviser
Training and Public Participation Adviser
District and Field Administration Adviser
Planning Adviser

Full time staff

Figure 3.2
Project Organisation
 1st April 1993/20 February 1994



- * Ministry renamed Ministry of Disaster Management and Relief in February 1994
- ** Full time staff

TABLE 3.1
Project Steering Committee

Government of the People's Republic of Bangladesh
Ministry of Relief
Bangladesh Secretariat, Dhaka.

No. MR-PC-AC-1/20/92-171(14)

Dated : 26-08-1992

OFFICE MEMORANDUM

The Government have been pleased to constitute a Steering Committee for the Project BGD/91/021 - "Assistance to Ministry of Relief" as follow:-

- | | |
|---|--------------------|
| 1. Member (Programming), Planning Commission | - Chairman |
| 2. Secretary, Ministry of Relief | - Member |
| 3. Secretary, Ministry of Agriculture | - Member |
| 4. Secretary, Ministry of Environment and Forests | - Member |
| 5. Secretary, Ministry of Irrigation, Water Development and Flood Control | - Member |
| 6. Secretary, Ministry of Health | - Member |
| 7. Secretary, Ministry of Defence | - Member |
| 8. Secretary, Ministry of Establishment | - Member |
| 9. Secretary, Ministry of Education | - Member |
| 10. Secretary, Finance Division | - Member |
| 11. Secretary, Local Govt. Division | - Member |
| 12. Joint Secretary (Programme), Ministry of Relief | - Member-Secretary |
2. The Terms of Reference of the Committee will be as under:
- i. To oversee implementation, coordination and supervision of the activities of the project.
 - ii. To review the progress/study reports of the project submitted by the Consultant to Ministry of Relief and make suitable recommendations to the National Disaster Council.
 - ii. The Committee will meet as and when necessary.

(Md. Taheruzzaman)
Research Officer
Phone No. 235111-19/3624

assist concerned agencies to improve their own preparedness and to ensure implementation of short term repair and rehabilitation projects in a consistent and effective manner. Special coordination was required between the Ministry of Disaster Management and Relief, and the various agencies of the Ministry of Irrigation, Water Development and Flood Control. This latter is concerned with primary protection in the water sector through BWDB, which is responsible for implementation and rehabilitation of works, and through FPCO which is responsible for medium and long term planning. The follow on 'project' BGD/92/002 was initially conceived as 'FAP:11 Disaster Preparedness', but finally as 'Support to Disaster Management' outside the strict confines of the Flood Action Plan as it addresses wider issues.

CHAPTER 4

PROJECT INPUTS AND GENERAL ACTIVITIES

4.1 Introduction

Project activities commenced with the receipt of a fax dated 13 March 1992 from OPS to the potential international Contractor advising them that their offer had been approved subject to finalisation of local costs. The international Contractor's Team Leader (TL) was mobilised and arrived in Bangladesh on 20 March 1992.

The workplan is given as **Figure 4.1**. Activities over the period 20 March 1992 to 28 February 1994 are described in this Chapter and were generally in accordance with the workplan. Major activities are highlighted on **Figure 4.2**.

Staff inputs are shown on **Table 4.1** and **Figure 4.3**. These were as proposed in the Inception Report, modified as agreed from time to time between the Project Director, Team Leader and UNDP. The figure includes for the extension of the project period to 28 February 1994 specifically to achieve Immediate Objective 1 and to avoid a hiatus between the present project and the follow on project BGD/92/002 Support to Disaster Management.

4.2 Mobilisation, Contractual and Staffing Issues

An initial period of one month was allowed for mobilisation. Within this period, it was planned to:

- finalise the international contract
- finalise Terms of Reference for and engage the local experts, both core staff and visiting consultants
- finalise the Terms of Reference for and engage the Professional Panel
- mobilise counterpart staff
- arrange procurement of office furniture and equipment and establish the office for the DCMU

(a) International Contract

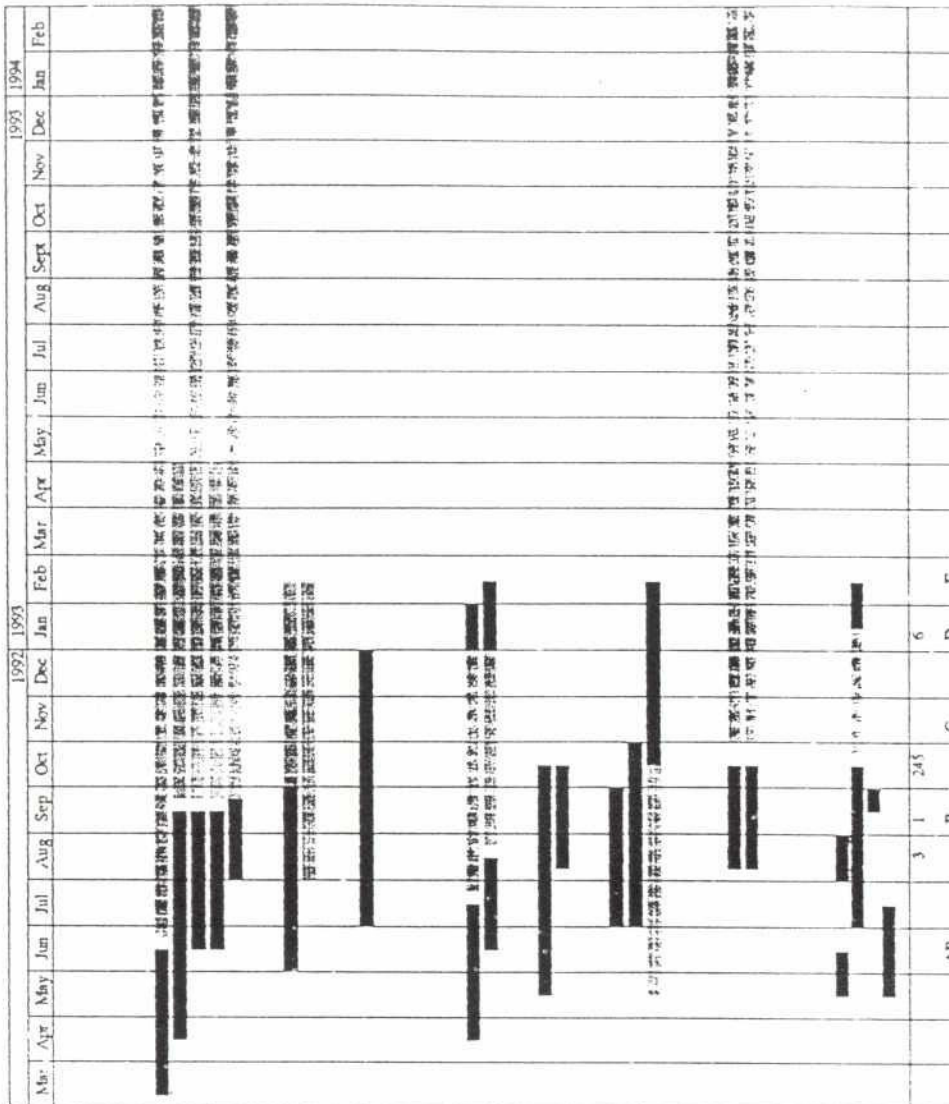
The local cost element in the international contract was mutually agreed by UNDP Field Office, Dhaka and the Contractor on 30 March 1992. OPS were informed by fax on the same day.

A draft contract was faxed from OPS to the Contractor on 20 April 1992. After some further discussions and modification, OPS faxed a final Contract to the Contractor on 22 May 1992. This was accepted and signed on 27 May 1992.

TABLE 4.1
Staff Inputs to 28 February 1994 (Months)

Type of Staff	Post	Name	Input to 20 February 1993	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan 1994	Feb	Input to date	Contract input	Balance
Mott MacDonald/Asian Disaster Preparedness Centre																			
International	Team Leader	M P Gillham	8.99	0.10	0.26	0.27	0.26	0.37	0.26	0.18	0.11	0.30	0.43	0.31	0.25	0.62	12.71	12.35	-0.36
	MIS Specialist	S L Marsden	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	0.50	0.00
	MIS Specialist	J Repp	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00	0.00
	MIS Training Specialist	P Ravenscroft	2.89	-	0.10	-	-	0.03	-	-	-	-	-	-	-	0.12	3.14	2.90	-0.24
	Disaster Management Specialist	R F Ockwell	4.37	-	-	-	0.52	-	0.35	0.10	-	-	-	0.39	-	-	5.73	5.50	-0.23
	Disaster Management Specialist	M L A Brett	1.87	-	-	-	-	-	-	-	-	-	-	-	-	-	1.87	2.00	0.13
	Coastal & Hyd. Engg. Specialist	B. Ward/T Jeggle	1.14	-	-	-	-	-	-	-	-	-	-	0.16	-	-	1.30	2.00	0.70
	Training/Planning Specialist	M S Rahman	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	0.00
	Disaster Management Specialist	Sub - Total	22.76	0.10	0.36	0.27	0.78	0.40	0.61	0.28	0.11	0.30	0.43	0.86	0.25	0.74	28.25	28.25	0.00
	Local																		
House of Consultants																			
Local Core Team	Co-Team Leader	S Ahmed	9.02	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	21.35	21.30	-0.05
	Rural Infrastructure Specialist	M Rahman	7.67	-	-	-	-	-	-	-	-	-	-	-	-	-	7.67	7.50	-0.17
	Natural Resources & Env. Specialist	F A Khan	8.87	-	-	-	-	-	-	-	-	-	-	-	-	-	8.87	9.00	0.13
	MIS Specialist	A Razzaque	8.67	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	21.00	21.30	0.30
		Sub - Total	34.23	0.66	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	58.89	59.10	0.21
Visiting Consultants	Tele-Communications	Nasiruddin	2.93	-	-	0.02	-	-	-	-	-	0.03	-	0.06	0.06	0.06	3.18	3.00	-0.18
	Agriculture	M A Hossain	2.51	-	-	-	-	-	-	-	-	-	-	-	-	-	2.51	2.50	-0.01
	Librarian	G Kabria	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	0.00
	Sociologist/Gender Issues Consultant	I. Shanim	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00	3.00	0.00
	Training	A Rahman	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00	3.00	0.00
	Public Sector Accounting Consultant	M U Afzal	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	0.00
	Public Participation Adviser	J Kabir	2.81	-	-	-	-	-	-	-	-	-	-	-	-	-	2.81	3.00	0.19
	Emergency Procedures	A B Chowdhury	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1.50	1.50	0.00
	Forestry Specialist	S. Anwar	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1.50	1.50	0.00
		Sub - Total	19.25	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.03	0.00	0.06	0.06	0.06	19.50	19.50	0.00
		Total	76.24	0.76	2.36	2.29	2.80	2.40	2.61	2.28	2.11	2.33	2.43	2.92	2.31	2.80	106.64	106.85	0.21

CD



<p>Objective 1 Strengthening of Government capability to plan co-ordinate and monitor disaster related activities, through the Ministry of Relief</p> <p>Output 1.1 Establishment of an effective sub-committee MOR with inter-ministerial information and related systems Establishment of the presence in the Office of Disaster Management Formulation and setting up of a National Information System Establishing data gathering, consolidating, analysis systems and populate data base Establishing data collection and reporting formats Training in all procedures</p> <p>Output 1.2 Effectively prepared damage assessments Identify deficiencies in previous damage assessments and make proposals for future effective assessments Provide advice and where necessary propose assistance to concerned agencies</p> <p>Output 1.3 Assessment of repair and rehabilitation efforts following the 1991 cyclone Annual MOR in the preparation of reports on the progress of repair and rehabilitation following the 1991 cyclone</p> <p>Objective 2 Review Existing Procedures for Disaster Management Assess Training Needs and initiate training</p> <p>Output 2.1 Effective emergency agency procedures Review and analysis of effectiveness of existing orders, codes and procedures Propose modifications to existing orders and the together with consideration of new orders</p> <p>Output 2.2 Assessment of organizational structures and an outline for disaster and staffing for an office of Disaster Management Review organizational resources and arrangements for disaster management and identify deficiencies Make proposals for an Office of Disaster Management or similar</p> <p>Output 2.3 Effective Training Programmes Assess training needs of COB officials and/or wider public reduction Identify reliable institutions and training materials Develop an overall training strategy and initiate training</p> <p>Objective 3 Preparation of Project Document & Draft Terms of Reference for PAP Comprehensive Disaster Preparedness Management Programme</p> <p>Output 3.1 Documentation for PAP 11 Comprehensive Disaster Preparedness Management Programme Define technical assistance requirements for the establishment of Office of Disaster Management Prepare a Project Document for the PAP Disaster Management Programme and start in the preparation of a technical assistance plan and a project concept paper</p> <p>Objective 4 Preparation of Concept Plan for the implementation of various protective measures in critical areas</p> <p>Output 4.1 Concept Plan for integrated coastal protection Consultations with implementation agencies to initiate a integrated approach to coastal protection Preparation of a draft concept plan for a integrated programme by function, plan and sector Identification of multi-sectoral response bodies for implementation Review ongoing relevant PAP studies and other relevant studies and propose modifications where considered necessary</p>	<p>Outputs</p> <p>Full time activities Part time activities</p>
<p>Objectives</p> <p>A. Acceptance Report B. Country Report C. Status Report D. Draft Final Report</p> <p>Reports</p> <p>1. MIS Guidebook & Manual Report 2. MIS User Report 3. Procedures Document 4. PAP 11 Programme Document 5. Concept Plan</p>	

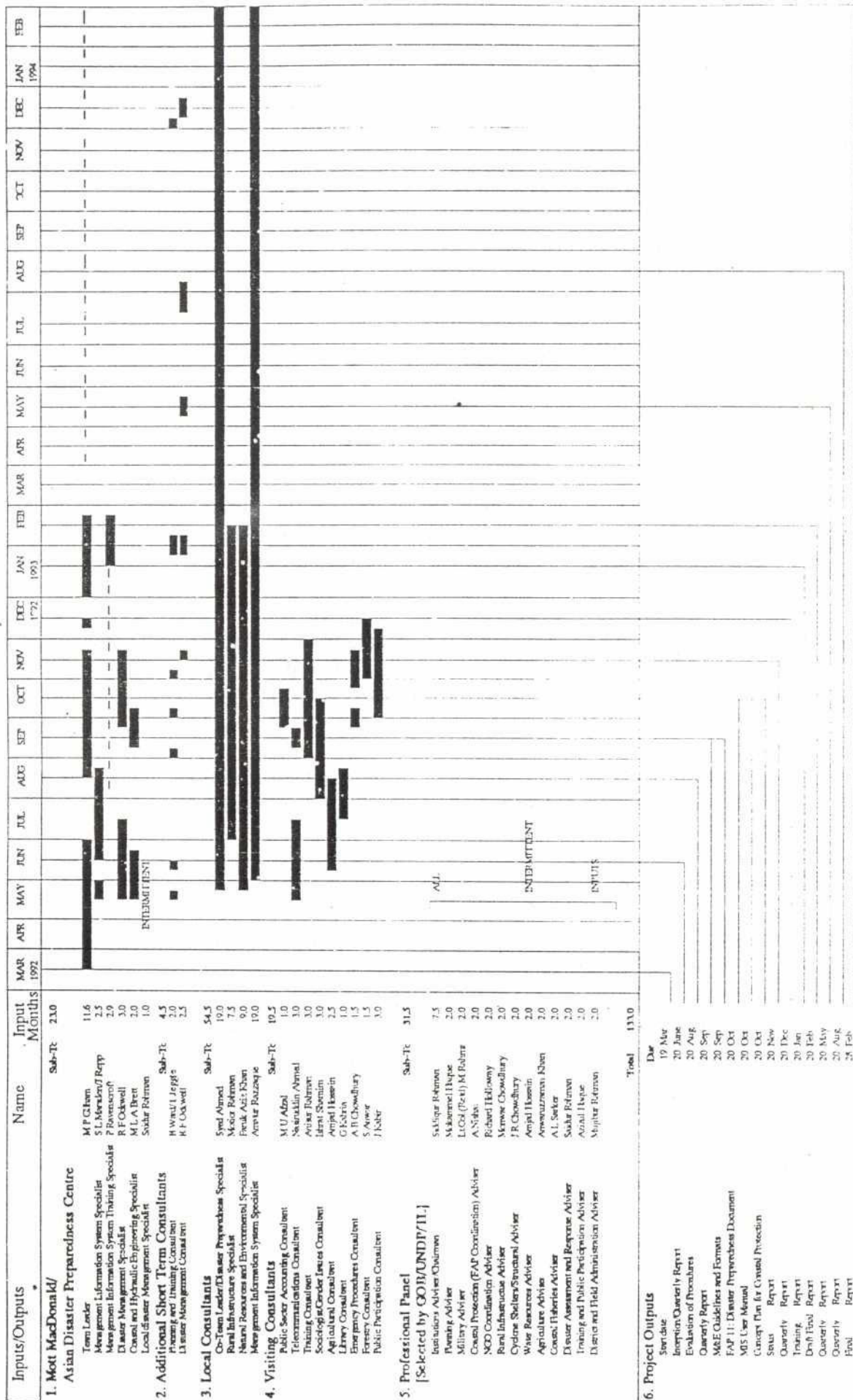
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Description	1992												1993											
	March	April	May	June	July	August	September	October	November	December	January	February	Mar	April	May	Jun	July	August	Sept	Oct	Nov	December		
TECHNICAL																								
Ministry of Relief/DCMU																								
- Prepare circular letters re - emergency procedures and rehabilitation																								
- Issue letters for informal workshop/opening of DCMU																								
- Informal Workshop/opening of DCMU																								
- Inception Report																								
- Informal Discussion on Disaster Management																								
- Newkhali Workshop																								
- Informal Review of Inception Report																								
- US Military Disaster Preparedness Mission																								
- Field investigations in Chittagong/Cox's Bazar																								
- Informal Discussion in Training																								
- Review of Inception Report																								
- Submission of Working Paper on Review of Emergency Procedures																								
- Field investigation in Sandwip, Karubia, Moheshkhali																								
- 2nd Informal Discussion in Training																								
- INDR day Seminar on FAP-11																								
- Public Awareness Drive in Storming																								
- Meeting on FAP-11 at MoR																								
- Meeting on FAP-11 at FPCC																								
- Assistance to MoR during cyclone alert																								
- Field investigation : Char Land																								
- Field investigation : Mymensingh																								
- Meeting on FAP-11 at FPCC																								
- IPR meeting in MoR																								
- DM Slogan Competition Selection Committee Meeting																								
- DM Training Workshop																								
- Meeting with FPCC - PoE re - "FAP-11"																								
- DM Slogan Competition Selection Committee Meeting: Winners decided																								
- Field visit to Chittagong																								
- Visit to Chittagong DM Centre																								
- Disaster Preparedness Seminar																								
- Follow up Programme Donor Meeting																								
- UNDMT																								
- DMD : MIS Training Seminars																								
- UNDP : PAC Meeting																								
- INDMCC created																								
- DO, DMD joined																								
- NDMC created																								
- Disaster Action Planning, Bhola																								
- Visited to disaster prone areas of Isola																								
- UNDP-WASA PAC meeting to approve DGD92/002																								
Steering Committee																								
- First Meeting																								
- Second Meeting																								
- Third Meeting																								
- SPEC Meeting (Extending DGD91/001 to 31/12/93)																								
- SPEC to approve TAPP for DGD92/002																								
- INDMCC first meeting																								
Professional Panel Meetings																								
1. General and Inception Report review																								
2. Inception Report Smoothing Order																								
3. Working Paper Nr.1; FAP-11; Training																								
4. Mobilize Cyclone Shelter Project																								
PACT/PRIP Computer Programme																								
5. Working Paper Nr.7 : Casual Plan and																								
Working Paper Nr.2 : Telecommunications																								
6. Working Paper Nr.9 : Institutional arrangements for disaster																								
management in Bangladesh																								
7. Working Paper Nr.9 (Rev.1) and																								
Working Paper Nr.10 : Functions etc of a Disaster																								
Management Unit in Bangladesh																								
8. FAP-11 : organization WP Nr.2, 9, and 10																								
9. Programme Support Documents and Bangla DM Glossary																								
General Visits/Meetings																								
- GOIN (ministry/agencies																								
- Library																								
- Disaster Agencies																								
- Projects																								

Figure 4.3

Staff Inputs



Following the approval of the Inception Report on 13 September and discussion with UNDP Field Office, the Contractor prepared an amendment to the international contract. The key issues were: completion date extended to 20 February 1993, Team Leader input reduced, additional inputs for the MIS Training Specialist and Disaster Management Specialist and an input of 2.0 months for Training/Planning Specialists. The amendment was approved by OPS in their letter BGD/91/021/C92162 dated 21 September 1992.

Three further amendments to the Contract were made (See **Table 4.2**). The basic reason for these was to extend the Contract and Project period to allow MoR/MDMR to staff the DCMU/DMB effectively, to ensure that Immediate Objective 1 was achieved and to avoid a hiatus between BGD/91/021 and BGD/92/002.

(b) Local Experts Contract

OPS decided that local expert services should be provided under a separate contract with a Bangladeshi Consultancy firm with their staff working under the direction of the TL.

The Terms of Reference for the core team of local experts were finalised by the TL, MDMR and UNDP on 30 March and letters of invitation were sent out to five prequalified firms. Five offers were received on 15 April 1992. These offers were reviewed in Dhaka by the TL, UNDP Field Office, Dhaka and the GOB Project Director and the review papers were faxed to OPS on 27 April.

OPS approved the award of the Contract for local expert services to the House of Consultants Ltd (HCL) at their Contract Committee meeting on 13 May 1992. Following brief negotiations, HCL agreed to commence their services from 20 May 1992. The contract was signed on 24 May 1992.

Following the approval of the Inception Report, the contract between OPS and the HCL was modified in detail in line with the Inception Report proposals. Similar amendments to the HCL Contract were made to those detailed above for the international contract.

(c) Visiting Consultants

Table 4.3 shows the Visiting Consultant (VC) inputs that were finally agreed by the Project Director, Team Leader and UNDP and approved by OPS. The changes in disciplines and the period of the agreed inputs compared with those originally proposed reflect the major issues that were identified during the course of the assignment. The terms of reference for the individual VCs are included in **Annex B**.

(d) Professional Panel

The qualifications for the Advisers were detailed in the Prodoc as: "each specialist will be a high level professional with at least 10 years broad-based experience in their respective disciplines including disaster-related aspects and government and non-government institutions".

TABLE 4.2
Consultancy Contract Details and Key Dates

Date	Action	Remarks
19 March 1992	Consultant mobilises	-
27 May 1992	Contract signed	-
21 September 1992	Amendment I signed	Modifications as agreed following discussion of Inception Report
11 March 1993	Amendment II signed	Extends Project to 20 August 1993
17 September 1993	Amendment III signed	Extends Project to 20 December 1993
16 February 1994	Amendment IV signed	Extends Project to 28 February 1994

TABLE 4.3
Visiting Local Consultants from House of Consultants

Discipline/Post	Input (Month)	Name
a) Proposed Inputs		
Disaster Management	1.0	
Flood Control/Water Resources	2.0	
Macro-Economics	1.0	
Public Sector Accounting	1.0	
Social Anthrepology/Local Participation	1.0	
Natural Resources	3.0	
Hydrologist	1.0	
Communications	1.0	
GIS	1.0	
Institutions/Training	1.0	
Community Health	1.0	
Nutrition	1.0	
Sanitation	1.0	
Water Pollution	1.0	
Unallocated	3.0	
Total		20.0
b) Agreed Inputs		
Public Sector Accounting	1.0	M.U. Afzal
Telecommunications	3.0	Nasiruddin Ahmed
Sociologist/Gender issues	3.0	Ishrat Shamim
Public Participation	3.0	Jahangir Kabir
Agriculture	2.5	Amjad Hossain
Forestry	1.5	Shamsul Anwar
Training	3.0	Anisur Rahman
Library	1.0	Golam Kibria
Emergency Procedures	1.5	A.B. Chowdhury
Not allocated	0.5	
Total		20.0

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No selection procedure was given. The possibility of advertising the Advisor posts in the press was considered but ruled out for two reasons. Firstly, the initial length of the project was limited to ten months while the minimum length of time needed to undertake a rigorous recruitment campaign would be at least three months. Secondly, it was considered very unlikely that the type of people required would respond to newspaper advertisements. Hence, an accelerated procedure was adopted.

The Visiting Consultant time provided in the Prodoc was reduced from 30 to 20 months, and the Professional Panel time correspondingly increased from 24 to 34 months. This change was made to enable the project to obtain the services of Mohammed Siddique Rahman, the former Cabinet Secretary, who was the key GOB coordinator in the aftermath of the 1991 cyclone.

The disciplines of the Professional Panel were reviewed in the light of the Terms of Reference for the assignment and changes proposed. Table 4.4 shows the disciplines and inputs finally decided for the Professional Panel advisers. As with the Visiting Consultants, the selections were based on the issues considered most important for the ultimate success of the project in the context of the revised terms of reference.

The four month assignments envisaged in the Prodoc for each adviser were reduced to intermittent assignments of two manmonths.

As detailed in Figure 4.2 nine meetings of the Professional Panel were held. The discussions at these meetings together with less formal discussions and the written comments received from the Advisers were invaluable to Project staff and enabled proposals to be evolved that were widely accepted.

(e) Counterpart Staff

At initial meetings in March 1992, it was revealed that the counterpart support detailed in the Prodoc had been eliminated from the Technical Assistance Project Proforma (TAPP) by the Planning Commission. Hence, MoR/MDMR could not provide the counterpart professional and support staff required and GOB were not able to fulfil one of the prerequisites for UNDP assistance. This was pointed out by UNDP in their letter to ERD dated 31 March 1992.

MDMR agreed to provide part-time professional staff in the form of the National Project Director (the Joint Secretary - Programme, MDMR) and two Deputy Directors from the Directorate-General of Relief and Rehabilitation. These latter were appointed on 25 May 1992; they reported for duty on 3 June 1992. They were to spend two days per week each in DCMU but their attendance was rather irregular.

As the DCMU had a coordinating function, the appointment of staff from other agencies was also considered. MDMR approached BWDB, MOH, T&T and LGEB for counterpart assistance. LGEB provided the services of an Executive Engineer full-time from 16 June until late August 1992, when he went Japan on a training course. He was not replaced. T&T agreed to supply a staff member but none was nominated. BWDB posted one Executive Engineer from mid December 1992.

TABLE 4.4

Composition of the Professional Panel

Description	Inputs (mm)
Originally envisaged: Advisor on	
Water Resources	4
Natural Resources	4
Social institutions	4
Communication/Rural Infrastructure	4
Hydraulic Engineer	4
Economist	4
	—
	24
Provided: Advisor on	
Institutions (Chairman)	10
Water Resources	2
Agriculture	2
Coastal Fisheries	2
Rural Infrastructure	2
Coastal Protection/FAP Coordination	2
Military	2
Cyclone Shelters/Structural	2
NGO Coordination	2
Disaster Assessment and Response	2
Training and Public Participation	2
District and Field Administration	2
Planning	2
	—
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It became clear in November 1992 that a major objective of the project could not be fulfilled if appropriate full time GOB staff were not manning the DCMU. Accordingly, MoR requested UNDP to extend the project initially for six months to 20 August 1993 and subsequently by twelve months to 28 February 1994.

UNDP agreed to do this provided full time staff were posted and the Director General of the identified and recruited as soon as possible. A potential Director General (DG) was identified and full time staff were appointed from 19 January 1993.

MoR submitted a revised TAPP to the Planning Commission to create the necessary posts. This was approved at a Planning Commission **Special Project Evaluation Committee (SPEC)** meeting on 9 February 1993.

The DG originally identified was unable to take up the post but after much effort GoB were able to post a DG (Mr. Akramul Islam) from 24 August 1993. Other positions have also been filled as indicated in Table 4.5. However, the post of Director (Training) remains unfilled.

Although provision was made for Government to supply support staff (typists, drivers and MLSSs etc.) none were posted. This placed a significant burden on the one Senior Secretary engaged by the Contractor.

(f) Establishment of DCMU facilities

Suitable office accommodation, some 5000 sq.ft., was identified by the Contractor and UNDP on 15 April 1992 and UNDP concluded a 10 month lease agreement with the owner on 11 May 1992. This was subsequently extended to 28 February 1994.

Since the creation of DMB and the posting of many full time staff, the need for a **permanent properly equipped office** building has become acute. Government located suitable premises in December 1993 and this should be ready for occupation by 1 March 1994.

An initial request for **computer hard and software** was made to UNDP by the Contractor on 30 March 1992. This was delivered on 8 July 1992. A request for further computer hard and software was made on 15 July and this was delivered in November 1992. A final order to cater for GIS applications in the follow on project was made in December 1992. This was received on 19 February 1993.

UNDP had pre-ordered **transport** (two station wagons, two minibuses and one field vehicle) and two of these were released from storage on 23 April 1992, the balance on 10 May 1992.

The initial order for **office furniture and equipment** was made by the Contractor on 21 April 1992. Locally procured desks and chairs were delivered on 15 May 1992. Offshore equipment were ordered by UNDP on 4 May 1992 and delivered at the end of May. They were installed and operational by 9 June 1992.

The order for DMB **communication equipment**, placed with UNDP/OPS in New York, on 9 June 1993. (See Table 4.6) was received in January 1994 and is stored in the DMB premises pending installation.

TABLE 4.5
Government Staffing of Disaster Management Bureau

Name	Date of Posting	DCMU/DMB Post	Substantive Post	Remarks
A Z M Hossain Khan	20 March 1992/ 24 August 1993	Project Director/ DG, DMB	Joint Secretary	
Alauddin Khan	25 May 992	Middle grade professional	Deputy Director, DRR	– Attended 2 days per week
	19 January – 19 August 1993	Deputy Director	–	– Full time
Syed Shafiullah	25 May 1992 – drifted away	Middle grade professional	Deputy Director	– Attended 2 days per week
Taheruzzaman	19 January 1993 – April 1993	Junior professional	Research Officer	– Full time
Motior Rahman	16 June 1992 – end August 1993	Middle grade professional	XEN, LGED	– Attended 2 days per week
Ahsanuzzaman	December 1992	Middle grade professional	XEN, BWDB	– Attends 2 days per week
	28 February 1993	"	"	– Full time
D.N. Bepari	27 April 1993	Director	Director, DMB	
A.F.M. Sirajul Haq	3 May 1993	Director	Director, DMB	– On course 9 July/end August 1993
A.M. Ferdous	27 April 1993	Director	Director, DMB	– On leave 18 May/16 June 1993
Kh. Rashedul Haque	27 April 1993	Deputy Director	Dy. Director, DMB	– On course 5 June/5 July 1993
Elias Ahmed	14 June 1993	Deputy Director	Dy. Director, DMB	– On law course from 15/1/94 to 15/3/94
Md. Azizur Rahman	6 June 1993	Deputy Director	Dy. Director, DMB	– On trainer training course on Disaster Management 05–12 December 1993
Akramul Islam	24 August 1993	Director General	Director General, DMB	– IDNDR Workshop in UK 4/5 October 1993
Saifuddin Ahmed	14 November 1993 – 18 January 1994	Deputy Director	MIS	

TABLE 4.6

Telecommunications Equipment for DMB

Sl. No.	Description	Unit Cost (\$)	Units (\$)	Total Cost (\$)
1.	Digital PABX, equipped for 4 T&T lines and 30 extension lines, expandable to 8 T&T lines and 72 extension lines with accessories	12,000	1	12,000
2.	HF/SSB transceivers, complete with antennas and accessories for 12 stations, batteries and battery chargers with accessories	5,200	12	62,400
3.	Electronic teleprinter, telex version with auto-dialling, multiple address transmission and VDU display unit, complete with accessories and spares	4,500	1	4,500
4.	Fax equipment with autodialling, relay broadcast, multiple broadcast facility with accessories and spares	1,500	5	7,500
			Total	86,400

4.3 Project Steering Committee Meetings

Three Project Steering Committee meetings have been held on 10 and 17 December 1992 and on 28 January 1993. The first meeting focused on the progress of the project, the concepts of disaster management and the cyclone warning system. The second considered the warning system in more detail and set up a special Sub Committee to review the cyclone warning system in detail.

The third meeting reviewed, and generally approved, the disaster management organisation proposed by the project. It also decided that the follow-on project 'Support to Disaster Management' should not be under the umbrella of the MoIWD/FCO but rather with the MoR/MDMR. The TAPP for the follow on project was approved subject to detail amendment at a Special Project Evaluation Committee meeting held by the Planning Commission on 7 December 1993.

4.4 Professional Panel Meetings

Professional Panel meetings were held regularly in the first ten months of the project period. All project outputs were reviewed in detail and suggestions for improvements made. The specific topics considered at each meeting are given on Figure 4.2.

4.5 Contacts

Coordination is a key objective of the project and the programme of contact visits initiated in the early period of the project to GOB, NGO and donor agencies continues. Taking advantage of the visit to Bangladesh of a United States Military Disaster Preparedness Mission in late August, firm contacts were established with the Armed Forces Division (under the Prime Minister's Office) representing the Army, Navy and Air Force.

Details of the all agencies contacted and persons met are given in Annex F. These contacts are summarised below, in all more than 380 meetings have been held:

Agencies Contacted	Nr
Ministries/Departments/Divisions/Bureau	
Military	45
NGO : Agencies/Individual	04
Donors : UN family/bilateral	31
Projects : FAP and others	30
Firms undertaking relevant activities	15
	15
	<hr/> 140

Notes of all discussions are prepared and kept on file.

Project staff attended the regular monthly FAP Team Leaders meetings organised by the FPCO. Regular, routine contact was maintained with MoR/MDMR and the UNDP Field Office, Dhaka.

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The project was also represented on the National Coordinating Committee for the Banskali Thana pilot project on disaster preparedness and response being supported by Italian Cooperation in conjunction with WHO.

During the course of the project, various workshops, seminars and discussions groups were organised as given in **Table 4.7**

4.6 Establishment of Library and Review of Literature

Within the DCMU/DMB a specialist disaster management library was created. Current publications from UNDRO in Geneva and reprints from the library of the Asian Disaster Preparedness Centre in Thailand were obtained. In order to build up as complete a collection as possible of published material relating to disasters in Bangladesh, advertisements were placed in both Bangla and English newspapers at the beginning of June, 1992. The library now has more than 800 catalogued publications.

Project staff during the course of their visits to organisations collect copies of relevant publications and reports, and the more important ones are reviewed as quickly as possible.

The terms of reference for the Sociologist/Gender Issues Specialist included the preparation of a comprehensive reference list concerning social issues related to disasters and key publications from this list were obtained.

4.7 Newspaper Scanning

While reviewing the documents collected, it was noted that victims of cyclones often give as a reason for not responding to cyclone warnings the fact that many warnings were given which were not subsequently followed by an actual cyclone. Data received from the BMD do not indicate that any such 'false' warnings were given but the view was so widespread that a detailed scanning of a newspaper (Dainik Bangla) from 1970 was carried out to see if there is any truth in it.

This scanning indicated that the record of cyclone warnings received from BMD was correct and also yielded information on river-bank erosion and the incidence of tornadoes.

4.8 Response to the Severe Cyclone Warning of 18-21 November 1992

A major tropical cyclone developed in the southern Bay of Bengal in mid November and this moved northwards to threaten Bangladesh. The coastal areas were alerted and many people moved to safer places. The DCMU offered all support within its capability to the MoR and was able to establish a fax and a computer in the MoR Control Room.

Fortunately, the cyclone veered southwards and weakened. It passed over Tecknaf where it caused a comparatively small amount of damage.

TABLE 4.7**Functions organised by DCMU/DMB**

1992	
17 June	Informal Workshop, held following the official opening of the DCMU by the Honourable State Minister for Disaster Management and Relief.
24 June	Informal discussion with NGOs and Donors on Disaster Management
4-6 July	Workshop at Noakhali District HQ.
24 August	Wrap up Session for US Military Disaster Preparedness Mission.
09 September	Informal Discussion on Training with GOB, military, NGOs and donors.
05 October	2nd Information Discussion on Training
14 October	IDNDR Day, including Seminar on 'FAP:11'
12 November	Public Awareness Brain Storming
14 November	Meeting with FPCO at MoR on 'FAP:11'
1993	
31 January	DM Training Workshop
29 April	National Disaster Preparedness Workshop inaugurated by Honourable President of Bangladesh on the second anniversary of the 1991 cyclone
10 May	Informal Meeting with potential donors for the follow up project 'Support to Disaster Management (BGD/92/002)'. .
16 and 29 June	UN Disaster Management Team meeting following damaging flash floods in Sylhet.
20, 27 and 28 July	Workshops to brief NGO staff on the DMB/MISs
06 September	Workshop to brief Donor and Embassy Staff on DMB/MISs
28 September	Workshop to brief GoB officers on DMB/MISs

In order to see how prepared institutions and people were to face the potential disaster more than 190 Government agencies, NGOs and local administrative units (District and Thana) have been requested to let the DCMU know about their response to the cyclone warning. For this purpose, a questionnaire was developed and sent to them. The responses to this request were most encouraging. These are being analysed and a report will be prepared in due course.

4.9 Field Visits

A number of visits outside Dhaka, particularly to disaster prone areas were made and these are detailed on Table 4.8.



TABLE 4.8
Visits Outside Dhaka

Area Visited	Date	Personnel involved
1992		
Tangail District HQ Mirzapur Upazila HQ	25 April	Co-TL, MIS Specialists (2) Disaster Management Specialist
Chittagong/Cox's Bazaar Coastal strip	30 May-4 June	Coastal and Hydraulic Engineering Specialist with an FPCO representative
BARD, Comilla Noakhali, Companygonj Thana, Char Jabbar Union Char Bata Union	4 July-6 July	Co-TL, DMS Specialist MIS Specialist, Agriculture Specialist Dy. Director, DRR (2)
Cox's Bazar Moheshkhali Khurnashkuli	6-9 July	Telecommunication Consultant
Bogra Singra Thana Lalpur Thana	27-31 July	Agriculture Consultant
Feni Sonagazi Thana Chardarbesh Union	4-6 August	Agriculture Consultant
Jamalpur Tangail	13-14 July	Agriculture Specialist
Chittagong/Cox's Bazar Coastal strip	6-12 September	Chairman, Professional Panel and Institutions Adviser, District and Field Admin Adviser, Training/Planning Specialist(part time), Training Consultant (part time)
BPATC, Savar	20 September	TL, Co-TL, Training Consultant
Sandwip, Kutubdia, Moheshkhali	18-27 September	Public Participation Consultant
Char lands in Jamalpur	29 September to 4 October	Sociologist/Gender Issue Consultant and Public Participation Consultant
RDA Bogra, Police Academy	10 - 13 November	Co-TL, Training Consultant
Mymensingh flash flood areas	22 - 30 November	Public Participation Consultant
1993		
Chittagong, Sitakundo and Banshkhali	2 - 6 April	TL, Director (Training and Awareness)
Calcutta Disaster Management Centre	4 - 7 April	Co-Team Leader, Project Director
Bhola	14 - 18 December	DG, DMB, Disaster Management Specialist
1994		
Eastern India	10 - 14 January	DG, DMB, Deputy Director, DMB

CHAPTER 5

PROJECT FINDINGS AND OUTPUTS

5.1 Introduction

The major findings and outputs of the Project are summarised in this Chapter, while the detailed findings are presented in the five Volumes that accompany this report. **Table 5.1** lists the major output of the project

Following brief sections on Definitions and the Terms of Reference for the Project which were modified after discussion of the Inception Report, the findings are discussed under the four **Immediate Objectives** that were set for the Project.

5.2 Definitions

Disaster management is relatively new as a concept and discipline, and an agreed standard terminology has yet to be developed. Indeed, the same terms are used to mean different things by different institutions, experts and authors. Such inconsistencies in the use of terms, was apparent in both the TOR given in the Prodoc and the existing (January 1990) draft project document for the intended follow-on project: Comprehensive Disaster Preparedness (FAP:11 BGD/88/056). There also appears to be some inconsistency in the existing government Standing Orders.

It is important that a number of basic concepts are agreed by all concerned, and that the corresponding terms are then used consistently. Otherwise there will continue to be a lack of clarity, and potentially serious misunderstandings, concerning overall objectives and policies, and the nature and purpose of particular project activities.

The definitions of some key terms which have been used and widely circulated during the course of the project are presented, with explanatory notes, at the front of this report. It should be noted that :

- 'Disaster management' is an umbrella term encompassing all disaster-related activities. ('Emergency management' is used to refer to the management of activities during the immediate disaster, or 'emergency', phase).
- In the 'recovery' phase, the following (generally overlapping) stages are recognized: relief; short-term rehabilitation and repairs; long-term rehabilitation (and reconstruction).

5.3 Project TOR

According to the Prodoc, the project was designed to address four inter-related tasks that were on the agenda of the Bangladesh Government at that time (May 1991), as follows :

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TABLE 5.1

Major Project Outputs

Reports	Date Issued
Inception Report	20 June 1992
Quarterly Report (20 June - 20 September 1992)	20 October 1992
Draft Terms of Reference for 'FAP:11'	18 November (Revised 14 December 1992)
Draft Programme Support Document for Support to Disaster Management (SCDMP)	24 November 1992 (Latest version 9 February 1994)
TAPP for SCDMP	24 November 1992 (Latest version 26 January 1994)
Status Report	15 December 1992
Quarterly Report 20 September - 20 December, 1992	10 January 1993
Draft Final Report (Vol I, III/VI)	20 February 1993
MIS User Manual	15 May 1993
Hazard Maps	15 May 1993
Quarterly Report (20 February - 20 May 1993)	28 June 1993
Coastal Area: Physical Infrastructure Map	19 August 1993
Quarterly Report (20 May - 20 August 1993)	10 September 1993
Standing Orders for Disasters (Draft)	February 1994
Final Report	
Volume I: Main Report	February 1994
Volume II: Natural Disasters Affecting Bangladesh (including Social and Gender Issues, Natural Resources and Environment)	December 1994
Volume III: Organisation and Systems for Disaster Management in Bangladesh	December 1994
Volume IV: Assessment of Damage Caused by Disaster (Crops, Livestock, Fisheries and Forest and Infrastructure)	December 1994
Volume V: Disaster Management Training Strategy	December 1994
Volume VI: Concept Plan for Integrated Coastal Protection	December 1994

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i) to increase the managerial and administrative capacity of the Ministry of Relief (MoR/MDMR) as the focal point in monitoring and coordinating disaster relief and rehabilitation by establishing a Disaster Coordination and Monitoring Unit (DCMU) with the capacity to collect, consolidate and analyse data on disaster-related activities;

ii) to review the operation of existing Government and non-government emergency procedures, standing orders, forecasting and warning systems and assess improvement needs, to prepare, on this basis, proposals on a future disaster preparedness strategy for the government and other organizations involved in disaster preparedness activities;

iii) in the light of existing requirements for professional training to design and implement an in-country training programme in disaster preparedness and management; and

iv) to prepare feasibility studies on disaster-related projects with an emphasis on establishing priorities for investment in repair and rehabilitation, particularly in coastal protection and infrastructure. This will result in the preparation of the Cyclone Action Plan.

The detailed terms of reference (TOR) for the project, which were drawn up quickly following the 1991 cyclone, also included:

i) aspects relating to the planning, co-ordination and monitoring of rehabilitation activities following the 1991 cyclone;

ii) the preparation of the Project Document for the longer-term project of Comprehensive Disaster Preparedness (FAP.11).

iii) preparation of a Concept Plan for Integrated Coastal Protection.

It was found that there were ambiguities in the TOR, and that certain elements relating to rehabilitation activities resulting from the 1991 cyclone were less relevant than they would have been if the project had started as originally planned in August 1991. Based on this analysis, suggestions were made for the interpretation/restatement of the TOR, particularly in relation to **Immediate Objectives 1 and 2**. These were accepted by Government and UNDP at the review of the Inception Report on 13 September 1992 and the restated agreed TOR are included in **Annex A**.

5.4 Objective 1 : To strengthen the Government's capability to coordinate and monitor disaster related activities through the Ministry of Relief

5.4.1 Introduction

The disaster-related activities of the MDMR in recent times have focused on:

- disseminating the Standing Orders for Flood and Cyclone;
- supervising on behalf of the Government the joint GOB/BDRCS Cyclone

Preparedness Programme;

- consolidating the damage reports submitted by the Civil Administration (DCs), using 'D' forms, following the occurrence of a flood or cyclone;
- managing (allocating and arranging the release/delivery of) food and other 'relief' supplies including: Gratuitous Relief and Test Relief (grain and some cash grants from government resources); special Vulnerable Group Development (VGD) allocations; miscellaneous relief goods such as CI sheets and saris;
- administering government funds allocated for the transportation of relief materials.

This is generally in line with the 'Allocation of Business' established some years ago for the then Relief and Rehabilitation Division, reproduced in **Table 5.2**, excluding the policy formulation and evaluation aspects.

Expected in its role as a Coordinator of 'relief' supplies, the MoR had only had a limited inter-sectoral/inter-ministerial co-ordination function in recent times, with the Relief Control Room being really only a communication centre. This vital function has been variously performed, in relation to disaster response, by the President's Office/Martial Law Authorities (in 1987/8), and by the Prime Minister's Office and Cabinet Secretariat (in 1991), in conjunction with high-level inter-ministerial co-ordination committees. The tracking and co-ordination of donor contributions has been the responsibility of ERD, but was actually undertaken by UNDP in 1991. There has been no systematic planning or co-ordination of disaster preparedness activities, apart from the CPP.

The results of an analysis of the functions actually performed by various government bodies following the 1991 cyclone is presented in **Table 5.3**.

There are differing interpretations of the terms 'co-ordination', and 'to co-ordinate', and this frequently gives rise to confusion or even conflict between those who seek to co-ordinate and those who are supposed to be co-ordinated. The two most common, and contrasting, interpretations can be summarized as follows:

- to control and direct the activities of a number of separate bodies from a higher-level (inter-sectoral) position; or
- to enable a number of separate bodies to work together harmoniously towards an agreed aim with each able to fulfil its particular responsibilities.

Experience in many places shows that the first approach is often less effective than expected, as it receives only reluctant co-operation from those being 'co-ordinated' (especially if the co-ordinator is perceived as being a peer rather than a respected higher authority) and may even inhibit the effectiveness of the operational agencies' own activities. The second ('enabling') interpretation is generally believed to produce the best results. In either case, the possession of reliable, up-to-date information, and the capacity to analyse and synthesize that information, is a pre-requisite.

TABLE 5.2

**Relief and Rehabilitation Division
(Predecessor to Ministry of Relief)
Allocation of Business**

-
1. Formulation and implementation of all policies relating to planning, coordination, monitoring and evaluation of all relief and development oriented relief programmes.
 2. Formulation of policies and preparation of national disaster preparedness plan and coordination of relief measures.
 3. Formulation and implementation of all projects for the purpose of settlement of distressed/displaced persons.
 4. Administration of all relief work and sanction of funds for -
 - a. Distribution of gratuitous relief.
 - b. Distribution of house building grants and loans.
 - c. Execution of test relief work.
 5. Administration of aids, loans, grants and technical assistance from abroad in connection with relief and rehabilitation.
 6. Operation of relief agreements with foreign countries and other similar agreements and matters connected with distribution of relief supplies coming thereunder.
-

Source: Annotated organogram prepared by Relief and Rehabilitation Division, Ministry of Food - copy provided by Ministry of Relief, May 1992

TABLE 5.3

GOB Agency Responsibilities in Rural Areas

Disaster Phase	Normal Times	Relief	Short Term Rehabilitation/Repair	Long Term Rehabilitation/Repair
1. Overall Coordination	CabD/PC	CabD/MOR	CabD/MOR	PC/ERD
2. Preparedness				
- Coordination?				
- Standing Orders (SO)	MOR	-	-	-
- Distribution of SO	MOR	-	-	-
- Shelters	MOE/LGEB/ PWD/BRCS	-	-	-
- Raised platforms	LGEB/BRCS	-	-	-
- Training	?	-	-	-
- Warnings (National/Local)				
Floods	-	BWDB/?	-	-
Cyclone	-	BMD/CPP	-	-
3. Personal Services to affected people				
- Coordination	-	DistAd	-	-
- Search and Rescue	-	Armed Forces	-	-
- Emergency Medical	-	MOH/AFD	-	-
- Health	-	MOH	-	-
- Food	-	MOR/MOF	-	-
- Water	-	DPHE	DPHE	DPHE
- Emergency shelter	-	MOR/DistAd	-	-
- Burial	-	?	-	-
4. Employment/Income Opportunities				
- Coordination	DistAd	-	DistAd	-
- Agriculture	MOA	-	MOA	-
- Fisheries	MOLF	-	MOLF	-
- Livestock	MOLF	-	MOLF	-
- Forestry	MEF	-	MEF	-
- Credit	BKB/GB	-	BKB/GB	-
5. Physical Infrastructure				
- Coordination	PC	-	PC	PC
- Roads	RHD/LGEB	-	RHD/LGEB	RHD/LGEB
- Buildings	MOW/LGEB	-	MOW/LGEB	MOW/LGEB
- Embankments	BWDB/LGEB	-	BWDB/LGEB	BWDB/LGEB
- Channels	BIWTA/BWDB/ LEGB	-	BIWTA/BWDB/ LEGB	BIWTA/BWDB/ LEGB
- Electricity	BPDB/REE	-	BPDB/REE	BPDB/REE
- Telecommunication	PTT	-	PTT	PTT
- Railways	MOC	-	MOC	MOC
- Ports and Harbours	MOS	-	MOS	MOS

Derived from Cyclone 1991 activities

5.4.2 Establishing a Disaster Coordination and Monitoring Unit (Activity 1.1.1)

The Disaster Coordination and Monitoring Unit (DCMU) was inaugurated on 17 June 1992 by the Honourable State Minister of Relief. It occupied some 5,000 sq.ft. of the first floor of a rented building located at House 38, Road 11, Dhanmondi Residential Area, Dhaka. As reported elsewhere, furniture and computer equipment were installed. The Unit had two (T&T) telephone lines and a rented internal fax machine. New telecommunication equipment was also supplied to ensure more effective disaster-time coordination.

In the first ten months of the project period, MoR were unable to post full time staff to the project and operations were almost wholly a technical assistance operation. During the extended period, with the creation of the Disaster Management Bureau, the posting of full time officers and their exposure to the need for improved disaster preparedness and response, operations were transferred increasingly from the technical assistance personnel to GoB staff.

5.4.3 Management Information System (Activity 1.1.2, 1.1.5)

Government reporting procedures are at present extremely complex, and often involve duplicated efforts between departments, and between line agencies and the civil administration. An attempt to depict the main reporting forms and channels of communication is shown in **Figure 5.1** which highlights the administrative structure, although for simplicity only key government agencies are shown. **Figure 5.2** emphasises the DCMU's operational role in relief allocation.

A three stage approach to the development of an MIS has evolved:-

- | | | |
|---------|---|---|
| Stage 1 | - | <p>Database for consolidating and reporting contributions by donors or by relief type.</p> <p>Database to analyse the damage assessment forms submitted by district administrations, incorporating refinements based on Operation Sheba.</p> <p>Develop a relief tracking system for the Ministry of Relief. Allow incorporation of computer data files produced by NGOs on NGO relief activities into a general reporting system.</p> <p>Improve and computerise the damage assessment procedures used by DAE for crops, DoL for livestock and DoF for fisheries.</p> <p>Compile baseline data on demography, water supply, health facilities, relief stores and important contacts.</p> <p>Identify, and provide basic computer training for, counterpart staff for long term involvement in information systems.</p> |
|---------|---|---|

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- | | | |
|---------|-----|---|
| | 1.5 | Allow incorporation of computer datafiles produce by NGOs on NGO relief activities into a general reporting system. |
| | 1.6 | Compile baseline data on demography, health facilities, water supply, relief stores, telecommunications and important contacts. |
| | 1.7 | Identify, and provide basic computer training for, counterpart staff for long term involvement in information systems. |
| Stage 2 | 2.1 | Develop computerised linkages between the systems described above, so that damage assessments determine needs evaluation, and relief distribution represents the optimum compromise with the existing stocks and donor contributions. |
| Stage 3 | 3.1 | Enhance the analytical and reporting power of the MIS by incorporation of the above into a geographical information system (GIS). |

The project has substantially completed items 1.1. to 1.7 although the population of 1.6 has continued as 1991 Census data have become available from BBS. **Table 5.4** list the data set that are available at 28 February 1994.

Basic training for DMB staff in Word Processing, Lotus 1-2-3 and dBase IV has been carried out during the period. Training in the use of the MISs has also been given.

Workshops to explain the DMB/MISs have been held for GoB, donor and NGO representatives as detailed on **Table 4.7**. Copies of the relevant User Manuals and Handbooks, complete with program diskettes, were distributed.

Progress has been made with the development of a Pilot Disaster Management GIS system (Stage 3 above) under Flood Action Plan Project 19 (FAP:19) being carried out in collaboration with US consultant ISPAN.

In order to keep all organisations directly concerned, in both the public and private sectors, informed of the day to day 'disaster' situation a Daily Consolidated Report is prepared by DMB (**Figure 5.3**). The concerned organisations are listed in **Table 5.5**.

5.4.4 Reporting Systems and Damage Assessments Activities (1.1.3, 1.1.4, 1.2.1, 1.2.2)

a) General

Following cyclone 1991, damage assessments were made and/or reported by :-

- the civil administration
- the line agencies
- World Bank appointed consultants
- NGOs including BDRCS

Figure 5.1
The Flow of Information Through the DMB

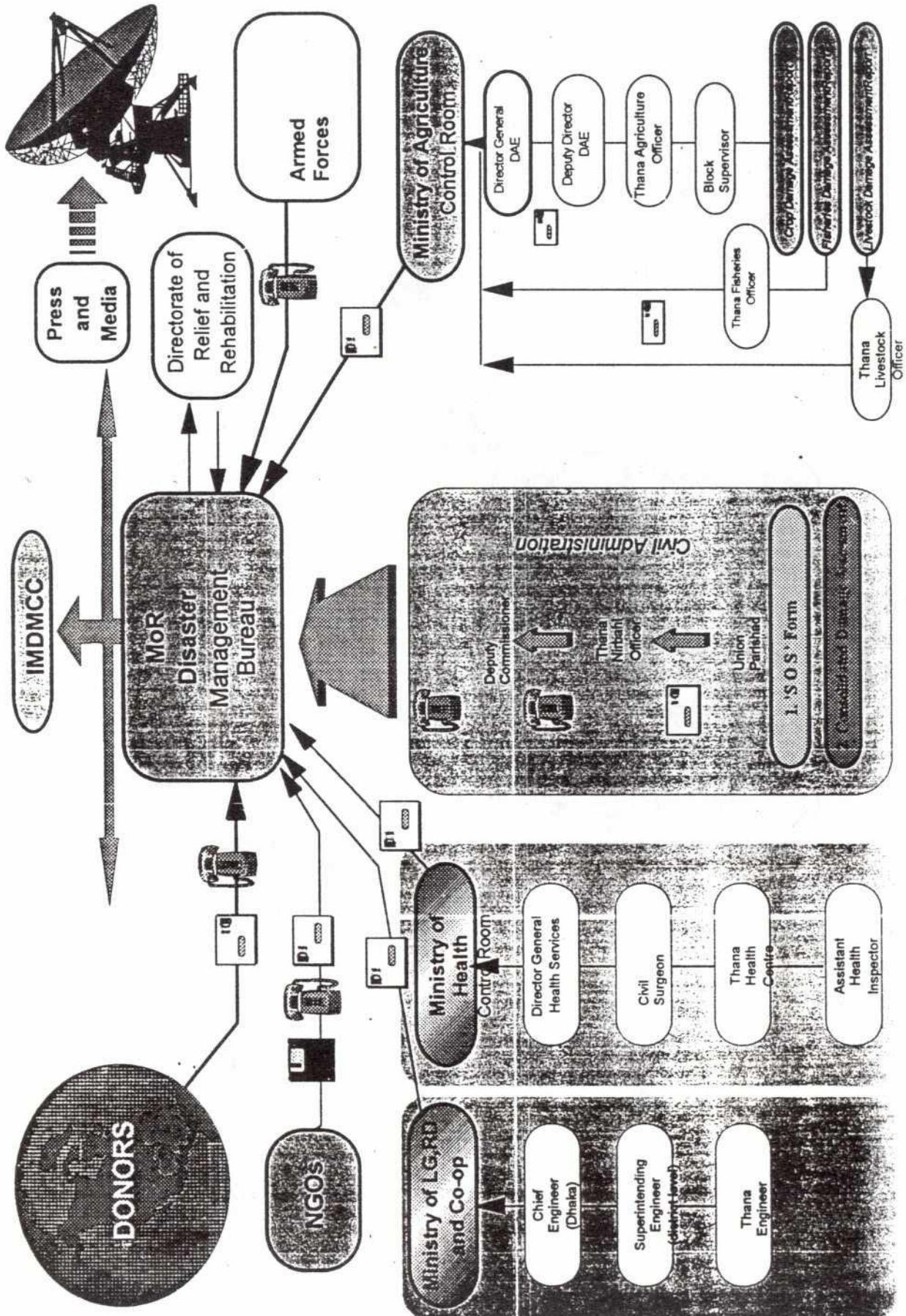


Figure 5.2
Schematic Illustration of the DMB in Relief Allocation

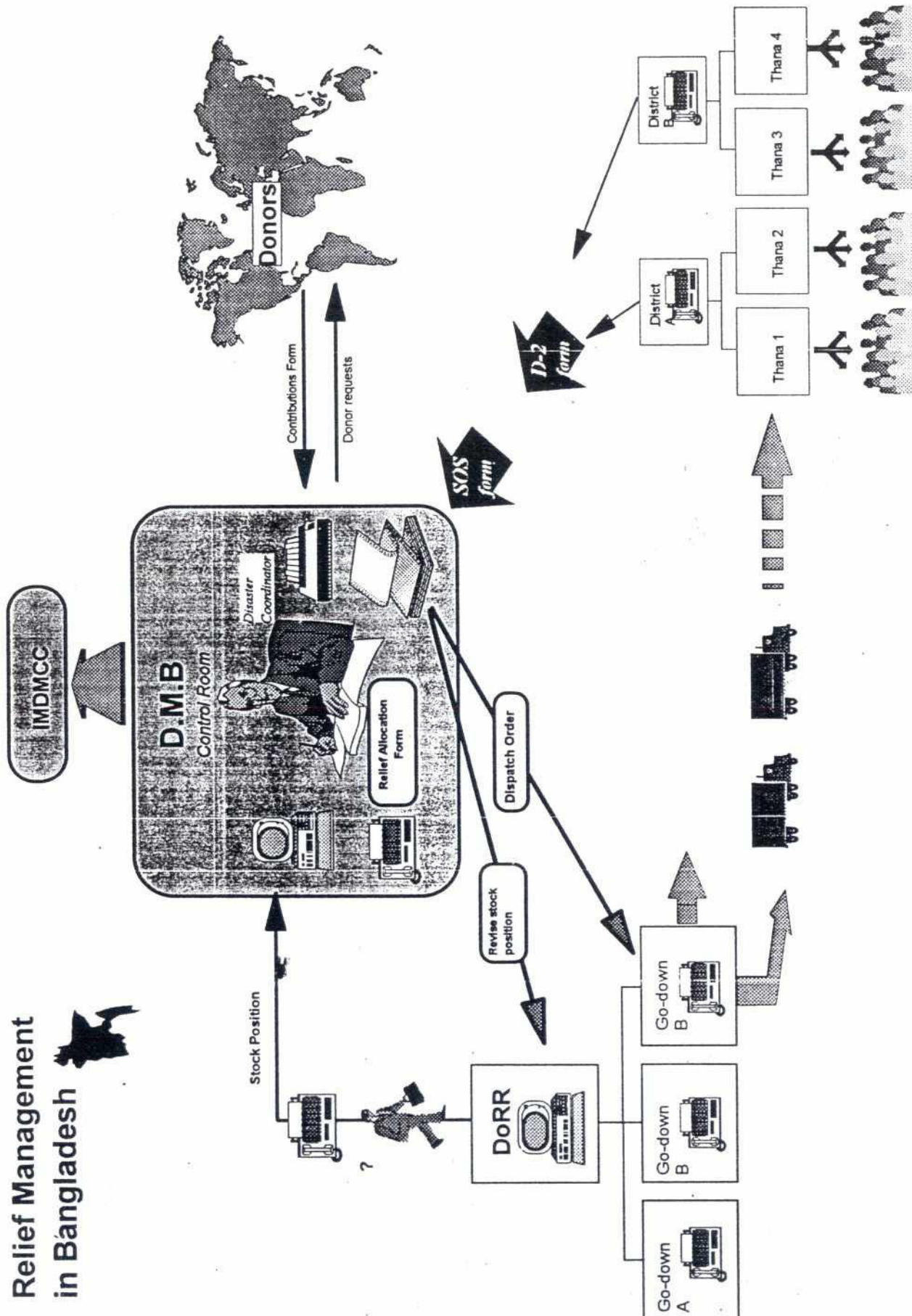


TABLE 5.4
DMB Management Information System

The following information is available (as at 28 February 1994)

- a. **Population**, household, literacy, material of roof, literacy rate, source of drinking water, toilet facility, electricity, own land (union wise);
- b. **Telecommunication** linkage between different districts and thana;
- c. Name, address, phone number of **Members of Parliament**;
- d. Name, address, designation, phone number of all important **Govt. officials** in district and thana level;
- e. Location, type and capacity of **shelters**;
- f. Number of **DTW, STW, LLP** (thana wise);
- g. **Landtype** distribution (thanawise) - complete data is not available;
- h. Important **trade centre** (districtwise);
- i. Number of beds in general **hospital, health centre** (thanawise);
- j. Capacity of **food go-down** - LSD, CSD, Silo;
- k. **Transport** link - railway(km), roads(km) pacca/katcha, bridge & culverts, aircraft landing, helipad, zetty, **IWTA** terminal, electricity;
- l. Number of launch & ferry ghats of **IWTA** by district (terminals, launchghat, ferryghat, jetty);
- j. Number of **livestock** (districtwise);
- k. Name, address, contact person, phone number of **NGO** (district & thanawise); activitywise NGO list; sectoral activity of an NGO;
- l. Current **nutritional** status (20 thanas or places);
- m. **Bibliography and library** of reports and evaluations on past disaster.

TABLE 5.5

Disaster Management Focal Points

Agencies	Fax No.
GoB	
- Hon'ble Prime Minister's Office : PS to PM	811015/819244
- Armed Forces Division : PSO	
- BWDB : FFWC	237386
- Bangladesh Meteorological Department : Director	319251
- Bangladesh Red Crescent Society : Chairman	831908/834701
- BSS	833595
- Cabinet Office : Cabinet Secretary	=====
- DPHE : Chief Engineer	232267
- ERD :	813088
- FPCO : Chief Engineer	813169
- Ministry of Relief : Secretary	834180
- Ministry of Food : Secretary	410325
- Ministry of Health : Directorate of Health Services, Mohakhali	
Head of EPR Cell	833974
- EDM	814394
- Planning Commission : Mr. M. Mokammel Haque	817581
Donors	
- Australian High Commission	883794
- Asian Development Bank : Bangladesh Regional Office	813242
- British High Commission : ODA : Mr. E. Taylor	883437
- Canadian HC : Ms. S.C. Breault	883043
- Danish Embassy	883638
- Royal Dutch Embassy	883326
- European Commission Nick Roberts	883118
- French Embassy : D. Daniel/Mr. Vanden Abeele	883612/883223
- Japan Embassy	883297
- FAO : Resident Representative	813446
- German Embassy	883141
- Italian Embassy: Mr.Colombo	882578-225263
- JICA Khandokar Abul Hossain	883398
- Royal Saudi Embassy	
- SIDA	883948
- Swiss Embassy	883497
- UNDP : K A Hafiz	813196
- UNICEF : Mary Roodkowsky	863678
- UNHCR :	815888
- USAID : Ms R. Fanale/Mr. Golam Kabir	883648
- World Bank Resident Mission : Ross Wallace	863220
- WFP : Resident Representative: Mr. Nazma Nile Kabir	813147
- WHO : Resident Representative	864732
- WMO : Resident Representative	813196
NGOs	
- ADAB : Director	813095
- BDPC : Mr. Saidur Rahman	801881
- CARITAS : Mr Lazarus S. Rozario	834993
- CONCERN	813693
- BRAC	883542-883614
- CARE : Ms. Nancy Blum	814183
- HKJ : Dr. Martin Bloem	813310
- ICDDR,B	883116
- OXFAM	813198
- PACT/PRIP : Mr. Richard Holloway	813416/816429
- PROSHIKA	813052
- RDRS	813416
- SCF (UK)	863185
- VHSS	813253

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Figure 5.3

Form DMB 005
(DMB is supported by
UNDP/BGD/91/021)

Ministry of Relief
Disaster Management Bureau
Consolidated Daily Bulletin

Date of Bulletin: 24/08/93
Disaster Type: FLOOD
Date of Info Recvd: 23/08/93

Time of Bulletin: 10 AM
Location: North & north-eastern region
Time of Info Recvd: 8 PM
Cumulative data from 01/06/93 to today

Overview: The Brahmaputra registered slight rise at upstream points. The Ganges continued to fall at all points. Rivers in the Meghna Basin marked rise & fall. All the rivers in the S. E. Hill Basin recorded fall. The Kaliganga at Taraghat, the Ganges at Bhagyakul and the Halda at Narayanhat are flowing above danger level.

1. Affected

Name	Number	% of Bangladesh
District	33	52
Thana	215	44
Union	1,680	28
Municipality	15	17
Area (km ²)	26,742	20

3. GOB Relief Items

Name/Type	Unit	Sanction	distrib- uted **
Cash	Tk(000)	29,295	
G.R. Cereals	M.T.	12,245	
Clothes	Piece	30,700	
T.R. Cereals	M.T.	5,085	
C.I. Sheet	Bundle	4,250	
V.G.D. Food	M.T.	2,755	
Transportation	Tk (000)	775	
Italian Soup	Cartoon	4,150	

** Data on distribution available with TNO office. DMB will able
provide data when communication facilities are fully established.
Total RELIEF amount sanctioned so far Tk.26,72,000.00

5. Health Situation from 1-6-93 to today

Name of Disease	Yesterday	Today
Diarrhoea: dead	170	175
affected	20,403	21,360

7. River levels (Danger level +/-m)

Name of River	Yesterday	Today	F/R/S *
Halda Narayan Hat	+1.03	+0.62	F
Ganges Bhagyakul	+0.07	+0.06	F
Kaliganga Taraghat	+0.04	+0.02	F
Surma Kanaighat	+0.05	-0.04	F

* F=Fall, R=Rise, S=Steady (from previous 24 hours)

9. District Food Godown 11-08-93

Name of Godown	Capacity (mt)	Stock (mt)
Sylhet	18,150	3,898
Panchagar	13,000	7,842
Rangamati	6,800	4,309
Netrokona	16,780	3,023
Chittagong	254,850	174,865
Sirajganj	24,500	7,117

DNA = Data not available

2. Contact person *

Name/Designation	Phone	Fax
A.Z.M Hossain Khan (DG DMB)	(O) 323852 (R) 816065	834180
A.M. Ferdous (Director MIS)	(O) 326137 (R) 802101	326137

* Respective DCs may also be contacted

4. Affected Area Data

Name	Unit	Number	% affected Dist.
Area (cropped)	acre	1,089,465	6.49
People (dead)	nr	162	0.00
People (affected)	nr	11,469,537	21.68
Houses (damaged)	nr	841,962	8.28
Livestock (dead)	nr	29,509	DNA
Roads (damaged)	km	16369	DNA
Ednl Instn (damaged)	nr	2922	DNA
Bridge/cty (damaged)	nr	2172	DNA
Embankment (damd)	km	1080	DNA

6 Relief Items Distributed by NGO's upto 1st August

Name/Type	Unit	Quantity
Food(cooked)	M.T.	92.12
Food(uncooked)	M.T.	297.60
Clothes('000)	Piece	24.00
WPT ('000)	Piece	2083.00
ORS ('000)	Sachets	76.28
Tubewells	Nos	60.00

NGOs active: BRAC, CARITAS, CONCERN, DCH, HEED, PROSHIKA, SCI, GSSK

SCF - USA, GUUDSEK, EDM, WORLD VISION

Source: ADAB

8. Information of TUBEWELLS managed by DPHE

Name	Total	Damag	% of total	Repaired
Sherpur	10,042	4,393	43.75	0
Hobiganj	15,198	4,218	27.75	468
Feni	9,990	4,152	41.56	1,938
Sylhet	18,352	3,626	19.76	35
Mvi Bazar	13,621	2,739	20.11	93

10. Forecast (Source: FFWC, BWDB)

River: Flood situation in the districts of Feni, Chittagong, Banderban, Rangamati and Cox's Bazar are likely to remain unchanged.

There are three key reporting chains **Figure 5.4**.

- i) union Parishad to Thana Nirbahi Officer (TNO)/Thana Parishad Chairman, thence to Deputy Commissioner (DC) and finally to MoR and Cabinet Division;
- ii) block Supervisor to Thana Agricultural Officer (TAO), thence to Deputy Director (DD) and finally to Director General (DG) of DAE; and
- ii) field Assistant to Thana Statistical Officer,, thence to Regional Statistical Officer, and finally to National level of BBS.

Although much information is said to be shared at thana and district levels, there are often significant differences between the information received in Dhaka through the different channels.

External consultants were engaged by bodies representing the international community to obtain objective estimates of infrastructure damage following the floods in 1987 and 1988, and the cyclone of 1991. Assessments by the line agencies following 1988 floods totalled US\$ 2.3 billion. The consultants estimated damage at US\$ 0.9 billion. There is a general tendency for line agencies to try to fund deferred maintenance under the guise of flood or cyclone damage. So long as Bangladesh relies on foreign assistance to repair and rehabilitate disaster damage, it is likely that consultants will be engaged by the donors to provide assessments that are perceived to be more objective.

b) Civil Administration Reporting

Information reported through the civil administration during the first few days following a 'sudden' disaster are used to determine the relative priorities of different areas and provide a basis for the allocation of available resources for relief by MoR and others.

The civil administration reports damage on a 'D' Form which covers all sectors. This is prepared and submitted by Union Parishad Chairman to thana level. The Thana submits a consolidated report to the District covering all aspects of damage such as crops, houses, railways and roads, bridges and culverts, livestock, educational institutions, forestry and fisheries.

As regards information in the first few days following the 1991 cyclone impact, which is essential for the planning and organisation of initial relief efforts and the restoration of essential services, it is noted that Government officials in Dhaka report having received little information in the first three days while the BDRCS and some NGOs apparently did have information and had already formulated specific plans and appeals.

There is a widely held view that the 'D' form is too complicated and for this reason the project has developed a simple 'SOS' form for use in the immediate aftermath of a disaster (**Figure 5.5**)

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c) **Agriculture**

The damage assessed by the DAE provides the basis for the allocation of resources for agricultural rehabilitation. Damage assessments are also often undertaken by NGOs in their particular area of operation, and by donors, FAO, World Bank, UNDP or for them by their consultants).

DAE Block Supervisors (BSs) who are placed at the block level (below the union level), undertake damage assessments within one or two days of a 'sudden' onset disaster, moving on foot or by bicycle in their respective areas. Although they are not fully trained, they have some basic idea of crop damage assessment.

It is difficult to undertake initial damage assessments as roads are often blocked (with fallen trees, broken roads and culverts etc) and the BSs themselves may have suffered personal losses. However, as directed they collect the damage data from a number of villages as quickly as possible. The data collected at block level are sent to the DAE Deputy Directors at district with a copy to TNO/Thana Parishad.

DAE headquarters collect the data for damage and loss of production but often the data are not correctly consolidated and they are often late. Sometimes, the records are not maintained to a uniform format. Damage is assessed twice by DAE: a preliminary report just one or two days after the disaster, and on final report, about two to three weeks after the disaster. It is often not possible to tell how much damage a crop has suffered until such a time has passed.

It is worth noting that overall national crop production did not decline significantly following the major flood years of 1987 and 1988 (See Volume II). This is generally believed to be due to three main factors, the relative importance of each is not known:-

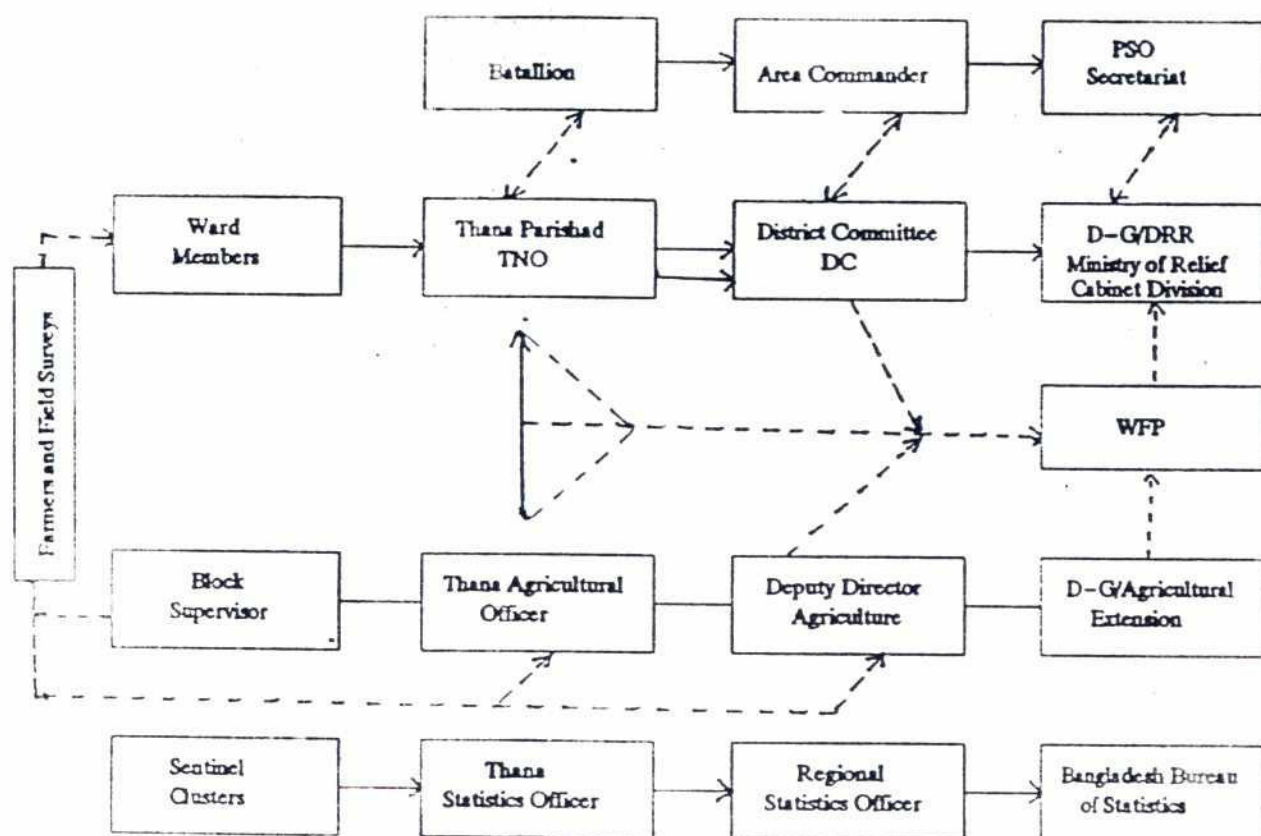
- increases in soil fertility and moisture content as a direct consequence of the flood;
- large-scale investments in inputs (seed, irrigation, and fertilizer), by the Government and individual farmers, in an immediate rehabilitation effort;
- initiatives and increased efforts by the farmers.

A major deficiency in the present system which could be partially rectified by training is the tendency to overestimate damage in order to obtain more relief. Other measures required include:

- use of similar damage assessment and rehabilitation programme methodology (previous experience, field visits, discussions with farmers)
- use of similar reporting formats
- reconciliation of data at all levels; this should probably be undertaken by the civil administration.
- the temporary posting of additional BSs from non-disaster areas to areas affected.

Figure 5.4

Channel Reporting Crop Damage Assessment Data



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Figure 5.5
SOS Form Immediate Use

Thana Name (Name)	Affected Unions (No)	Affected Population (No)	Houses Destroyed (%)	Deaths (No)

URGENT NEED

Thana Name	Search and Rescue (Y/N)	First Aid (Y/N)	Drinking Water (Y/N)	Prepared Food (Y/N)	Clothing (Y/N)	Emergency Shelter (Y/N)

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d) **Livestock and Fisheries**

Department of Livestock (DoL) and of Fisheries (DoF) officials at field level do report damage but their procedures were found to be of an 'ad hoc' nature with no common formats being used. It was also found that no rehabilitation programmes were prepared by either Department after disasters mainly because GOB has generally not allocated any funds for such purposes.

DoF were of the view that the national fish catch was not significantly effected by disasters, although of course individual pond owners were.

e) **Forestry**

Department of Forestry officers do have standard formats and apparently prepare damage reports following a major cyclone disaster, floods do not damage trees significantly.

The rehabilitation of the forestry sub sector is unlike that of crop, livestock and fisheries sub sectors is that it is longer term measures that are required. In that respect forestry rehabilitation is more analogous to infrastructure rehabilitation.

f) **Infrastructure (Activity 1.3.1, 1.2.2)**

Copies were obtained of the consultants reports referred to 5.4.4 a) in above, together with minutes of the meetings organised by the World Bank Resident Mission to coordinate rehabilitation activities (See Table 5.6) Discussions with ERD indicated that the meeting on 5 September 1991 was the last rehabilitation coordination meeting held, and that subsequent coordination has been at the individual 'project' level.

All agencies responsible for the identified reconstruction works have been contacted. Visits outside Dhaka have been made to key work sites and field offices.

Table 5.7 summarises the total cost of repairing the damage caused by the 1991 cyclone. The data show how the total damage estimates have varied over time as more detailed surveys were carried out. It is interesting to note how some agencies grossly overestimated the value of the damage, while others underestimated by large amounts. Overall BWDB, appears to make the best estimates.

The methods employed by the different agencies are discussed in detail in Volume IV and various proposals for improvements are made. These will be discussed with the agencies concerned.

Reconstruction work was placed in three categories. Priority 1 works which should have been completed by 30 June 1993, Priority 2 works due for completion by 30 June and Priority 3 for longer term completion.

TABLE 5.6

Infrastructure Rehabilitation following Cyclone 1991
(World Bank Situation Report updated 5 September, 1991)

Type of Reconstruction	Status	Cost Estimate (US \$ million)	Source of Financing	Amount (US \$ million)
A. Embankment Work				
(i) Priority Repairs	a) EEC funded consultants for preparation of Cyclone Protection Project (CPP II) have made an assessment of repair work in the cyclone affected area. TORs for detailed designs have been prepared. EEC is considering financing TA.	83.0	SFD IDA (reallocation) Japanese Fund EEC (TA) GOB	13.30 23.00 20.00 3.00 2.70
	b) Emergency Repairs under FFW Programme		WFP/ TBD	15.00 6.0-9.0
ii) Long Term Rehabilitation and Strengthening	a) The TOR of the EEC-funded consultants have been revised to incorporate new investigations which should be undertaken for preparation of IDA's proposed Cyclone protection project. EEC has provided financing and GOB has approved consultancy contract extension.	TBD	IDA ADB COF (TBD)	
	b) Cyclone shelter project (under consideration)	TBD	IDA COF (TBD)	
B. General Infrastructure				
i) Major Roads - Roads - Bridges - Culverts - Equipment	USAID provided financing (US\$ 294,000) through a trust fund with World Bank to engage SMEC Consultants for damage assessment and estimating cost of repairs. ADB cleared TORs SMEC submitted final report on August 15, 1991.	50.54	ADB Japan Netherlands (85 million)	37.00 3.50 3.00
ii) LOEB - Feeder Roads - Rural Infrastructure - Pourashavas	Donors met with GOB on September 04, 1991 to review SMEC findings and indicate availability of funds for repair.	52.17	ADB WFP	15.00 4.00
iii) Chittagong City - Pavement - Bridges - Equipment - Local Govt. facilities		12.73		
iv) Chittagong Water Supply		0.29		
v) Island Water Transport		10.45		
vi) Education - Buildings - Facilities		94.77	ADB UNICEF IDA Sweden EEC (ECU) Germany (DM) Saudi Fund (R)	25.00 6.00 6.00 4.00 10.70 20.00 176.00
vii) Health Facilities - Buildings - Facilities		5.01	Japan UNICEF	2.00 2.00
viii) Electricity Supply (PDB & REB)		25.79	ADB Canada IDA Japan Saudi Fund	10.00 1.00 6.00 5.00 6.00
ix) Railway		3.76	ADB Canada	3.50 0.05
C. Other Infrastructure				
i) Rural Drinking Water Supply & Sanitation - Shallow tubewells - Deep tubewells - Sanitation - Facilities	Shallow and deep tubewells: UNICEF reports that (a) most of the 84,000 cyclone damaged pumps have been repaired and (b) additional UNICEF funds are being sought for repairs to remaining pumps and for sanitation facilities. UNICEF will co-ordinate.	1.0+	UNICEF	
ii) Chittagong and Cox's Bazar Airports - Air Traffic Control System - Ground Facilities	Repairs have been carried out	N.A. 0.35	US Army Engrs. Japan	
iii) Tele-communication - Replacement of micro wave tower etc	Under the terms of the MOU dated July 14, 1991 between GOB and the Saudi Fund, an amount of Riyals 15 million is available for two telecommunication towers at Chittagong and microwave links at Bethuni and Chittagong. An IDA mission reviewed status in June and estimated the emergency construction cost as US \$ 16.5 million (FEUS)	3.6	Saudi Fund	
D. Chittagong Port				
	\$14.4 million, details are:			
	- Salvage operation - \$ 8.3 m	16.5	Netherlands 5 million	
	- Navigational Aids - \$ 2.4 m		IDA 7.0 million	
	- Rehab of Feeders Berths etc - \$ 1.5 m		Japan to bridge the	
	- Cargo Handling Equipments - \$ 3.0 m		financing gap (?)	
	- Engineering Services - \$ 1.3 m			
	Netherlands may finance salvage operations and for remaining work. GOB is expected to request reallocation of savings from ongoing IDA Credit 1247-BD			
E. Industry				
For this category, assistance is primarily aimed at restoring infrastructures (i.e. roads, electricity and water supply communications, embankments at EPZ etc.) needed by private and public sector industries. In addition, ADB is providing funds from ongoing projects to assist the Chittagong Urea Plant and Japan is extending financial support directly to the Fisheries sector				

1. Assistance from WFP under FFW (US\$ 33.4 million) available for road and embankment reconstruction which BWDB plans to use mostly on the same reconstruction. Part of an (App. \$2.5 million) will be used for the northern embankments of the primary Wapta Programme.

TABLE 5.7

Reconstruction Cost of Damage due to Cyclone 1991

(Tk. million)					
Agency/ Department	Works Priority	Preliminary Estimate by Agency	Revised Estimate by SMEC	Final Estimate by Agency/ Consultants	Contract Value (work programme)
BWDB	1	72.70	72.70	72.70	72.70
	2	561.00	561	561.00	470.00
	3	1,762.13	1,762.13	1,762.13	1,762.13
	Sub-Total	2,395.83	2,395.83	2,395.83	2,304.83
RHD	1			219.25	219.25
	2	2,125.72	1,442.10	1,498.75	300.00
	3			--	--
	Sub-Total	2,125.72	1,442.10	1,718.00	519.25
BPDB	1			--	(**)
	2	868.33	920.61	794.79	(**)
	3			--	--
	Sub-Total	868.33	920.61	794.79	0.00
B.Railway	1		111.00		-- (100.00)
	2	446.45	26.30	276.62	-- (120)
	3				-- (5.20)
	Sub-Total	446.45	137.30	276.62	
DPHE	1	228.00	183.56	183.36	212 (212.00)
	2	38.00	82.70	82.70	-- (68.77)
	3	--	--	--	-- (22.23)
	Sub-Total	266.00	266.26	266.06	212.00
LGED	1	1,800.00	454.93	454.93	5.50 (135.00)
	2		388.07	388.07	595.60 (668.90)
	3		578.42	578.42	--
	Sub-Total	1,800.00	1,421.43	1,421.43	601.10
Education Facilities	1	915.00	1,588.91	1,588.91	915.40 (915.00)
	2	615.00	1383.71	1383.71	1389.29 (1392.75)
	3	--	672.96	672.96	--
	Sub-Total	1,530.00	3,645.58	3,645.57	2,304.69
BIWTA	1	300.00	114.56	114.56	-- (10.00)
	2	--	--	--	--
	3	--	--	--	--
	Sub-Total	300.00	114.56	114.56	--
BIWTC	1	209.80	113.15	108.60	-- (108.60)
	2	68.80	81.14	52.70	-- (52.70)
	3	--	72.20	7.60	--
	Sub-Total	278.60	266.49	168.90	--
T&T	1	219.91	219.99	219.99	60.00 (60)
	2	200.00	200.00	200.00	180.00 (180)
	3	--	--	--	-- (180)
	Sub-Total	419.91	419.99	419.99	240.00
Post Office	1	20.00	20.00	20.00	1.00 (1)
	2	--	--	--	-- (5)
	3	--	--	--	--
	Sub-Total	20.00	20.00	20.00	1.00
MoH	1		85.06	85.06	218.58 (218.57)
	2	99.24	86.98	86.98	-- (176)
	3		64.86	64.86	--
	Sub-Total	99.24	236.90	236.90	218.58
Ctg. WASA	1	24.46	9.46	2.70	2.703 (2.70)
	2	--	--	--	-- (9.57)
	3	--	--	--	--
	Sub-Total	24.46	9.46	2.70	2.70
CCC	1	399.10	214.42	214.42	-- (125)
	2	389.43	122.29	122.29	--
	3	--	--	--	-- (2.22)
	Sub-Total	788.53	336.70	336.70	--
Mol	1	2,127.20	1,224.50	1,211.90	-- (52)
	2	--	--	--	--
	3	--	--	--	--
	Sub-Total	--	1,224.50	1,211.90	0.00
Total :	Tk. in Million	10,494.74	11,937.10	12,235.16	6,404.15
	US\$ Million	276.18	314.13	321.98	168.53

US \$ 1 = Tk. 38.00

Dg 1 (Dutch Guilder) = Tk. 22.44

Source : Relevant Agency/Department/SMEC's damage assessment report

(**) Contract not yet finalised

Table 5.8 shows the progress of the reconstruction works to date. Overall progress has not been good, as is indicated below :

Priority	Total Cost (Million US\$)	Value of Work completed at 30 June 1992 (Million US\$)	Value of Work completed at 30 September 1992 (Million US\$)
1	129.16	30.77	-
2	125.70	05.51	28.33*
3	67.12	-	9.28
Total:	321.98	36.28 (11.25%)	37.61 (11.68%)

* includes the value of some Priority 1 works.

The reason for poor performance is largely related to protracted procurement procedures, which involves : identification, design, Project Proforma processing, donor/local funding arrangements, tendering, adjudication, award. Lengthy delays may occur at each stage.

5.5 Objective 2 : Review procedures and organisational structures; assess training needs and commence training

5.5.1 Review and propose improvements to procedures

a) Codes

Two sets of Standing Orders are fairly widely available :

- Standing Orders for Floods (RRD, 1984)
- Standing Orders for Cyclone (MoRR, 1985)

The latter superseded the earlier Cyclone Code (GOEP, 1970)

In addition, a detailed 'Flood and Cyclone Code' was issued by MoA for its staff in 1981 (in Bangla, based on an English text prepared in 1980). It is understood that a Drought Code was also issued by MoA in 1980.

In visiting GOB agencies, it has been found that the existence of the Cyclone and the Flood Codes are known, but few officials visited have been able to actually produce a copy. Many were pleased to receive a copy of those sections of the Codes that relate to their agency. To date, no agency has been able to produce a Contingency Plan for their organisation although most seem quite clear as to what they and their agency should do in the event of a disaster.

The review of the Standing Order identified a number of aspects that should be modified :

- the definitions of the different 'stages', and in particular the apparent inconsistency in the use of 'disaster stage' within and between the two Codes;

TABLE 5.8
Progress of Reconstruction Works

Agency	Works Priority	Total	Value of Works (Tk. Million)	
			Completed by 30th June 1992 (percent total)	Completed by 30th Sept 1992 (percent total)
BWDB	1	72.70	72.70 (100)	---
	2	561.00	120.00 (21)	144.00 (26)
	3	1,762.10	---	352.46 (20)
	Sub-Total	2,395.80	192.70 (8)	496.46 (21)
RHD	1	219.25	101.73 (47)	105.09 (48)
	2	1,498.75	84.76 (16)	97.69 (18)
	3	---	---	---
	Sub-Total	1,718.00	186.49 (10)	202.78 (11)
BPDB	1	135.20	135.20 (100)	---
	2	400.00	---	---
	3	385.41	---	---
	Sub-Total	920.61 (**)	135.20 (15)	---
B.Railway	1	---	101.42 (37)	---
	2	276.62	---	2.81 (1)
	3	---	---	---
	Sub-Total	276.62	101.42 (37)	2.81 (1)
DPHE	1	183.36	175.00 (96)	---
	2	82.70	---	---
	3	---	---	---
	Sub-Total	266.06	175.00 (66)	0.00
LGED	1	454.93	56.20 (12)	---
	2	388.07	4.80	392.70 (101)
	3	578.42	---	---
	Sub-Total	1,421.43	61.00 (4)	392.70 (28)
Education Facilities (MoE)	1	1,588.91	137.30 (9)	---
	2	1,383.71	---	192.15 (14)
	3	672.96	---	---
	Sub-Total	3,645.57	137.30 (4)	192.15 (5)
BIWTA	1	114.56	10.10 (9)	---
	2	---	---	---
	3	---	---	---
	Sub-Total	114.56	10.10 (9)	---
BIWTC	1	108.60	3.94 (4)	---
	2	52.70	---	0.25 (0.5)
	3	7.60	---	---
	Sub-Total	168.90	3.94 (2)	0.25 (0.15)
T&T	1	219.99	29.30 (49%)	---
	2	200.00	---	1.57 (0.85%)
	3	---	---	---
	Sub-Total	419.99	29.30	1.57
Post Office	1	20.00	1.00 (5%)	---
	2	---	---	---
	3	---	---	---
	Sub-Total	20.00	1.00 (5%)	---
MoH	1	85.06	11.08 (5%)	---
	2	86.98	---	125.00 (74%)
	3	64.86	---	---
	Sub-Total	236.90	11.08 (5%)	125.00 (74%)
Ctg. WASA	1	2.70	2.13 (79%)	---
	2	---	---	---
	3	---	---	---
	Sub-Total	2.70	2.13 (37)	0.00 (1)
CCC	1	214.42	100.00 (80%)	---
	2	122.29	---	120.00 (98%)
	3	---	---	---
	Sub-Total	336.70	100.00 (80%)	120.00 (98%)
MoI	1	1,211.90	130.80 (11%)	131.50 (6%)
	2	---	---	---
	3	---	---	---
	Sub-Total	1,211.90	130.80 (11%)	131.50 (6%)
Total :	Tk.in Million	12,235.13	1,142.25	1,665.22
	US\$ Million	321.98	30.06	43.82

US \$ 1 = Tk.38.00

1 Dg (Dutch guilder) = Tk. 22.44

Source : Relevant Agency/Department/SMEC's damage assessment report

(**) P.P. approved for Tk. 920.61 Million

- the precise functions, inter-relationships, and lines of communication between the various co-ordination committees and control rooms;
- the arrangements and criteria for assessing damage and needs, and related reporting forms and procedures;
- the existence, or otherwise, of Contingency Plans within each of the concerned ministries, divisions and agencies, and the compatibility between such Plans and the Standing Orders;
- the up-dating required as a result of restructuring of government bodies (e.g. creation of new ministries) and/or changes in government policy (e.g. privatization of certain functions);
- the role of the Divisional Commissioners;
- responsibilities for preparedness planning and emergency response at district level and below following the abolition of the district councils, thana and union parishads (and associated development committees);
- clarification of the definitions of 'storm intensity' (in terms of wind speeds) corresponding to the various danger levels in the storm warning system;
- clarification of the processes for notifying the bodies/officers on the various address lists ('whirlwind', 'hurricane', 'hurricane', etc) of storm warning signals;
- the need to focus on helping the population in disaster prone areas to help themselves;
- more emphasis on the people living in the disaster prone areas and what they should do;
- the role of the private sector;
- the need for specific agency, administrative unit (union, thana, district and discipline (e.g. search and rescue) Action Plans;
- disaster legislation; and
- linkages between civil administration and the Armed Forces.

In addition, there is a need for :

- more emphasis on preparedness activities including stockpiling, practice drills, improved flood warning systems;
- the role of NGOs to be addressed;
- wider, regular dissemination;
- related training activities during induction and in-service courses for government officers, for NGO personnel, and at grassroot level.



The line-by-line review of the ESOs revealed that most issues were covered somewhere to some extent, except the overall planning of prevention/mitigation measures. If the more detailed Contingency Action Plans that are called for were actually prepared and followed

conscientiously at each tier/by each agency, disaster preparedness and response should generally be satisfactory. However, the ESOs were not available to many of the officers who need them, and there has never been any follow up training.

Although all relevant ministries and the NGO coordination body ADAB were requested to comment on the existing orders at meetings in June 1992 and in follow up written requests, only the Ministry of Irrigation, Water Development and Flood Control and the Ministry of Health did so. Therefore, the project made contact with each of the GOB ministries and agencies which had a role in any aspect of disaster management (See **Annex D**). Detailed discussions were held with each and revised versions of the ESOs for both floods and cyclones prepared.

In connection with general provisions, reference should be made to 'disasters' and disaster-prone' areas. Paragraphs should be included, wherever appropriate, to specify particular functions/actions in relation to cyclones or floods (e.g 'specifically in relation to cyclones,....')

For each sector, corresponding to a ministry, a standard structure should be adopted:

- a concise general statement of the role and responsibilities, including policies and priorities, where appropriate;
- the specific functions of:
 - the ministry itself
 - each dependent department/body at national level, and
 - the field level offices;
- arrangements for reporting, and authority for resource allocations, in relation to disasters.

Within the statements for each ministerial 'sector' reference should be made and arrangements be specified concerning:

- the designation of a focal point for disaster management, who would then be the focal point for contact with the DMB during 'normal' times, a member of the Focal Points Operational Co-ordination Group, and with the DMB-EOC during an emergency;
- the participation of field officers in the Disaster Management Committees at district and thana levels, as appropriate;
- training of personnel in relation to disasters, in collaboration with the DMB;
- the precise functions of the ministerial/departmental control room, if any;
- arrangements to second personnel to the DMB-EOC during an emergency, if appropriate.

These aspects should be standardized as much as in reasonably possible.

Functions should be specified in relation to standard phases, or stages, which should be clearly explained in the introduction. (The term 'disaster stage' for instance has significantly different meanings in the present Flood and Cyclone codes and the types of actions required are quite different). The phases defined in **Final Report Vol. III** should be adopted, if possible. It should be noted that:

- 'Normal' times would correspond to 'pre-disaster' in the Cyclone Code, and to a few elements of the 'preparatory stage' in the Flood Code, which specifies very little in relation to long-term preventive/risk reduction measures or preparedness.
- 'Alert' and 'Warning' corresponds to 'alert', 'warning' and a large part of the 'disaster' stage of the Cyclone code, and to much of the 'preparatory stage' of the Flood Code. It may be that 'alert' and 'warning' can be combined for several of the sectors, especially in relation to actions specifically relating to floods. Particular actions may need to be specified separately for 'alert' and 'warning' for some sectors/agencies in relation to cyclones.
- 'Emergency relief' or 'Impact' and 'Immediate Post-Impact' corresponds to some of the 'post-disaster' stage (and a few elements of the 'disaster' stage) in the Cyclone Code, and more-or-less to the 'disaster' stage of the Flood Code.
- Recovery corresponds to the remainder of the 'post disaster' stage of both codes.

With the framework of revised Standing Orders, the preparation of Disaster (Preparedness) Action Plan at union, thana and district level will be required. An outline of the process and the content of the such plans is given in **Annex F**.

b) Other GOB Disaster Related Codes

The Bengal Famine Code (1913), Famine Manual (1941) and the DAE Drought Code (1980) of the Ministry of Agriculture were also reviewed. These publications have no wide circulation at present and their current legal status is unclear.

The DAE Drought Code is an Action Plan for agricultural field staff. It defines drought and assigns general responsibilities within the Agricultural Extension set up : who is to do what when. Actions to save or minimise loss of crop are specified.

The earlier Famine Code and Manual were prepared for administrators. They define famine and allocate general responsibilities for relief activities. In a narrower sense, they also define drought and flood. Standing Orders indicating precise responsibilities and tasks for each functionary were not prepared.

The role of private sector, the local bodies and non-government organisations in fighting the scourge of drought or famine has not been reflected. With the passage of time, there have been many changes in the structure and form of government in Bangladesh, which is now quite different from the set-up responsible for administering drought and famine mentioned in these Codes.

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However, the Codes do contain much valuable material and this should be incorporated into the proposed Disaster Management Handbook to be prepared under the follow on project.

c) Emergency Guidelines and Handbooks of Other Agencies

Other agencies operating within Bangladesh have, or are developing, emergency guidelines or handbooks. These include UNICEF, Save the Children Fund (SCF-UK) and the Bangladesh Disaster Preparedness Centre (BDPC).

The emergency Handbook (UNICEF, 1988 edited by Ron Ockwell, a member of the project team) is used world-wide. It provides guidelines and hints for emergency interventions in UNICEF's particular areas of interest : health and nutrition; water supply and sanitation; social programmes and logistics.

SCF (UK) developed their emergency guidelines following the Bangladesh floods of 1987 and 1988. They are presently being upgraded to take account of their experience in the 1991 cyclone. Once completed, they might be used as a model for other NGOs.

Under assignment by PACT, and in association with ADAB, BDPC is preparing a 'Disaster Management Handbook for Bangladesh'. The DCMU reviewed and prepared detailed comments on the final draft. Once published, it will be particularly valuable for NGOs who wish to respond to disasters.

d) Wind Storm Warning System

The Bangladesh Meteorological Department (BMD) is responsible for forecasting windstorms and issuing warnings from its Storm Warning Centres (SWC) in Dhaka.

BMD receives meteorological reports from stations throughout the region via the WMO World Weather Watch and Tropical Cyclone Projects. BMD operates two weather radar installations at Cox's Bazar and Kalapara and SPARRSO regularly provides images from the orbiting US:NOAA satellite. On the basis of these data BMD make predictions of windstorm tracks and issues warnings as prescribed in the Standing Orders (MoRR, 1985) **Figure 5.6** indicates the agencies concerned.

The existing windstorm and 'cyclone' warning system is often criticised as being inappropriate for the inhabitants of the affected areas as it has been developed for mariners and port officials. However, the most detailed field study reviewed to date (CDL, 1992) following Cyclone 1991, indicated that some 91 percent off the population surveyed claimed to have understood the warnings.

Although most people appear to have heard the warnings fewer the 50% reacted to them. Many reasons are quoted for this including :-

- no clear understanding of where to go to or how to get there;
- do not believe the warnings;
- do not want to leave possessions and 'their' land; and

- families on their own, where the husband is away, cannot decide what to do.

There is a pervasive belief that BMD issues many 'false' warnings, that is signals 8, 9 and 10 'hoisted' and nothing significant occurs. Newspaper scanning referred to in **paragraph 4.9** tends to confirm data received from BMD regarding the number of warnings issued over the last 20 years (**Table 5.9**) Ten major 'cyclone' events were predicted while only two, in 1985 and 1991, were of major significance for the coastal population.

One aspect of the present warning system that is clearly unsatisfactory is that it makes no distinction between 'weak' cyclones with maximum windspeeds of 118 km/hr, which are unlikely to cause much damage, and those with much higher windspeeds which do. The Saffir Simpson Scale is used in many countries subject to cyclones and its introduction, or that of the International Hurricane Scale (IHS), in Bangladesh should be considered (WMO, 1989).

Table 5.10 indicates the order of magnitude of surge heights for various windspeeds. It is the surge that has proved to be the killer in Bangladesh. Warnings should be developed so that the coastal population know that a cyclone of significant magnitude is likely to strike, with for example a windspeed of above 170 km/hr and a surge height of 2.5 m.

Another aspect of the present windstorm warning system that requires further examination relates the river ports. A signal numbering system is used as for the coastal ports but signals of the same number mean different things.

The dissemination of BMD warnings to the radio and TV and through official channels, has been supplemented since 1973 by the GOB/BDRCS Cyclone Preparedness Programme (CPP). The CPP headquarters in Dhaka has direct radio contact with BMD and with its own personnel at zonal and upazila levels, and in some unions. The CPP presently has some 21,000 volunteers organized in units of ten.

The CPP is established in 24 Upazilas in the coastal area (see **Figure 5.7**) and arrangements are in hand to extend this to another six as well as to replace much of the equipment and retrain the personnel. However, the proportion of the population that quoted the CPP as the source of Cyclone 1991 warnings was disappointingly low (CDL, 1992).

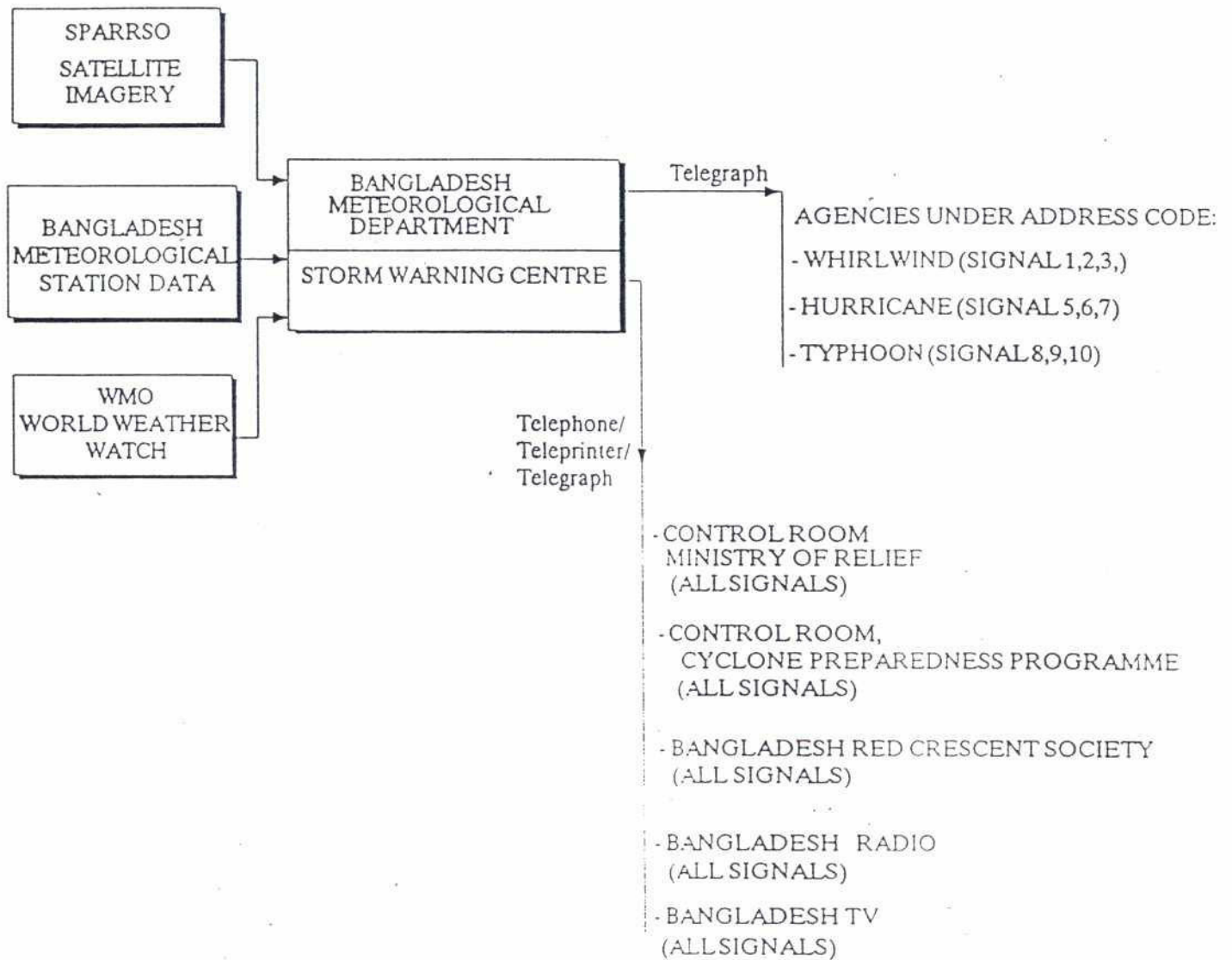
Suggestions have been made to increase the involvement of thana and union-level officials and representatives, plus teachers and Imams, in the CPP process. In Hatiya and Char Bata, CPP staff and volunteers have taken initiative to integrate their CPP activities into wider development initiatives.

A number of reports prepared following the 1991 cyclone, including an assessment undertaken for the BDRCS, called for the warnings to be simpler and more persuasive for the general population in the coastal areas.

Wind storm forecasting technology is continually improving and BMD should be supplied with the most appropriate equipment. Although the existing facilities could be upgraded, the performance of BMD in forecasting the tracks of cyclones has, from a review of recent records, been satisfactory. Faster dissemination of forecasts, once they have been made, is however an aspect that needs attention.

Figure 5.6

Windstorm Forecast and Warning Dissemination System



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TABLE 5.9
BMD Windspeed Warnings

Year	BMD Data											Danik Bangla										
	Occurrence of various signals each year											Occurrence of various signals each year										
	1	2	3	4	5	6	7	8	9	10	Total	1	2	3	4	5	6	7	8	9	10	Total
1970											0					(1)		(1)				(2)
1971											0						(1)		(1)			(2)
1972			3								3	1			1							2
1973			3				2				1	6		1				1		1		3
1974			1		1	1					2	5	1	1	1	1					1	5
1975			2				1		1		4											0
1976			2	1		1	2				6	2		1	1							4
1977			1							1	2			1							1	2
1978				1			2				3	1										1
1979			1								1											0
1980			3								3											0
1981			1		1	1	1				4	1					1	1				3
1982			1					1			2			1			1	1	1			4
1983	1				1				1		3			1	1							2
1984			1								1											0
1985				1					1		2						1					1
1986			1			1					2											0
1987	1			1							2			1	1							2
1988							1			1	2			1							1	2
1989			3								3	1		2		1						4
1990			1				1				2		1	1			1					3
1991			1			1				1	3		1					1			1	3
1992											0			(3)	(1)							(4)
Total	0	2	25	4	2	6	10	1	3	6	59	4	5	11	5	2	4	4	1	1	4	41
	27			4	18			10				20			5	10			6			

Source : BMD, Dainik Bangla
(1) Not carried to summary

A:\IK-32\Tab5.9.Wk1

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TABLE 5.10
Windspeeds and Estimated Surge Heights

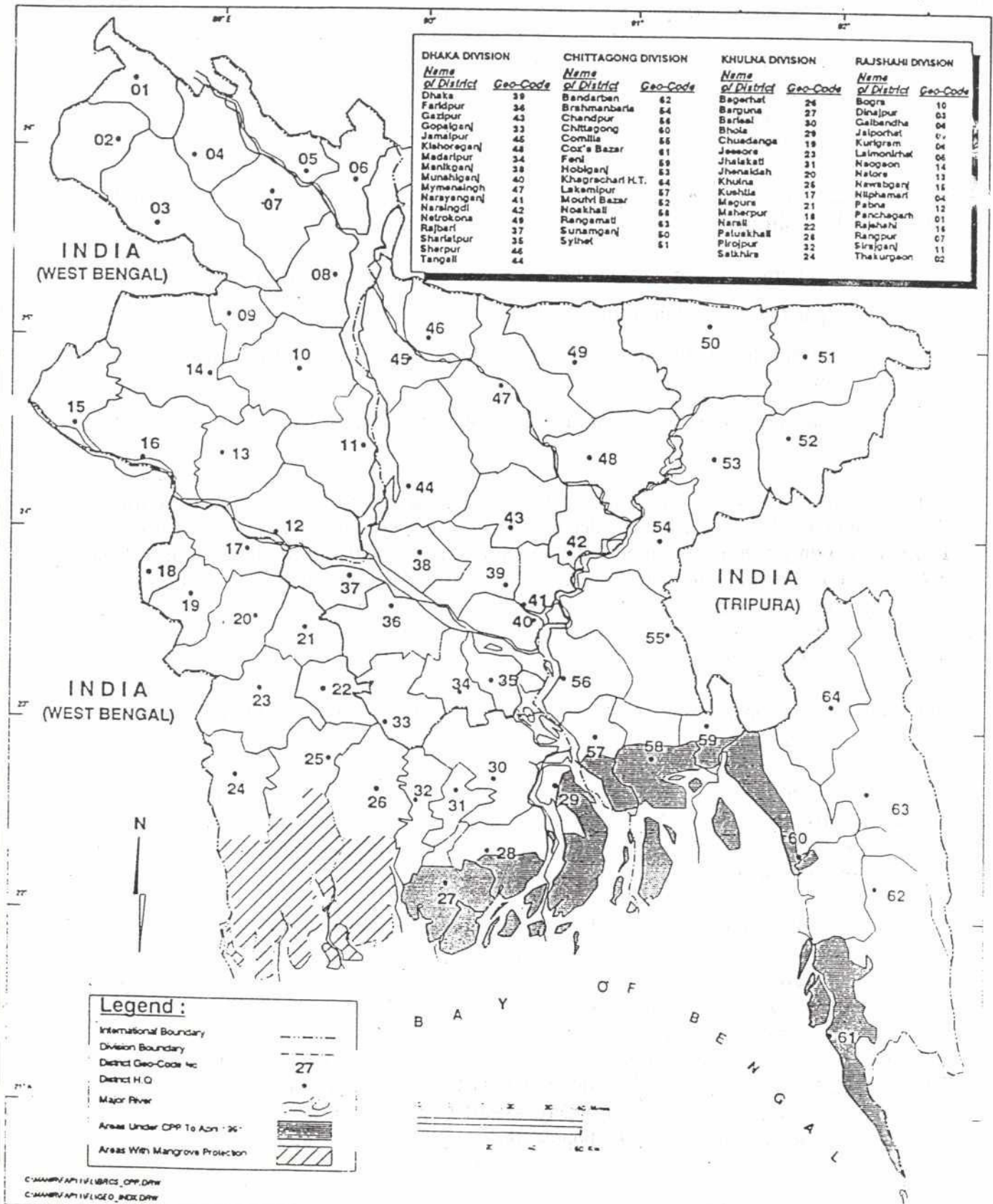
Windspeeds (km/hr)	Estimated Surge height (m above "normal" level)
118	1.25
153	1.65
177	2.55
195	3.85
233	5.55

Source : WMO, 1989

A:\UK-32\Tab5-10F.Wk1

Figure 5.7

Cyclone Preparedness Program



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Following the publication of the Inception Report, an 'ad hoc' Working Group consisting of BMD, CPP, DCMU and the Professional Panel met to consider the need for improvements to the present Wind Storm Warning System that is given in the Standing Orders for Cyclone. It was considered that a four part message was required to cater for :

- general situation
- ports and shipping
- coastal area
- fishermen

the dissemination of warnings at local level was also considered to need improvement and this should be addressed by:

- improving the messages given on TV and radio (as discussed above)
- expanding the coverage of the CPP
- ensuring that CPP and civil administration and union authorities work in close cooperation
- public awareness raising and training activities following issue of refined Standing Orders

This issue was discussed at length at two Project Steering Committee meetings. A formal Sub Committee was created to consider the matter under the chairmanship of Ministry of Defence including both BMD and SPARRSO and it is expected that this will recommend and eventually implement appropriate changes to the existing system. It is understood that no final proposals for modification have been made.

e) Flood Warnings

The BWDB Flood Forecasting and Warning Centre (FFWC) is responsible for forecasting floods and issuing warnings.

The FFWC receives data from a network of 47 river and 46 rainfall observation stations within Bangladesh. The Centre receives NOAA and METEOSAT weather satellite information directly and it also receives data river and rainfall stations in neighbouring countries through the WMO World Weather Watch programme.

Using mainly the MIKE 11 computer software, which has been developed with UNDP assistance (BGD/88/013 : Improvement of Flood Forecasting and Warning) FFWC make predictions of river levels for 16 locations for the following 24, 48 and 72 hours periods. These predictions are disseminated as detailed in **Figure 5.8**.

The FFWC is able to predict the water levels in the major rivers with increasing accuracy. Such predictions are vital for the operation and maintenance of major water control works and river transport. It is, however, widely accepted that the present arrangements do not provide adequate information for the population in the flood prone areas.

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A detailed review of the existing system has recently been made by WMO and proposals for improvement prepared (Kachic, 1992). These are under five headings :

- forecasting operations and processing
- dissemination
- Flood Bulletin
- Daily Bulletin
- training

The aim of these proposals is to ensure that the populations likely to be affected by floods are informed in a timely manner and in a form that they understand.

The desirability of producing forecasts, and hence warnings, for particular areas threatened by flooding to specified depths has been emphasized by many people and reports consulted, most recently at the First Workshop on the Flood Management Model (FAP:25) on 9/11 February 1993.

Under the proposed Flood Action Plan Project 10 (FAP:10) to be funded by Denmark the development of an improved forecasting system is proposed. This will involve collaboration between various Flood Action Plan projects, notably FAP:18 Topographic Mapping, FAP:19 Geographical Information Systems and FAP:25, together with the follow on project to BGD/91/021.

Once improved local area forecasts are technically feasible, field testing would be required. Dissemination arrangements would then be developed. A volunteer Flood Preparedness Programme (FPP) under BDRCS, similar to CPP in the cyclone prone areas, would be one arrangement particularly for the char - and unprotected lands. The full involvement of the proposed local Disaster Management Committees, especially at the Union level, and the local population will be essential. Teachers, BSs, and other existing groups should also be involved.

5.5.2 Review of organisational structures and recommendations for improvement

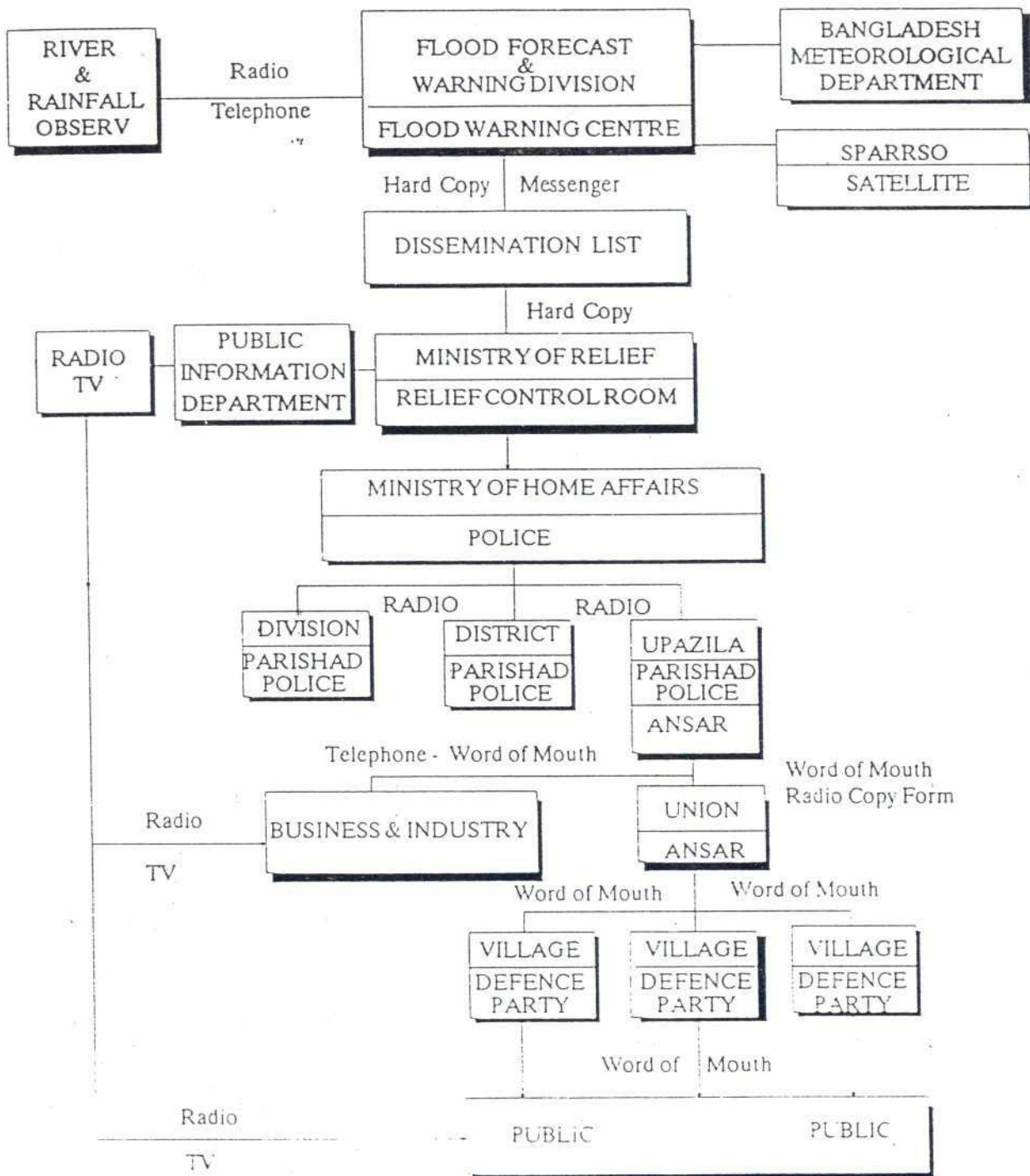
The existing, organisational structures for disaster managements were reviewed through detailed discussion with officials and personnel concerned, by study of the reports prepared following the 1987 and 1988 floods and the 1991 cyclone and by a limited programme of field visit. The results of these reviews are discussed in detail in **Volume II** and in particular they :-

- highlight the hazards, vulnerability and risk factors
- suggest some basic propositions regarding disaster management
- detail the organisational structures developed to deal with cyclone 1991
- summarise the disaster management tasks that have to be performed and highlight the need for inter-agency cooperation.

On the basis of the findings, proposals for the creation of an expanded Disaster Management set up were made. These were widely discussed and there was a broad consensus for the basic structure proposed (See **Figure 5.9**) The set-up built upon previous experience and

Figure 5.8

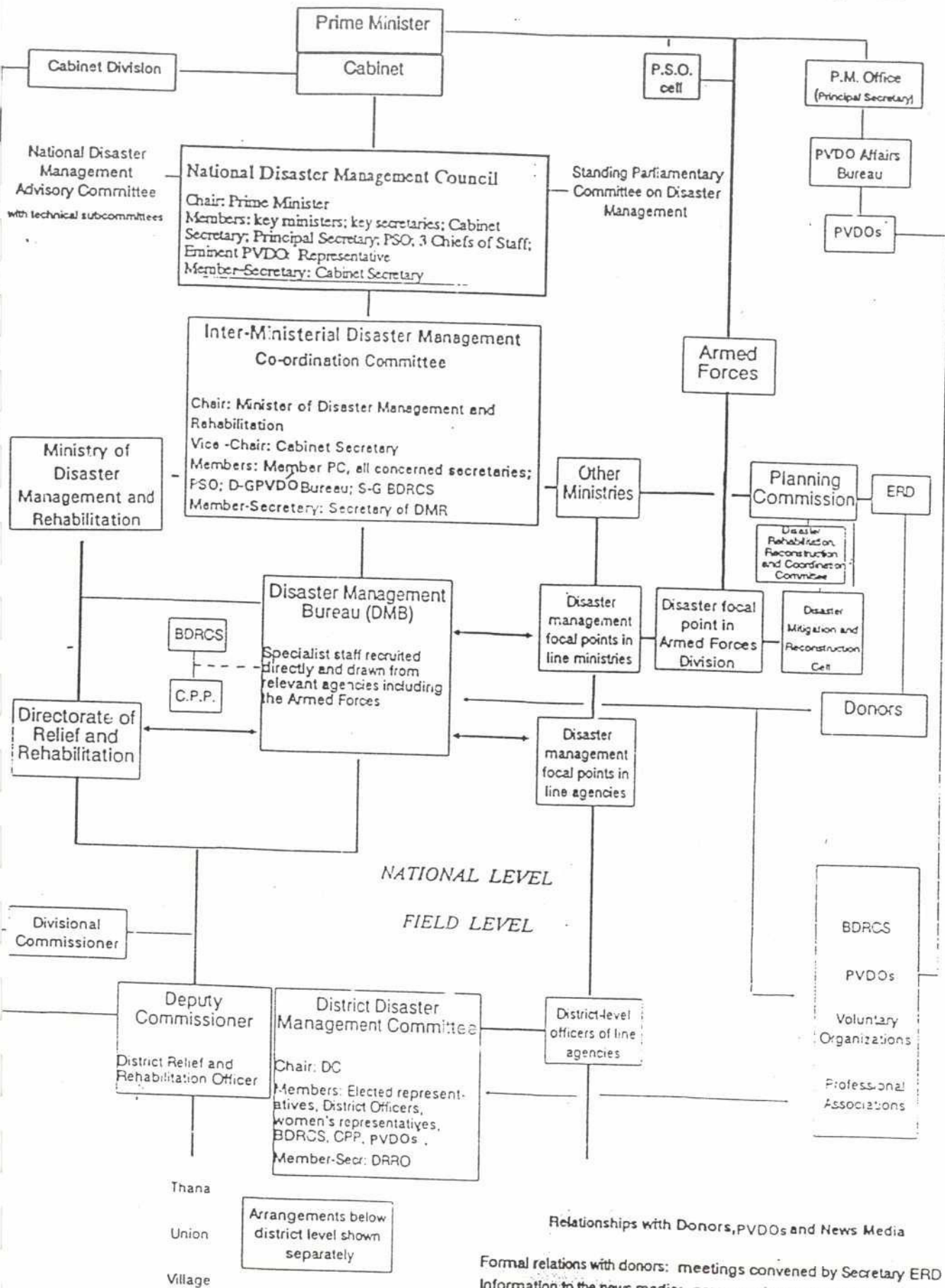
Flood Forecast and Warning Dissemination System



Source: BWDB/FWC

Figure 5.9

Institutional Arrangement for Disaster Management



organisational arrangements, and includes :-

- a policy making body National Disaster Management Council (NDMC) chaired by the Prime Minister, created on 13 October 1993, overseeing the redesignated MoR as Ministry of Disaster Management and Relief (MDMR), which took place in February 1994.
- a Secretary level executive committee, the Inter-Ministerial Disaster Management Coordination Committee (IMDMCC), chaired by the Minister of 'DMR', which was created in July 1993, directing and being serviced by a Disaster Management Bureau (DMB), placed administratively under MDMR.

The Terms of Reference for the DMB are given on 'Table 5.11 and include:

- the holding and computerized data and information systems to support the planning and management of disaster-related activities;
- access to reliable telecommunication to all parts of the country;
- preparation and dissemination of up-dated and improved emergency operating procedures for all government departments and local-level authorities, and actively promote preparedness at all levels;
- the arranging of training for government staff and others concerned, and promotion of broad-based public awareness, education and motivation in the disaster-prone areas;
- at times of disaster acting as the Emergency Operation Centre and assisting the Government in all aspects of decision making in relation to rescue, relief and rehabilitation operations.

The composition of the DMB, is shown in **Figure 5.10**. DMB is manned by national officers who will have to be trained and assisted initially by Technical Assistance personnel,

5.3 Disaster Management Training

a) Assessment of Needs

In order to assess the needs for disaster management training, a large number of concerned people and institutions were visited and literature reviewed. Various discussion sessions were organised to which GOB officers, both civil and military, professionals trainers, NGO and donor representatives and concerned professionals were invited. Many of the people consulted, and a number of the reports reviewed, emphasized the need for training of personnel at all levels. However, precisely what training was needed by whom, who should give it, and who should pay for it were not generally defined.

TABLE 5.11

Duties of DMB

During 'normal time':

- developing a National Disaster Plan, and associated practical guidelines for those responsible for its implementation;
- helping line ministries and agencies to develop and test their own contingency plans;
- helping district- and thana-level authorities to develop and test their own disaster action plans;
- working with local authorities, BDRCS/CPP, PVDOs and others to help union councils and village communities in high-risk areas to develop their own action plans and increase their own coping capacity;
- collaborating with existing training institutes, training materials development units, and PVDOs already engaged in relevant training activities, to co-ordinate and promote the production of curricula and relevant training materials for various target groups;
- collaborating with line agencies, local authorities, existing training institutes, and relevant PVDOs, in planning and organizing training for a wide variety of government personnel, elected officials and others;
- establishing facilities, information systems, operating procedures, and telecommunications systems, for a national emergency operations centre (EOC/control room), for immediate use when an emergency arises;
- establishing arrangements for the mobilization of additional personnel for the EOC and to assist local authorities in the field, when required;
- maintaining an up to date inventory of the location, condition and ownership of all potentially live saving infrastructure including cyclone shelters, killas, embankments, flood platforms and the like;
- providing a documentation and information service on disaster management for line agencies and others;
- working with the Planning Commission and concerned line agencies to increase awareness of disaster risks and ensure that such risks, and possibilities to reduce them, are considered and appropriate measures incorporated in development planning;
- monitoring and reporting to the Government/Parliament on the risks faced; the vulnerability of people and economic assets to known hazards; the status of preparedness in the country; and any delays/bottlenecks in the implementation of disaster prevention/preparedness programmes and projects.

During an 'emergency':

- ensuring the effective dissemination of appropriate warnings, of floods and cyclones, through collaboration with BMD, BWDB, CPP, Radio, TV, and local authorities in particular;
- activating and operating the national Emergency Operations Centre (EOC, equivalent to a control room); receiving and analysing information and making specific recommendations for action; arranging rapid reconnaissance and assessment missions, where needed; providing advice and guidance to local authorities in relation to damage and needs assessment, and relief and rehabilitation assistance operations; etc.
- providing secretariat services and expert advice to the IMDMCC, and helping to ensure co-ordination between line agencies and between Government and PVDOs in relation to relief and short-term rehabilitation activities;
- monitoring the progress of rescue, relief and short-term rehabilitation activities, identifying problems and unmet needs, and taking action to resolve/meet them or bring them to the attention of the IMDMCC for resolution;
- providing information to and liaising with ERD concerning requirements for international assistance and with MoInfo.

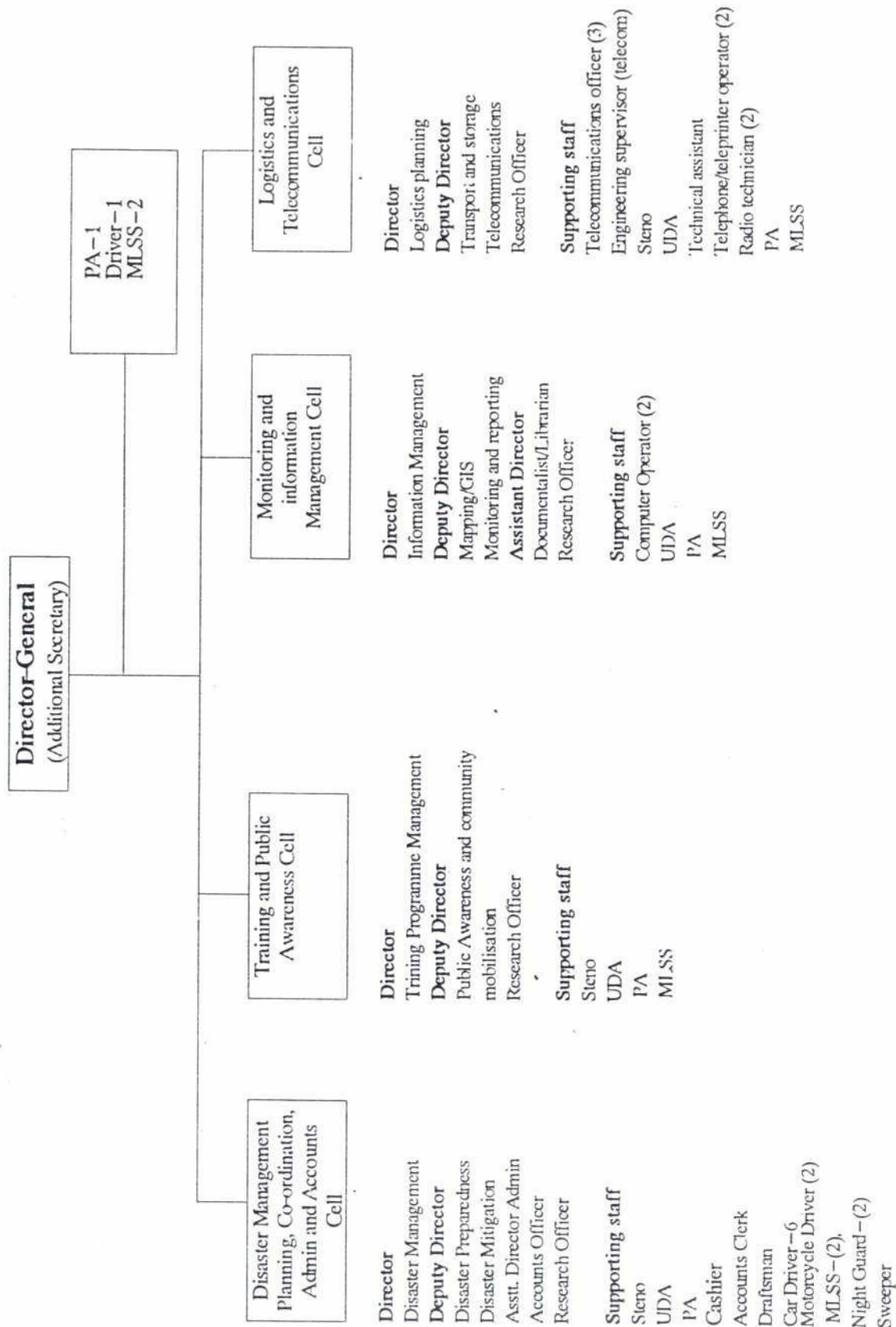
During post-disaster 'recovery':

- co-operating with the Planning Commission and line agencies, as required, in compiling data on reconstruction requirements and in co-ordinating the preparation of an integrated reconstruction programme;
- ensuring that risk reduction measures are built into all reconstruction programmes as much as possible;
- undertaking a final evaluation, or at least a "post mortem", on the emergency operation, drawing lessons and feeding them back to the IMDMCC and into training activities and up-dated guidelines.



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Figure 5.10
Core Structure for the Disaster Management Bureau
 (Operational structure during normal times)



A significant number of people have received disaster management training abroad in recent years through attendance on courses at:

- Asian Disaster Preparedness Centre (ADPC), Bangkok, Thailand
- Cranfield Disaster Preparedness Centre (CDPC), RMCS, Shrivenham, England
- National Research Centre for Disaster Prevention, Tokyo, Japan
- Administrative Staff College, Hyderabad, India
- Australian Counter-Disaster College, Melbourne, Australia

Personnel from the armed forces, the civil administration, line ministries and some academic/training institutions, as well as NGOs, have attended these courses. It is possible that people have also received training at other centres, such as Oxford Polytechnic (UK) and University of Wisconsin (USA).

In addition, increasing numbers of disaster management courses are being offered in Bangladesh. These are mostly short courses for the personnel of individual agencies, but some with a wider intake have been included. Several independent bodies have established themselves in Dhaka within the last year or two and have offered specific training in disaster management. These include:-

- South Asia Disaster Management Centre (SADMC), IUBAT, Green Road, Dhaka;
- Bangladesh Disaster Preparedness Centre (BDPC), Mohammedpur, Dhaka,
- Disaster Resource Unit, Bangladesh Development Partnership Centre (DRU/BDPC), Dhanmondi, Dhaka.

The Bangladesh Public Administration Training College (BPATC), Savar has established a Disaster Management Training Cell and is now developing appropriate materials for inclusion in its junior, mid-level and senior staff courses. The 17th Senior Officers Course is due to visit the DCMU/DMB on 25 February 1993.

A number of other institutions, such as the Institute of Business Administration (INBAT), University of Dhaka might also be interested in arranging courses. ADPC has also indicated a willingness to provide technical assistance to training activities organized by in-country institutions, in addition to the training courses provided in Bangkok.

The NGO community has taken a number of initiatives, most notably those by ADAB/PACT-PRIP/COMMUNICA/IVS, which have included workshops on 'disasters and development'. This was based on the internationally-renowned material prepared by the International Relief/Development Project, Harvard University. They have also prepared training materials and a 6-day course on disaster preparedness and a complementary themes manual has been published. Current training materials include a book/teaching aid for use at village level in flood-prone areas.

CARE envisages arranging in-depth training for its own staff, and offering training to other, small indigenous NGOs. The International Institute for Environment and Disaster Management (IIEDM) is also proposing to develop a disaster handbook, but to date has not proposed any specific training courses.

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DRU/BDPC has developed a number of courses, and these have been imparted at various locations throughout the country.

The BDRCS/CPD has provided specific training for its staff and volunteers on a regular basis over the last twenty years. The training is necessarily focused on the specific tasks related to the functioning of the cyclone warning and preparedness system, but has some additional elements. The BDRCS is now assured of substantial funding from the international Red Cross movement, through the IFRCS, to revitalize its training programme and to train a large number of additional volunteers. Italian Cooperation and WHO are collaborating in the training of volunteers in Banskali.

BDPC, with support from UNICEF, has commenced a community awareness programme in the coastal area of Hatiya. There are believed to be other, similar NGO-supported activities in particular areas. The World Food Programme (WFP) has been promoting such training in conjunction with LGED and other bodies. The Academy for Rural Development (ARD), Comilla, and the Local Government Training Institute, could also be involved.

A National Disaster Management Competition was organised and attracted some 230 entrants. The participants had to provide ten slogans for both cyclone and flood to raise awareness in the disaster prone areas. A committee, organised by MoR, selected the winners who came from all over the country and prizes were awarded during a disaster management seminar held in Dhaka on 29 April by the Honourable President of Bangladesh.

b) Disaster Management Training Strategy (DMTS)

On the basis of the investigations outlined above, a DMTS was evolved (See **Volume V** of this Final Report). This provides a framework within which further detailed development should take place. The strategy addresses :-

- the basic concepts of disaster management training
- the principles for disaster management training in Bangladesh
- the training audience and focus
- aspects of community mobilization programmes
- aspects of disaster management training activities
- methods, materials, resource people for training activities
- training process and relationships

There was broad consensus that training was an essential prerequisite to the development of a viable disaster management policy and its implementation, and that training should be provided for a wide range of people at all administrative levels and in many professions. There is, however, less understanding of what the training should consist of and, depending on the perspectives of the people involved, opinions differ as to what may actually be feasible.

Much of what is loosely termed training, may be better addressed through well-organised programmes of advocacy/sensitization or community mobilization directed at different levels of society. 'Training' is deemed to embrace advocacy/sensitization and community mobilization, as well as formal disaster management training, where:

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Advocacy/Sensitization is the process of informing political leaders, senior officials and other influential people of the importance of a comprehensive approach to disaster management in order to obtain their commitment and support.

Community Mobilization is the process of informing people of the actions (preparedness and proofing) which they can and should take to protect themselves, their property and their communities against hazards, and to encourage and help them to organise and take appropriate initiatives.

Disaster Management Training aims to strengthen the capacities of managers and leaders to fulfill their respective functions. To a significant degree, it involves improving basic management and inter-personal skills.

The proposed outputs of the follow on project BGD/92/002 'Support to Disaster Management' indicate that training will be the critical component of the project. The success of a viable national disaster management training program will be determined by the seriousness with which training, and the essential policy formulation on which it must be based, is pursued. A sustained commitment will be required from concerned people, all of whom must be aware, interested, and involved in the process, from senior policy makers down to the individual villagers who are the victims of the disasters which so frequently strike Bangladesh. Political commitment will be essential to the success of the programme. Without it the whole process will lack authority, focus and, eventually, relevance.

The specific elements of a national disaster management training program (syllabi and topics for each audience, identification of individual participants and teachers, appropriate training methods etc) must necessarily grow out of the training process itself. Bangladeshi know-how will be the essential ingredient. The proposals given in **Volume V** are only the first step in a process intended to ensure that action can begin. A disaster management training needs assessment, commissioned by the proposed Task Force on Disaster Management Training and Awareness (TFDMTA) and DMB is the essential next step and frequent reviews should be conducted during the lifetime of the programme to ensure that it remains appropriate and effective.

A **training matrix** was devised (See **Annex V**) and this provides a wide range of training and programme support activities at all levels of society national, district, thana, union and local community. Some activities are designed to improve individual skills; some to develop team skills. Emphasis is placed on the development of Action Plans at the district level and below. Emphasis should also be given to the relationship between disasters and development and the ways in which response operations can help to rebuild society throughout the whole programme.

Successful implementation of the programme will call for the mobilisation of all possible training resources and existing training institutions and NGOs must be brought into the programme. They must first learn more about each other in order for them to work together harmoniously.

5.6 Objective 3 : Preparation of a Comprehensive Disaster Management Programme within the context of the Flood Action Plan

5.6.1 Background

Following the floods of 1987 and 1988, GOB requested donor assistance in developing a strategy to combat the effects of similar events in the future. The Flood Policy Study funded by UNDP, resulted in the development of a Flood Action Plan (FAP). FAP comprises interrelated activities under 26 projects. The projects, which were listed on Table 2.6 are of five types :

- **regional studies** : which review resources and existing agricultural production, evaluate constraints and prepare proposals for increased production; priority projects are identified and, in certain cases, feasibility studies undertaken
- **detailed design studies for specific projects** : follow on activities from projects that were ongoing before FAP was formulated
- **pilot studies** : action research, albeit at a macro level, to test various modes of development
- **supporting activities** : surveys, investigations and studies aimed at enhancing present knowledge. While this work was seen as the base on which the regional planning exercises should be built, procurement delays have resulted in many of the regional studies being substantially completed before the supporting studies.
- two projects directly addressing **disaster management aspects** :

FAP:10 Improving Flood Forecasting and Warning Systems

FAP:11 Comprehensive Disaster Preparedness

A UNDP supported project (BGD/88/013), which commenced in 1988 and was completed 30 November 1992, addressed improvements in flood forecasting. Output from this project include Terms of Reference for the follow on FAP:10 project. FAP:10 is to be funded by Denmark.

UNDP indicated to GOB that they would be prepared to consider supporting more comprehensive disaster management activities, and four draft/outline documents for 'FAP:11' were prepared by Cuny (1988) Curtin (1989) Oakley (1990) and FPCO (1991).

In the aftermath of the cyclone of 1991, GOB requested urgent assistance from UNDP in helping to strengthen government's disaster management capability and this resulted in the present project (BGD/91/021). One important output was to prepare a final 'FAP:11' project document that was acceptable to all parties and which would form the basis for future donor support to GOB disaster management activities.

5.6.2 Project Activities

Following a review of the various draft documents, discussion with concerned agencies and

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at various specially convened meetings and workshops and consideration by the Project team, the elements of a Comprehensive Disaster Management Programme (CDMP) were evolved (Table 5.12). It was apparent that many activities were on going but they were not seen a part of a CDMP. A major gap identified was the lack of focus on non-structural (non engineering) ways of reducing risk and preparedness aspects in general.

Hence, the proposed follow on project termed 'Support to Disaster Management' focuses on the non structural ways of reducing risks, and on enhancing preparedness including warning systems and arrangements to ensure timely and effective precautionary measures, rescue, relief, and rehabilitation, when required. It seeks to enhance public awareness and local-level capabilities, while also strengthening the institutions, including the DMB, that GOB proposes to establish on the basis of the proposals made under **Objective 2** above. Table 5.13 summaries the outputs of the proposed follow on project.

There was discussion concerning whether the follow-on project should remain within the umbrella of FAP, as FAP:11 as originally envisaged or be a separate, but complementary activity, by the MoR. GOB decided in favour of it being on MoR project, the full cooperation of MoIWDFC and its agencies including, FPCO, BWDB, FFWC and SWMC must be assured through the IMDMCC.

UNDP is moving towards a beneficiary executed programme approach to development under which all related activities within a sector are considered before devising a particular 'programme intervention' (PI). Given that GOB is moving in the direction of a CDMP, it was considered appropriate for the follow-on 'project' to be prepared as a PI with a Programme Support Document (PSD) rather than a 'project' with a 'project document'.

The first draft PSD was issued on 24 November 1992. This was much revised following comments of all concerned parties and the latest version was dated 9 February 1994. In giving its approval at a meeting on 24 January 1994, UNDP HQ decided that the Intervention should be termed a Project and the signed-off version will be a Project Document.

A logical framework matrix was prepared for the follow-on project and this given in Annex E.

5.7 Objective 4 : Concept Plan for Integrated Coastal Protection

The Concept Plan for Integrated Coastal Protection was formally presented to the Professional Panel, FPCO and other interested agencies on 4 October 1992. It is contained in **Volume VI** of this Final Report.

The Plan has the following policy objectives:

- prevention of loss of life
- prevention of damage to valuable infrastructure
- economic protection and management of productive land areas
- preservation of mangroves and other environmental resources

TABLE 5.12

Elements of an overall Disaster Management Project

Description	Type of activities	Typical Interventions	Agencies Concerned
*Risk analysis	Hazard mapping Vulnerability Analysis	- Assessment of physical/economic/functional vulnerabilities - Distress/deprivation factors - Nutritional surveillance	Local Admin LGED, other line agencies Various Ministries, WFP, UNDP, PVDOs MoH, PVDOs
Preventive/mitigation hazard reduction measures	Planning and construction of embankments and related water control structures	- FAPs: 2, 3, 4, 5A, 6 - FAPs: 1, 3.1, 7 (CPP-II) 8A, 8B, 9A, 9B, 20, 21, 22	BWDB (FPCO)
Proofing Vulnerability reduction	Planning and construction of cyclone proof buildings	- BDRCS, CARITAS and other NGOs - BGD/91/025 Multi Purpose Cyclone Shelter Programme - EEC Schools cum Shelters	Local Admin. LGED, PWD MoE
	Land use planning	- None in BGD yet (?)	Local Admin
	Development of Building Codes	- Bangladesh Building Code	BRI
	*Local proofing measures	- FAP:23 - Houses on raised plinths - Small embankments - Two storey construction.	Local Admin, PVDOs, LGED (BWDB)
Preparedness	*Forecasting/warning dissemination	- BGD/88/013 Support to Flood Forecasting and Warning Unit - FAPs: 10, 25 - JICA Support to BMD - MDMR/BDRCS : CTP Programme - WMO Tropical Cyclone Programme	BWDB, BMD, SWMC, BDRCS
	*Contingency planning for response	- Standing Orders, Standard Operating Procedures - Awareness creation and community mobilisation - Formation of action committees - Training and drills - Storage and transport arrangements - Stockpiling and standing arrangements with suppliers	MoR/MDMR All agencies. Local Admin. Armed Forces PVDOs
Relief	Rescue and basic needs	- Mobilisation and operation of transport including helicopters, boats, equipment - Provision and supply of medicines medical care, shelter and public health measures.	MoR/MDMR Armed Forces MoH, DPHE
	*Damage and needs assessment	- Short term needs and assistance requirement - Long term rehabilitation/reconstruction needs and plans.	Local Admin, MDMR, PVDO All agencies
	Procurement and distribution of relief	- Supply of food and materials	MoR/MDMR, MoF, PVDOs
Reconstruction	Reconstruction/rehabilitation	- Reconstruction/rehabilitation of infrastructure including re-design where necessary	PC, All agencies concerned

Note: The present Project Intervention would be most concerned with activities marked *.*.

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TABLE 5.13

**Objectives and outputs of Proposed Follow on Project Support
to Disaster Management (BGD/92/002)**

Overall goal of the Government, and of the eventual Disaster Management Project, is to reduce the human, economic and environmental costs of disasters in Bangladesh.

Development objective of the present Project Intervention is to enhance national capacity to plan and prepare for disasters and to cope with their consequences. This has three main elements:

- (i) to increase the capacities of households and local communities in the highly disaster-prone areas to cope with cyclones, floods, and other potentially disastrous situations;
- (ii) to increase the efficiency and the effectiveness of response to emergencies, and to expedite recovery following disasters, through enhanced preparedness at all administrative levels based on collaboration between government officials and agencies, PVDOs, and other concerned bodies, in all relevant activities (including warning systems, precautionary measures, rescue, relief and rehabilitation operations); and
- (iii) to ensure that measures are taken to reduce disaster risks as much as possible, and that such risks are properly considered in general development planning.

Immediate objectives are to:

1. Increase awareness at all levels of society concerning the practical ways of reducing disaster risks and losses.
2. Strengthen national institutional capacity for disaster management with emphasis on preparedness and support to disaster management committees at district, thana and union levels.
3. Enhance the knowledge and skills of key personnel having disaster management responsibilities, develop in-country disaster management training capabilities, and provide relevant operational guidelines in the form of a disaster management handbook.
4. Establish disaster action plans in the most disaster prone districts and thanas, and mobilize local communities in the most disaster prone areas to prepare and protect themselves, and to increase their own capacities to cope with and recover from disasters.
5. Promote proven local-level risk reduction ("proofing") measures and develop post-disaster assistance strategies to maximize recovery benefits.
6. Improve the effectiveness of warnings and warning dissemination systems, and the guidelines for facilities at shelters and evacuation sites for populations in high-risk areas.

Immediate Objective 1: Increase awareness at all levels of society concerning the practical ways of reducing disaster risks and losses.

- Output 1.1:** Increased awareness and understanding among the general public of the measures that can be taken at household and community levels to reduce disaster risks and losses.
- Output 1.2:** Increased understanding of the status and possibilities for disaster preparedness and proofing in Bangladesh among Members of Parliament, senior officials, and other influential groups.
- Output 1.3:** Basic information concerning disaster risks, preparedness arrangements, and proofing possibilities, included in school curricula and teacher training.

Immediate Objective 2: Strengthen national institutional capacity for disaster management with emphasis on preparedness and support to disaster management committees at district, thana and union levels.

- Output 2.1:** DMB serving as an effective national co-ordination unit for disaster management -- promoting prevention/mitigation and preparedness measures at all levels, and serving as a national Emergency Operations Centre (EOC) during emergencies -- with necessary expertise (trained staff), facilities, documentation, information and communication systems.
- Output 2.2:** A national policy statement and overall strategy for disaster management proposed to the Government for approval. Recommendations for other elements of a disaster management project required to complement the activities of the present project.
- Output 2.3:** A National Disaster Plan approved and published, incorporating, amongst other things, refined Standing Orders (definitions of responsibilities, co-ordinating mechanisms, lines of communication), and arrangements for necessary logistic support services.
- Output 2.4:** Up-dated and up-graded internal contingency (disaster action) plans in key line agencies and other relevant bodies.

(Continued)

TABLE 5.13 - Continued

- Output 2.5: A core group of individuals experienced in managing emergency and post-disaster operations on call at short-notice.
- Output 2.6: Improved arrangements to ensure the rapid availability, following disasters, of supplies necessary to ensure survival and meet basic needs, and to expedite recovery.
- Output 2.7: Improved telecommunications for disaster-related purposes. This includes: adequate telecommunications within the DMB; standing arrangements for collaboration during emergencies between organisations operating telecommunication systems; and improved access to telecommunications by operational assistance agencies.

Immediate Objective 3: Enhance the knowledge and skills of key personnel having disaster management responsibilities, develop in-country disaster management training capabilities, and provide relevant operational guidelines in the form of a Disaster Management Handbook.

- Output 3.1: Senior staff of the DMB and key personnel in selected training institutes and other organizations trained in disaster management, and exposed to experiences and arrangements in some other countries in the region.
- Output 3.2: A range of education and training resources (trainers and materials) available, and the materials widely distributed, to promote and support disaster management training for various target audiences and at different levels.
- Output 3.3: Increased capacity of in-country organizations providing disaster management training.
- Output 3.4: All DCs, ADCs and DRROs, and TNOs and PIOs from the selected (most disaster prone) thanas, trained in basic disaster management and their specific responsibilities.
- Output 3.5: Disaster management modules introduced into the basic and refresher training of a wide range of government personnel (including RCS officers, police, field staff of line agencies, etc) and others, including religious leaders.
- Output 3.6: A Disaster Management Handbook (for government personnel and others) covering, in the first instance, general aspects of disaster preparedness, proofing, and response, and specific aspects relating to cyclones and floods.

Immediate Objective 4: Establish disaster action plans in the most disaster prone districts and thanas. and mobilize local communities in the most disaster prone areas to prepare and protect themselves, and to increase their own capacities to cope with and recover from disasters.

- Output 4.1: Model disaster action plans for use at district, thana and union levels, and guidelines on preparing such plans including hazard mapping and vulnerability analyses.
- Output 4.2: Disaster action plans, including hazard maps and disaster profiles, prepared by the Disaster Management Committees in the selected (most disaster prone) districts and thanas, and in unions within those thanas.
- Output 4.3: Enhanced public awareness in the selected, most disaster-prone thanas, of actions that can be taken at household and community levels to reduce losses due to the the particular hazards they face, and to cope with and recover from disasters that do occur.

Immediate Objective 5: Promote proven local-level risk reduction ("proofing") measures and develop post-disaster assistance strategies to maximize recovery benefits.

- Output 5.1: Tried and tested, low-cost techniques for 'proofing' (risk reduction) measures to reduce damage and losses at household and community level in rural and urban areas.
- Output 5.2: Recommendations concerning the viability of insurance against flood and cyclone damage for particular population groups, and/or mutual savings schemes.
- Output 5.3: Recommendations for improved strategies for assistance to disaster-affected populations to promote rapid and sustainable recovery, and the ways in which these assistance strategies could be tested and progressively introduced.

Immediate Objective 6: Improve the effectiveness of warnings and warning dissemination systems, and the guidelines for facilities at shelters and evacuation sites for populations in high-risk areas.

- Output 6.1: Improved cyclone warnings providing more specific information to threatened populations.
- Output 6.2: Improved local-level flood warning dissemination systems.
- Output 6.3: Improved guidelines for facilities at shelters and other safe (evacuation) sites in the high-risk cyclone and flood-prone areas, and their management.

The elements of the Concept Plan may be summarised as :

- sea facing and similar embankments plus afforestation
- multipurpose shelters and 'killas'
- cluster villages and house strengthening, water supply and electricity
- transport systems (roads, helipads, drop zones, landing strips, waterways and landings/jetties)
- health facilities
- storage facilities
- cyclone forecasting, warnings and dissemination
- land use planning and land registration
- internal drainage and water management

The effective integration and prioritisation of these activities which are in many different sectors, calls for coordinated interministerial policies and decision-making. For this to be achieved, direction will be needed at the highest level, and it is suggested that a Coastal Area Development Committee be established within the Planning Commission to assure overall responsibility.

The Multi Purpose Cyclone Shelter Programme study (BUET, 1992), issued in draft in mid 1992 is a master plan for shelter development in the coastal areas and was the subject of a National Seminar on 30/31 January 1993. During the seminar, many speakers referred to the need for coordinated development of the coastal areas and not just for shelters.

Key points that emerged from the preparation of the Concept Plan were :-

- i) the large number of agencies that had, or were planning, development activities in the coastal Area;
- ii) using estimates prepared by the agencies themselves, investments of \$912 M during the period up to 2000 were identified;
- iii) given such a large investment, there was a need to prioritise the development projects according to well defined and agreed criteria;
- iv) various aspects of ongoing and planned development activities should be reviewed, including:-
 - funds allocated under the ongoing IDA funded Shrimp Cultivation project which will be insufficient to complete the works.
 - IWTA appear to have no plan to rehabilitate their damaged terminal facilities or to extend their systems.
 - Groundwater resources in the coastal area have not been systematically inventoried.
 - There are few 'VGD' stores at Union level in the high risk coastal belt (only in two thanas).

- The coverage of basic support infrastructure (e.g. medical centres) is very uneven.
 - Road development is uneven and needs accelerated implementation to ensure that key facilities are connected. More jetties are required in the coastal areas and offshore islands.
 - There are no reliable records of surge heights; special tide gauges are required.
 - There was an urgent need for an 'agency' to take over the Concept Plan and develop it.
- v) the need for further in depth multi-disciplinary studies, perhaps by expanding the ToR of the proposed FAP: 5B and 5C studies, to prepare a Comprehensive Coastal Area Development Plan.

5.8 Special Studies

5.8.1 Introduction

During the course of the project, a number of special studies related directly to disaster but which were not specifically mentioned in the Terms of Reference were carried out. These concerned the following topics:

- Social and Gender Issues;
- Telecommunications
- Public Sector Accounting
- Forestry
- Hazard Mapping

The major findings of these studies are highlighted in this section.

5.8.2 Social and Gender Issues

An extensive literature review was undertaken in the early months of the project and this was supplemented by a limited programme of field trips to disaster prone areas.

The field visits confirmed the findings of others that women, children, the elderly and infirm become victims of natural disasters in greater numbers as they are the most vulnerable. This was evident from the 1991 cyclone records which reveal that disproportionately more women, children and the elderly died, a finding similar to that for the 1970 cyclone. On one island, south of Mognama, a survivor claimed that no women had survived. Information from news media indicated that 85 per cent of the deaths were of women and children.

Bangladesh is one of the least developed countries of the world. The country's resources are limited and poverty is pervasive. Against the backdrop of repeated disasters, like cyclones, storm surges, floods and riverbank erosion, not only is poverty increased, but the hardship and misery of poor are intensified. The fruits of development are removed both by the disasters and the consequent unproductive expenditure required for the response. The

Government is forced to divert its limited resources, earmarked for overall development activities, to provide relief, rehabilitation and reconstruction of infrastructure. These activities have a significant negative impact on the country's economic growth and development.

The country is criss-crossed by three large rivers and their tributaries. As a result of the alluvial process, hundreds of 'chars' (sand banks) emerge. The south eastern estuary, covering the area from the coastal thanas of Barguna district in the west and Chittagong/Cox's Bazar in the east is a death trap in the context of cyclone surges. The coastal region, is the home for 15 million people who depend on the land for their livelihood. The poor and destitute are often forced into these most vulnerable parts of the delta where the land is close to the sea and where the emerging 'chars' have not stabilized. With increasing landlessness and the general increase in population, people are forced to settle on the unprotected chars and islands. As a consequence, destitute and landless people often become illegal settlers on these chars as they have no other options.

The loss of lives in 1991 was fortunately less than the half a million lost during the cyclone of 1970, largely because of the topography of the affected area. On the other hand, the response of people to warnings to evacuate their homes, and move their livestock and other valuables to cyclone shelters and secure places was of indifference and disbelief. It is estimated less than 20 percent of the inhabitants moved to safe places.

Poverty is another factor responsible for a high death rate, poor people could not be convinced to go to shelters leaving their cattle and other belongings. The Multipurpose Cyclone Shelter Programme study found, particularly in Sandwip, that only five percent of women respondents had taken the necessary actions after hearing the warning. The study observed that loss of human life is limited to the landless and marginal landholding households as their dwelling units are 'kutcha' (non permanent).

It is to address the above issues that the public awareness and community mobilisation campaigns mentioned under **Objective 2** above have been proposed.

5.8.3 Telecommunications

A vital element in any disaster preparedness and response system is communications. Studies were carried out to:

- inventory the existing telecommunication systems within the country
- review their performance during recent disasters, with special reference to cyclone 1991
- make proposals for necessary upgrading
- consider the necessity for changes in legislation

Following the visit of a US Military Disaster Preparedness Team and the establishment of contacts with the armed Forces, a review of the Army, Navy, Air Force and Bangladesh Rifles telecommunications systems was also carried out. The telecommunication proposals given in the draft final report of the Multi Purpose Cyclone Shelter programme (BUET, 1992) were also reviewed.

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The full results of the study are included in **Volume VI** of the Final Report and these include:

- recommendations to upgrade the general T&T systems in the disaster prone areas;
- proposals for upgrading the MoR communications systems, utilising funds allocated under the project;
- the recommendation to focus on the extensive Police network for any major upgrading to cope with emergency needs; and
- the need for special Emergency Regulations to allow all bona-fide relief agencies to operate telecommunication equipments using pre-designated frequencies at the time of a natural disaster.

5.8.4 Public Sector Accounting

A short study of Public Sector Accounting issues focused upon:

- pledges and actual receipt of foreign assistance following the cyclone of 1991;
- the use to which the assistance was put;
- the relationship between the normal budgetary processes and emergency expenditures following a disaster; and
- what might be done improve the situation.

The investigations revealed that significantly more special assistance was received by Bangladesh by November 1992 than UNDP recorded as being pledged at the end of July 1992. The difficulty that some donors had in clearing relief related material through customs was highlighted as were the apparently unreconcilable records of NGO receipts and expenditures on relief related activities.

5.8.5 Forestry

Forestry studies reviewed the available damage assessments relating to the cyclone of 1991. The best estimate made by the MoEF was that the damage amounted to:

	(Tk Lac)
- Department of forests plantations	9 758
- Forest Industries Development Corporation	2 042
- Homestead forestry	23 559
- Private rubber plantations	384

	35 742 (US\$ 98 M)

Previous proposals for improving coastal afforestation were reviewed and the study made the following observations and recommendations:

- Coastal plantations play an important role in minimizing the damage caused by cyclones and storm surges. A 'green belt' should be established in the coastal areas to save life and property.
- DoF should continue its afforestation work in coastal forelands and accreted areas;
- Clearing mangrove forests and coastal plantations for shrimp culture should be stopped. The Chokoria Sundarbans should be restored to its original mangrove status. MoEF and MoFL should develop sustainable shrimp farming methods;
- DoF should hand over accreted stavle lands to MoL provided such lands are not acting as shelter belts. A shelter belt of considerable width (200 m to 700 m) should be maintained on coastal forelands to protect embankments and the coast in general;
- All sea facing and similarly exposed embankments should be afforested as soon as possible. Mid- and long-term plans should be prepared to raise plantations on embankments facing large rivers and channels in the coastal area.
- All new construction and rehabilitation of coastal embankment should incorporate afforestation as an integral part. Local people, local government bodies and NGOs should be involved in raising, maintaining and protecting these plantations with advice from DoF.
- Coconut and date palms should be planted extensively in coastal areas. Coconut should only be planted where protection during its early establishment phase is assured. Coastal accretions should be planted with mangrove species e.g., Keora, Kakra, Gewa and Baen. Babla, Casuarina, Akashmani and other trees species should be planted on embankments. Raintree and fruit trees should be planted at homesteads together with Korai, Simul and other species. To prevent uprooting, all trees in the shelter belt should be pruned at regular intervals so that they do not become a top heavy.
- Rotations should not be fixed for mangrove species. Natural death and replacement by other species indicates maturity and stability of soils. However, Keora plantations on embankments should be felled under shelter wood system and replanted.
- Private nurseries should be encouraged in coastal areas to meet local demand. The Forest and Agricultural Extension services should be strengthened to train local people in nursery raising. NGOs should lead in organising local people in nursery raising.
- Trees should be planted around all cyclone shelters, killas and religious and academic institutions in the coastal areas. The management of each 'shelter' and 'killa' should be responsible for raising, maintaining and protecting green belts with technical inputs provided by local forest and agricultural officers. School children should be 'tree manatoid' through training in nursery and plantation raising around their respective institutions.

5.8.6 Natural Resources and Environment including Hazard Mapping

The detailed terms of reference included the preparation of hazard maps at a scale

1/1,000,000. This work has been substantially completed and the preparation of maps is in hand. In order to identify particularly high risk areas a Hazard Index was devised on the basis of an areas' history of disasters with the following scaling system :-

		Points
Cyclone:	High risk areas as shown in MPCSP	5
	map 'Risk' areas as shown in MPCSP map	3
	'Wind risk' areas not shown in MPCSP map	1
Flood:	Severely flooded areas, due to major river floods	3
	Flash flood areas and medium major river flood areas	2
	Other floods	1
Erosion:	Severe erosion	2
	Erosion	1
Drought:	'Very severe' drought prone areas (as shown in BARC map)	2
	'Severe' drought prone areas (as shown in BARC map)	1

This exercise was taken further by developing a Vulnerability Index based on population density. The product of the Hazard and Vulnerability indices gives a Risk Index. Risk Indices for each District in the country are given in **Table 5.14**.

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TABLE 5.14
Hazard and Risk Indices by District

Geocode	District	Hazard Index	Rank	Population Density(1)	Risk(2) Index
113	Chandpur	3.7	(7)	1,388	15.3
259	Munshiganj	3.2	(18)	1,428	13.6
119	Comilla	2.6	(24)	1,504	11.9
268	Narsingdi	2.2	(33)	1,670	11.8
256	Manikganj	3.9	(5)	1,002	11.6
488	Sirajganj	3.6	(10)	990	11.2
267	Narayanganj	1.8	(43)	2,142	10.8
286	Shariatpur	3.6	(8)	931	10.3
306	Barisal	3.4	(13)	1,026	10.2
239	Jamalpur	3.2	(19)	1,037	10.1
151	Laksmipur	3.6	(9)	999	9.6
379	Pirojpur	3.0	(21)	983	9.1
236	Gopalganj	3.3	(14)	861	8.9
130	Feni	2.5	(25)	1,296	8.5
115	Chittagong	3.3	(15)	929	8.5
309	Bhola	5.5	(1)	488	8.4
449	Kurigram	3.5	(12)	757	8.0
254	Madaripur	2.4	(28)	1,082	7.8
350	Kushtia	2.3	(31)	990	7.6
122	Cox's bazar	3.9	(6)	577	7.6
304	Barguna	4.9	(2)	528	7.5
476	Pabna	2.7	(23)	880	7.1
342	Jhalakati	2.2	(32)	1,005	6.9
112	Brahmanbaria	1.9	(41)	1,164	6.8
293	Tangail	2.0	(38)	929	6.6
432	Gaibandha	2.5	(26)	943	6.6
470	Chapai Nawabganj	3.3	(16)	690	6.5
469	Natore	2.9	(22)	723	6.3
248	Kishorganj	2.2	(34)	966	5.9
234	Rajbari	2.3	(30)	847	5.8
175	Noakhali	3.5	(11)	766	5.7
229	Faridpur	2.1	(35)	872	5.6
191	Sylhet	2.4	(27)	658	5.3
378	Patuakhali	4.1	(3)	489	5.2
226	Dhaka	1.2	(47)	1,628	5.2
410	Bogra	2.0	(37)	896	4.9
481	Rajshahi	2.1	(36)	832	4.8
301	Bagerhat	4.1	(4)	436	4.5
452	Lalmonirhat	1.9	(42)	784	4.1
464	Naogaon	2.0	(40)	648	4.0
438	Jaipurhat	1.5	(45)	830	4.0
387	Satkhira	3.2	(17)	468	3.9
261	Mymensingh	1.2	(48)	1,011	3.9
190	Sunamganj	2.4	(29)	515	3.7
136	Habiganj	2.0	(39)	647	3.6
272	Netrakona	1.7	(44)	680	3.3
427	Dinajpur	1.4	(46)	678	3.0

Note : 1. Based on 1981 BBS estimates inflated to 1993 at 2.2% a year



TABLE 5.14 - Continued

Geocode	District	Hazard Index	Rank	Population Density(1)	Risk Index
233	Gazipur	1.0	(51)	789	2.5
347	Khulna	3.0	(20)	522	2.4
357	Meherpur	1.0	(55)	731	2.3
355	Magura	1.0	(53)	765	2.3
494	Thakurgaon	1.1	(49)	586	1.9
318	Chuadanga	0.8	(56)	734	1.9
344	Jhenaidah	0.8	(57)	737	1.7
485	Rangpur	0.6	(59)	958	1.6
473	Nilphamari	0.6	(60)	911	1.6
158	Moulvi Bazar	0.7	(58)	543	1.5
341	Jessore	0.4	(61)	864	1.2
365	Narail	0.3	(62)	769	0.8
289	Sherpur	0.2	(63)	942	0.5
146	Khagrachari	1.1	(50)	140	0.5
477	Panchagar	0.1	(64)	540	0.2
184	Rangamati	1.0	(54)	65	0.2
103	Bandarban	1.0	(52)	50	0.2

Notes and Explanation:

1. Non-metropolitan population density, based on 1981 BBS estimates inflated to 1993, at a rate of 2.2% a year is used as a proxy vulnerability index (this excluded the urban centres of Dhaka, Chittagong, Khulna and Narayanganj)

2. Risk index is defined as:

$$\text{Risk Index} = \text{hazard factor} \cdot \text{vulnerability factor}$$

where

$$\text{Hazard Factor} = \frac{10 \cdot \text{hazard index of thana}}{\text{highest hazard index}}$$

$$\text{Vulnerability factor} = \frac{10 \cdot \text{population density of thana}}{\text{highest non-metropolitan population density}}$$

Thus the risk index has a theoretical maximum of 100 for non-metropolitan thanas (hence metropolitan areas such as Chittagong may score above a hundred).

ANNEX A

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TABLE A.1

Terms of Reference

<i>Objectives and Outputs</i>	<i>Activities</i>
IMMEDIATE OBJECTIVE 1	
To strengthen the Government's capability to co-ordinate and monitor disaster-related activities, through the Ministry of Relief.	
Output 1.1 An effective unit, under the MOR, with initial management information and related systems to support the planning, promotion, co-ordination and monitoring of disaster-related activities with special reference to preparedness, relief, and short-term rehabilitation and repairs.	<p>1.1.1 Establishing a "Disaster Co-ordination and Monitoring Unit" under the MOR, as a precursor to a more broadly-based Office/Unit to be developed under a follow-up project -- Comprehensive Disaster Preparedness/ Management (FAP.11).</p> <p>1.1.2 Designing a Management Information System, and developing and installing initial applications (with appropriate hardware and software) with priority to those relevant to the consolidation, analysis and reporting of data for preparedness, relief and rehabilitation activities.</p> <p>1.1.3 Establishing systems for gathering, consolidating and analysing information on disasters and disaster-related activities.</p> <p>1.1.4 Establishing data collection formats and reporting systems.</p> <p>1.1.5 Providing training to government staff of the DCMU in the use of the above systems (both computer- and paper-based).</p>
Output 1.2 Improved arrangements for damage assessments and the preparation of repair and rehabilitation projects and programmes.	<p>1.2.1 Identifying deficiencies in damage assessments following the 1991 cyclone, and making proposals for more effective assessments in the future.</p> <p>1.2.2 Provide advice and, when necessary, propose assistance to concerned agencies in organising surveys, undertaking damage assessments, and formulating remedial works or activities.</p>
Output 1.3 Assessment of the repair and rehabilitation efforts following the 1991 cyclone.	<p>1.3.1 Assist MOR in the preparation of reports on the progress of repair and rehabilitation efforts following the 1991 cyclone.</p>
IMMEDIATE OBJECTIVE 2	
To review existing procedures and organisational structures for disaster management with a view to their integration, reinforcement or expansion, as required, including the need for and functions of an Office of Disaster Management; and to assess training needs and initiate preliminary training activities.	
Output 2.1 Evaluation of existing procedures (government and non-government) relating to disasters, and recommendations for up-dating and strengthening.	<p>2.1.1 Review and assess the status of existing standing orders, codes, emergency procedures, forecasting and warning systems, etc., for disaster management for cyclone, floods, droughts, and earthquakes in the various concerned agencies.</p> <p>2.1.2 In the light of the above review of existing procedures, make recommendations on the modification or revisions required to up-date them.</p>

TABLE A.1 (Contd.)

Objectives and Outputs	Activities
<p>Output 2.2 Assessment of existing and proposed organisational structures, and an outline for the duties, staffing, and rules of business of a future Office of Disaster Management, or similar body, if required.</p>	<p>2.2.1 Review the existing organisational structures and arrangements for disaster management and identify deficiencies, if any.</p> <p>2.2.2 In the light of the above, make proposals for the establishment and functioning of an office of disaster management or other appropriate organisational structures.</p>
<p>Output 2.3 An assessment of disaster management training needs and existing training resources; initiation of relevant training activities; and a disaster management training strategy for future development.</p>	<p>2.3.1 Assess the training needs of government officials and others, and the needs for wider public education.</p> <p>2.3.2 Identify suitable institutions and training materials which may be involved in organising the required training.</p> <p>2.3.3 Develop an overall, long-term training strategy, design and initiate preliminary training activities as a precursor to the main training programme to be established under the follow-up project (FAP.11).</p>
<p>IMMEDIATE OBJECTIVE 3 To prepare a project document and other related documents for a Comprehensive Disaster Preparedness/Management programme within the context of the Flood Action Plan.</p>	<p>3.1.1 In the light of the findings of 2.2 above, establish the technical assistance requirements for finalizing and implementing the proposed revisions to the existing disaster-related procedures, and for setting up an office of Disaster Management (or similar). Prepare a schedule of recruitment and placement of government and non-government staff.</p>
<p>Output 3.1 A project document and draft terms of reference for a follow-on project for comprehensive disaster preparedness/management to be undertaken as FAP.11.</p>	<p>3.1.2 In consultation with MOR, the local UNDP office, and FPCO, prepare a project document for FAP.11: Comprehensive Disaster Preparedness/Management, a related Technical Assistance Plan, and Project Concept Paper.</p>
<p>IMMEDIATE OBJECTIVE 4 In conjunction with the Flood Action Plan, to prepare a concept plan for integration measures to protect coastal areas from the effects of cyclones and tidal surges into the overall disaster preparedness system and into the Flood Action Plan.</p>	<p>4.1.1 In consultation with the current implementation agencies, establish the concept for an integrated approach to coastal protection which would cover normal tidal as well as cyclone events.</p> <p>4.1.2 Prepare a structure for the programme which would group the various elements by function, phase and sector and establish the linkages.</p>
<p>Output 4.1 A concept plan which would outline an integrated approach to coastal protection and indicate how long-term measures can be implemented in a co-ordinated and consistent manner, taking due account of the need to emphasize priority investments.</p>	<p>4.1.3 Identify priorities and suggest the multi-sectoral responsibilities for implementation.</p> <p>4.1.4 Review ongoing relevant Flood Action Plan activities -- and other relevant activities -- and determine the modifications, extensions or additions that may be required.</p>

ANNEX B
TERMS OF REFERENCE FOR VISITING CONSULTANTS

BGD/91/021 : Assistance to Ministry of Relief in Cyclone Rehabilitation
Terms of Reference for Social Studies

Collect and review the literature, consult with relevant individuals or groups (in Dhaka and elsewhere as feasible), and prepare a concise report on the key findings in relation to: ¹

- i) the causes of deaths (e.g. drowning, injury, diarrhoeal or other diseases) among different social, gender, and age groups, during or as a direct consequence of cyclones (and floods) in Bangladesh, including any significant differences apparent between different geographical and administration areas;
- ii) the extent to which different groups were aware of and understood the warnings issued;
- iii) the actions taken by different groups in response to the warnings, and their reasons (whether all, some or none of the household members moved to shelter sites);
- iv) the significance of land tenure issues in the decisions of different groups;
- v) the extent to which different groups were able to save livestock and property;
- vi) the access of different groups to relief and assistance in rebuilding their lives and livelihoods;
- vii) how different groups were able to recover;
- viii) the survival strategies that operated within and between households and village communities among different social and gender groups, and the factors which enhance or diminish individual and community capacities;
- ix) the specific needs of different social and gender groups for education or training, and the priority areas to be addressed: e.g. the meaning of particular warnings; actions can be taken to minimize losses; how to reduce health risks (including water supply and sanitation issues);
- x) the specific needs of community leaders, government officers, and NGO personnel, for training in disaster related issues, in particular related to social and gender aspects; and
- xi) an assessment of the gaps, if any, in current knowledge, the potential importance of the aspects concerned, and proposals for addressing them;

Contribute to the formulation of relevant objectives and activities for the follow-up comprehensive disaster preparedness project (FAP:11).

Prepare a bibliography on social and gender issues in relation to cyclones, floods and other disasters in Bangladesh.

¹ Readily available data in Dhaka and at District level should be collected. It is not envisaged that trips to all affected Upazilas should be made.

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**BGD/91/021 : Assistance to Ministry of Relief in Cyclone Rehabilitation
Terms of Reference for Telecommunications Studies**

The Telecommunication Consultant will carry out the following tasks:

- i) make contact with all relevant on-going and proposed projects including:
 - Bangladesh Red Crescent Society : Cyclone Preparedness Project.
 - UNDP/World Bank : Multi Purpose Cyclone Project
 - Japan/BMD : Micro Wave Link to Weather Radar Stations.
 - EEC (Proposed) Cyclone Shelter/Primary School Project.
- ii) inventory existing communications systems within Bangladesh and between Bangladesh and the outside world;
- iii) by studying reports and by discussion evaluate the reliability and usefulness of each system at time of national emergency using the 1991 cyclone as an example;
- iv) assess the communications requirements of the Ministry of Relief as the focal point in coordinating and monitoring disaster relief and rehabilitation;
- v) review of legislation covering the use of telecommunication equipment;
- vi) review the mode of communications between Indian data gathering stations and the appropriate Bangladesh organisations;
- vii) based upon the findings of the above investigations prepare outline proposals to provide:
 - reliable communications for effective disaster management at times of cyclones, floods and other emergencies, at the international, national, regional and local levels.
 - appropriate communication for the Ministry of Relief.
 - draft legislation covering the use of telecommunications at times of National Emergency.
- viii) preparation of shopping list, with detailed specifications, for Ministry of Relief equipment to be procured under BGD/91/021 - budget \$ 125 000.
- ix) preparation of draft proposals for inclusion in Flood Action Plan Project 11 : Comprehensive Disaster Preparedness Programme, including Terms of Reference for any further studies required, and associated technical assistance inputs.

**BGD/91/021 : Assistance to Ministry of Relief in Cyclone Rehabilitation
Terms of Reference for Agricultural Studies**

The consultants will:

- (i) Obtain copies of all Standing Orders Codes etc. that have been issued to or developed by the Ministry of Agriculture in connection with disaster management etc.
- (ii) Collect and review available technical reports and evaluations concerning cyclone, flood and drought damage to crops during recent years, and agricultural rehabilitation programmes, with special reference to the floods and cyclones of 1988 and 1991, and the Land Resources Appraisal of Bangladesh for Agricultural Development series of reports (FAO/UNDP 1988);
- (iii) Meet with relevant agricultural officers at national level (in DAE, BARC, BARI and BADC), and make field trips to meet and hold discussions with civil administration and agricultural officers at divisional, district, and upazila levels, and with Block Supervisors and farmers at union and village levels;
- (iv) Meet with relevant personnel of selected NGOs (BRAC, CARE, CARITAS, RDRS,....), FAO, and other technical advisory groups (e.g. USAID, World Bank, EEC, WFP....);
- (v) Review a sample of the damage reports submitted through the civil administration and agricultural directorate channels following the 1991 cyclone and the 1988 floods and the extent to which recommendations in these reports were implemented;
- (vi) Evaluate the overall coordination of relief and rehabilitation efforts by various agencies and NGOs and assess the degree of duplication (if any);
- (vii) Prepare standard damage assessment proformas for the use of district and upazila staff and for missions;
- (viii) Prepare a concise summary report on the key findings in relation to:
 - the status of the codes and standing orders and any other official guidelines that may be found, and the extent to which they are available and used (in field operations or training);
 - the nature of the contingency plans for agricultural rehabilitation prepared at national and local levels (the extent to which the guidelines provided in the 1980/81 code are followed, and the specific reasons for any departures);
 - the training received by agricultural officers at all levels specifically relating to disasters (prevention, precautions, damage assessment, and rehabilitation);
 - the extent to which block supervisors and other personnel are informed about and pass on warnings of floods or cyclones (in theory and in practice);
 - the apparent accuracy of initial crop damage reports from the various sources, the consistency of the reports submitted through the different reporting channels, and the relevance of those reports as indications of the need for relief and/or

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rehabilitation assistance;

- the extent of losses of crops, draught animals, and other essential agricultural inputs in different areas;
- the extent to which crop losses were able to be recuperated by replanting or the planting of substitute crops, and the factors which determined the scope and rapidity recovery for different groups of farmers;
- the criteria applied to the distribution of (i) relief to farmers and landless agricultural labourers, and (ii) inputs for agricultural rehabilitation;
- the extent to which different groups had access to credit to finance the acquisition of inputs;
- the likely effects on post-disaster agricultural rehabilitation operations of the changed role of BADC.

(ix) Prepare recommendations in relation to:

- the most relevant, feasible indicators of the short- and medium-term effects on agriculture and the various population groups who depend on agriculture for their livelihoods (including the possibilities for agricultural rehabilitation/recovery);
- when, how, and by whom, valid estimates of the above can be made;
- the up-dating and refinement of guidelines and procedures for initiating precautionary measures and assessing agriculture-related damage and needs following a cyclone or flood;
- the training requirements of agricultural personnel at all levels in relation to preventive measures, assessment and rehabilitation;
- the possible involvement of the UAOs and block supervisors in the dissemination of flood warnings;

(x) Collaborate with the specialist engaged to prepare hazard maps of Bangladesh, particularly in relation to droughts leading to crop shortfalls.

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TERMS OF REFERENCE FOR VISITING CONSULTANT
Training Consultant (TC)

Working under the supervision of the Team Leader and Co-Team Leader, the Consultant will:

- i) Visit existing institutes that provide professional training for various categories of government officials and other personnel in various parts of the country to:
 - review the extent to which disaster-related issues are dealt with in their current basic and short refresher training courses for various categories of personnel
 - discuss the possibilities of incorporating short disaster management modules in the various courses provided and planned, including the topics that would be particularly relevant for the various categories of trainees; the time that could reasonably be envisaged within the different courses; and the training methodologies that would be most appropriate
 - determine what arrangements would be necessary to implement such proposals, including formal approvals (by whom?); lead times for introducing any changes in the course curricula and programmes; the additional training materials that would be required; the training that would have to be provided to staff of the institute, and the resource persons, if any, that would need to be brought in too present or moderate the sessions/activities
 - prepare concise notes and recommendations on the above
- ii) Help to identify an existing institute that could host and make arrangements for one or two short training workshops to be organized in the context of the present project, and work with that institute and the international Planning and Training Specialists in organizing those workshops.

The Training Consultant should have extensive experience in planning and managing professional training programmes for various types and levels of personnel in Bangladesh; an understanding of government structures and general administrative procedures and processes, and of the role of NGOs; an understanding of the impacts of various cyclones, floods and other types of disasters in Bangladesh, and the kinds of measures that can be taken to prepare for such events and reduce the associated risks. Experience in curriculum development and the preparation of teaching aids would be an advantage. Previous training and/or practical experience in disaster preparedness and response would be an advantage.

The consultant will work for three months. Work could be undertaken in two or three separate periods--an initial period of six to eight weeks, starting as soon as possible, with the remaining inputs being provided later, in co-ordination with the work of the international specialists.

TERMS OF REFERENCE FOR VISITING CONSULTANT
Public Sector Accounting Consultant (PSAC)

Background

Following the 1991 cyclone numerous donors pledged support to assist Bangladesh return to normal as quickly as possible. Pledges in terms of material, cash and credit were made. The pledge data that have been obtained are given in Table 1 and 2. It is not known when (or if) all the pledged assistance arrived.

Following the cyclone both relief and short and long term rehabilitation was put in hand. The total expenditure on these activities and the proportion coming from GOB's own resources is not known.

When the country falls victim to major natural disaster it is not clear to what extent the 'normal' rules of business relating to both Revenue and Development budgets are followed.

Terms of Reference

The PSAC working closely with the Rural Infrastructure Specialist, would:

- i) through discussion with donor and NGO representatives and GOB officers (ERD, Bangladesh Bank, NGO Affairs Bureau etc) determine when the assistance pledged following cyclone 1991 arrived in Bangladesh;
- ii) from discussion and a review of reports prepare summary tables showing:
 - value of total damage
 - value of damage repaired to 30 June 1992
 - source of funds for damage repairs
 - existing value of damage still to be repaired
 - source of funds for outstanding repair work
- iii) prepare outline of main stages in the GOB budgeting and expenditure process for both Revenue and Development budgets;
- iv) highlight any special steps taken or which could be taken to reduce processing time at times of disasters;
- v) consider what further investigations might be required in the context of a longer term Disaster Management Project and prepare any necessary Terms of Reference; and
- vi) prepare summary report of findings.

Ministry of Relief/UNDP Project BGD/91/021**TERMS OF REFERENCE FOR VISITING CONSULTANTS
Librarian**

The MOR Disaster Coordination and Monitoring Unit (DCMU) has recently been established. Within this Unit is proposed to set up a Library as described in the attached newspaper advertisement. Publications, reports and papers relating to relevant aspects of disaster management in Bangladesh, in the region, and world-wide would be collected and catalogued. The collection would become the basic resource for disaster management information in Bangladesh.

The potential sources of information include: GOB archives, specialist journals, newspaper archives, Universities, NGO and international agency reports (UN system, Asian Disaster Preparedness Centre etc.).

The Librarian would:

- i) following ~~discussion~~ with other Project staff, in particular the Management Information System specialist, and other professional librarians, adopt an appropriate cataloguing system for the library;
- ii) catalogue the on hand publications;
- iii) prepare a computerised index including key words; building on the work already done by other projects (e.g. PACT-PRIP);
- iv) visit the potential sources of relevant information in Dhaka and initiate organised collection of relevant publications from these and identified overseas sources;
- v) devise a simple lending system; and
- vi) train DCMU staff in operation of library.

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TERMS OF REFERENCE FOR VISITING CONSULTANT
Emergency Procedures Consultant (EPC)

The EPC will assist the Core Team in the preparation of revised Standing Orders for the various natural disasters faced by Bangladesh.

The consultant would be engaged for a period of 6 weeks.

In particular the EPC would:

- i) follow up MOR/DCMU letters sent to all relevant GOB and NGO agencies issued after the meetings on 17 and 24 June 1992;
- ii) review existing Standing Orders;
- iii) consolidate all observations made on the existing Standing Orders and draft revised orders for review by all parties; and
- iv) following further discussion prepare a second draft of the revised Standing Orders.

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TERMS OF REFERENCE FOR VISITING CONSULTANT
Public Participation Consultant (PPC)

Background

The ordinary people of the areas affected by natural disasters are those that have to be 'prepared'. Despite the best efforts by Government, NGOs and others, the overall effects of such disasters will be largely determined in the first 2/3 days by the actions of the people affected.

There is a need to more fully understand the needs of the people in order to ensure that the limited relief reserves are utilised in the most effective manner. On the basis of the lessons learnt from previous disasters and people's 'felt needs' appropriate training modules, poster campaigns, advice centres and the like need to be developed to enable the local people to better cope with disasters.

Terms of Reference

In close coordination with the Sociologist/Gender Issues Consultant (SGIC) the PPC will undertake a programme of field studies over a period of one month, in areas affected by the 1991 cyclone:

- i) to identify the 'felt needs' of the people prior to and in the immediate aftermath of the disaster, in terms of assistance required from Government or others under the following:
 - preparedness activities (stockpiling, evacuation planning etc)
 - warning dissemination
 - consciousness raising, training
 - relief distribution
 - employment
 - rehabilitation of 'normal' employment activities (agriculture, fisheries, forestry, livestock, trading)
- ii) to assist the SGIC to identify the needs of different social and gender groups for education or training, and the priority areas to be addressed: e.g. the meaning of particular warnings: actions which can be taken to minimize losses; how to reduce health risks (including water supply and sanitation issues); and
- iii) the specific needs of community leaders, government officers, and NGO personnel, for training in disaster related issues, in particular related to social and gender aspects.

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**TERMS OF REFERENCE FOR VISITING CONSULTANT
Forestry Consultant (FrC)**

The Forestry Consultant under the direction of the Co-Team Leader would:

- (i) Collect and review available technical reports and evaluations concerning cyclone and flood damage to (coastal) forests and plantations during recent years and forest rehabilitation programmes with special reference to the cyclone of 1991.
- (ii) Review a sample of the damage reports submitted through the civil administration and Forest Department directorate channels following the 1991 cyclone and the extent to which recommendations in these reports were implemented.
- (iii) Prepare standard damage assessment proformas for the use of field staff.
- (iv) Collect and review available technical and planning reports concerning previous and proposed afforestation on forelands associated with proposed sea facing embankments (FAP:7)
- (v) Review the programme for implementation of coastal afforestation and identify the funding agencies concerned with different lengths of coastline.
- (vi) Review the procedures being adopted for implementing afforestation with public participation (CPP) and proposed for afforestation on privately owned forelands.
- (vii) Recommend afforestation measure, necessary for mitigating cyclone disaster.
- (viii) Consider whether additional studies are required following completion of the investigations detailed above and, if so, prepare TOR for inclusion in FAP:11.
- (ix) Prepare a full report of findings and recommendation in the form of a DCMU Working Paper.

Ministry of Relief / UNDP Project BGD/91/021**TERMS OF REFERENCE FOR VISITING CONSULTANT
Mass Communication Consultant (MCC)****Background**

Large numbers of people in Bangladesh live in areas prone to natural disasters - cyclones, floods, river erosion, earthquakes, landslide and drought.

Various actions can be taken by the vulnerable population to mitigate the effects of such disasters.

In order to make people aware of such actions an extensive mass communications campaign is required.

Terms of Reference

The MCC under the direction of the Co-Team Leader and in close collaboration with other team members especially the Sociologist/Gender Issues Consultant and the Public Participation Consultant, would:-

- i) by review of the literature and discussions with concerned people including Professional Panel Members (especially Mr. Mohammad Siddiqueer Rahman, Mr. Saidur Rahman and Mr. Richard Holloway) develop an understanding of the issues involved;
- ii) review the ten disaster management messages prepared by the respondents following the DCMU Training Discussion on 9 September;
- iii) review existing techniques used by GOB and NGOs to disseminate disaster preparedness messages, warnings and post-disaster advice;
- iv) obtain and review existing radio and TV (national and regional) network programmes relating to cyclone/flood/tidal surge warnings;
- v) consider the role of local theatre/drama groups to disseminate, mobilize and organize the most vulnerable groups to cope with such disasters;
- vi) plan a media campaign to disseminate the appropriate messages reach the grassroots level in the various disaster prone areas; and
- vii) prepare budget estimates to implement such a campaign over a three year period 1993/1995 under the FAP:11 project.

**TERMS OF REFERENCE FOR VISITING CONSULTANT
Insurance Consultant (IC)**

Background

Almost everyone has insurance cover for their assets - house, contents, car and tools of trade - in the developed countries. In the event of serious floods or windstorms insurance companies pay out large sums of money to enable the affected people to get back on their own feet again as quickly as possible. Little Government assistance is provided to or is required to support individuals. Government itself, which does not insure its own assets, has to bear the cost of its own repairs.

The insurance industry in Bangladesh has not expanded significantly probably because of nationalisation. Few assets are insured and those that are usually being purchased with bank or finance company loans with insurance being a precondition for loan approval. When natural disasters strike lives and assets are lost without compensation and survivors have to depend upon charity either from Government, NGOs or the community.

Since 1988, a Rural Insurance Scheme (Grameen Bima) has been developed by the Delta Life Insurance Company Ltd (DLICL). This provides life cover to low income inhabitation of rural areas and has gradually been expanding. Some 30 000 now have cover in five 'project' areas.

There is the need to develop a more comprehensive scheme for the benefit of the rural poor covering life and assets. Such a scheme would be a practical disaster preparedness measure. At present, combined policies are not available as insurance companies can conduct either life or general business but not both.

The principals of DLICL are considering the establishment of a separate mutual insurance company, which would of course have no shareholders, to provide comprehensive cover in the rural areas.

They see NGOs acting as honest brokers and having an awareness creation and motivation role but, following the experience with a particular NGO, would see the company itself as collecting premiums and paying out benefits.

Government might be required to subsidise premiums in the early years to launch the scheme. However, any subsidies would be counterbalanced by reductions in demand for 'relief' after natural disasters occur.

In order to develop ideas further for possible inclusion under the FAP:11 (Comprehensive Disaster Preparedness/Management Programme) a short dedicated input is proposed to investigate these issues.

Terms of Reference

The Insurance Consultant under the direction of the Team Leader and in close collaboration with the other team members in particular with Sociologist/Gender Issues Consultant would :-

- i) by discussion with people in disaster prone areas, the Bangladesh Insurance Association, insurance companies, NGOs, government and donors arrive at an understanding of peoples needs in coping with disasters and what might be achieved by insurance;
- ii) review and summarise insurance initiatives to date in the rural areas covering life, livestock, crop and productive asset cover;
- iii) develop the outline for a comprehensive scheme to provide cover to the rural poor;
- iv) estimate the costs of such a scheme and indicate the level of Government subsidy that might be required;
- v) hold discussions with all interested agencies and personnel;
- vi) make proposals for incorporation in the FAP:11 Project Document; and
- vii) prepare a report on findings.

ANNEX C

The Insurance Industry and IDNDR: Common Interests and Tasks

Gerhard Berz

Head, Geoscience Research Group
Munich Reinsurance Company

Insurance is financial preparedness against loss. It makes the effects of the occurrence of a loss bearable for the individual policy holder, and does so at a price which as a rule is favourable because the risk of loss is distributed among a great many parties and the profit-and-loss curve is thus levelled out. Natural disasters present a serious menace - up to the present, indeed, the most dangerous menace - to that safety net, because a large proportion of the insured in a country, perhaps even in several contiguous countries, are overtaken by a disaster at one and the same time and the profit-levelling process is threatened with collapse. Here the international spreading of risks through reinsurance is of help. Their disaster potential would make many natural perils uninsurable on a purely national basis.

This makes it seem all the more important to counter the ominous trend towards ever more frequent and ever greater disaster losses by all the means available. The insurance industry has always preached loss prevention, obviously in its own interest, because in the long run these risks will remain insurable only if the trend is substantially reduced or reversed.

The goals of IDNDR are thus of service to the insurance industry in a variety of ways, and the industry should therefore interest itself in this programme and take an active part in it. Inasmuch as this, more than any other industry, has since its inception collected its experiences - including many painful ones - in this area, it will be able to support IDNDR with a wide range of local, national and worldwide know-how. Not least important: the right structure of insurance cover, and in particular appropriate sharing in the risk by the insured, can motivate him more strongly than many other measures in favour of loss prevention. Cooperation between IDNDR and the insurance industry opens up many possibilities and opportunities, which are explored in more detail below.

What natural disasters mean for the insurance industry

Losses due to natural perils are covered by a wide range of insurance policies, especially in the areas of fire, housing, household and building insurance but also in those of motor, hull, marine, aviation, sickness and life insurance. With isolated exceptions, these covers are not restricted to natural perils but, at the wish of the insured or even as a compulsory requirement, are appended to a principal cover, such as fire. In this way, as a rule, a broader spread and hence a levelled-out profit-and-loss curve are achieved.

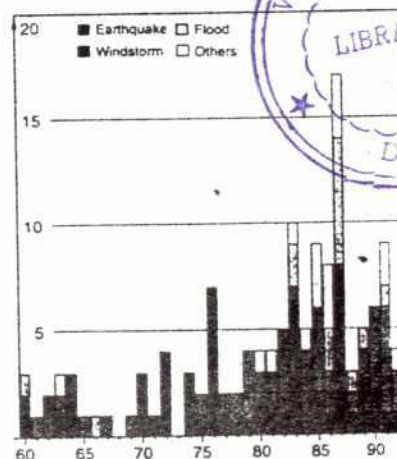
The increase in loss loads from natural disasters over the last three decades, for which reliable data are available, can be clearly conveyed in these terms: if the amounts of losses incurred over the last ten years are compared with those of the 1960s, the economic losses from major natural disasters, discounting inflation, have increased by a factor of about 5 and insured losses by a factor of 12 (see graphs).

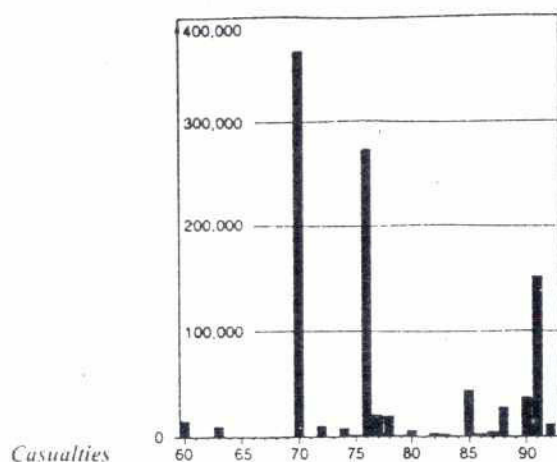
The general drastic rise in natural disaster losses is due to a number of factors, and above all the growth of population and of assets and their concentration in large conurbations, in heavily exposed regions and, especially, along the coasts. In addition the effects of insidious climatic and environmental changes are making themselves increasingly felt, prevalently in the greater frequency of extreme conditions, especially as regards storms and precipitation.

The disproportionate increase in insured losses is the result of the growing density of insurance, especially in heavily exposed regions, and to steady expansion in the extent of the protection provided by additional natural-peril covers, for example in the area of business interruption insurance.

For the insurance industry it is primarily a matter of securing the right price for the risks underwritten. When the risk situation is worsening, it can no longer be correct to calculate premium requirements solely on the basis of the loss experience of the past, as is still done in most markets today. Instead, allowance for the worsening trend must be made far in advance through appropriate increments for change and fluctuation.

Number of
Natural Disasters





Even if optimum and exhaustive use is made of its financial resources, the insurance industry can make available only a limited capacity which obviously has not grown at the same rate as the loss potentials underwritten in recent decades. It is consequently more than ever important today to estimate these loss potentials correctly and to tailor the precautionary measures to fit them. For this purpose, the "accumulation control" technique has been developed to provide primary insurers and reinsurers with a conspectus of the existing liability situation, divided into appropriate geographical zones and categories of liability. With the aid of this information, the loss loads from chosen disaster scenarios can be calculated at will; the geo-scientists and engineers are left with the task of furnishing the correct intensity distribution of the assumed extreme occurrences and the correct susceptibility to loss of the exposed liabilities.

The insurance industry's contribution to disaster preparedness

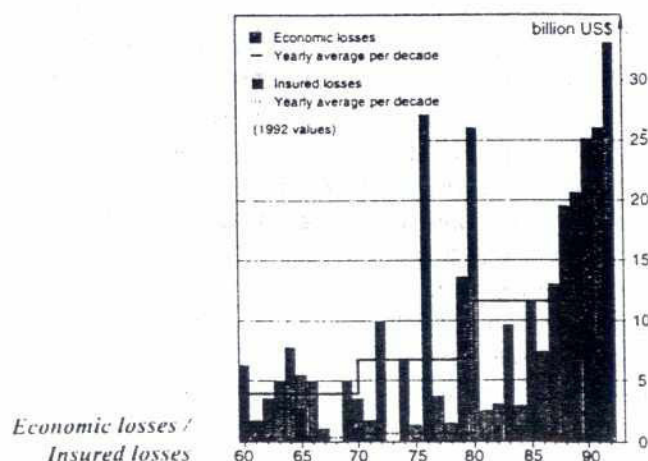
As already noted, insurance is in itself a form of disaster preparedness: it represents an important if not decisive prerequisite for many economic activities. Without insurance cover, engineering projects in heavily exposed regions (eg. off-shore installations in the North Sea, or nuclear power stations in earthquake zones) would be a sheer gamble with a high risk of failure that no business enterprise could entertain. Consequently the development and application of modern technologies and the economic development of regions where the danger level is high or unknown have always been accompanied and promoted by the insurance industry. Often enough these ventures have ended, and are still ending today, with adverse results and sometimes in total loss. This makes it all the more important for the insurer to assess the risk situation as realistically as possible and to bring all the available know-how to bear on the process. In so doing, he very often finds himself at the forefront of scientific and technological development and must often break new ground in the appraisal or reduction of risk.

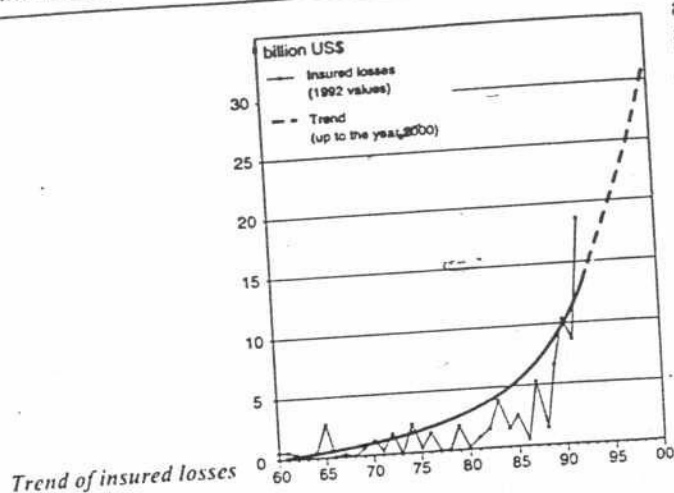
In the area of natural perils in particular, the insurance industry has at its disposal comprehensive worldwide loss

experience which it uses not only in calculating premiums commensurate with the risk and grading danger areas into what are termed rating zones, but also in tracing relationships between event intensity and loss intensity and estimating loss potentials from realistic disaster scenarios.

Up to now, after major disaster events, loss settlement by the insurers has almost always been outstandingly good, particularly in comparison with the performance of state aid programmes, which is usually over-bureaucratic. Several factors contribute to this: the continuous confrontation of the insurers with loss claims in the most varied branches demands an adequate, experienced and dynamic staff and efficient assignment planning. The insurers' efforts to settle claims for damages as fast as possible are based on two lessons of experience: "The quicker, the cheaper" and "Good loss settlement is the best advertising". Psychologically, too, it makes an appreciable difference to the injured party whether he can stand on a legal claim under his insurance contract or has to go cap in hand to some authority and thus feel like a recipient of alms. Furthermore, quick provision of payments on account by the insurers helps the disaster victims to cope more effectively with the mental stresses left by the disaster, since they are not condemned to idleness and apathy but can take the business of repair and reconstruction into their own hands.

Insurance protection carries the inherent hazard that the insured may hand responsibility for the risk over to the insurer, whereupon he will dismiss the risk from his mind and consequently no longer be ready for loss prevention measures. The insurer must counteract this mode of thought and behaviour, and he can best do so by applying financial incentives. If he offloads part of the loss onto the insured by means of a substantial deductible or other form of "co-insurance", but at the same time rewards him with an equally substantial premium rebate, he can very effectively motivate the policy holder in favour of loss prevention. Furthermore the number of loss cases eligible for settlement in natural disasters is drastically reduced by relatively modest deductibles, for such disasters are always characterized by a large, and sometimes an enormous, number of minor losses. This again has a





favourable effect on the efficiency of loss settlement.

What is more, the insurance industry is known for the extensive information materials, in the form of leaflets, brochures, films and television spots, with which it alerts the public to risks and draws attention to effective possible precautions. In the past, such information campaigns have concentrated on fire, accident and burglary prevention; today's efforts are switching more and more to the area of natural perils, in which there are many possibilities for loss prevention which hitherto have scarcely been tapped.

Possible fields of cooperation between IDNDR and the insurance industry

As already pointed out, the insurance industry must seize every opportunity to check or even reverse the ominous rising trend in the loss loads from natural disasters. It is true that individual efforts have already made some progress in this respect, but decisive results can be expected only from a worldwide programme such as IDNDR, which can make use of States' capacity for intervention and guidance. In the insurance industry, therefore, IDNDR has a natural partner and ally: one, moreover, which has at its disposal a wealth of worldwide experience in this area, extending over many years, and can establish far-reaching international connections. In previous chapters and in the goals of IDNDR, many possible fields of cooperation are in evidence; the list which follows is illustrative and by no means exhaustive:

- the mapping of danger zones
- the assessment of loss potential for disaster scenarios
- recommendations for regulations or restrictions on land use
- recommendations for standard building regulations
- the promotion and use of prediction and warning services
- the listing of competent institutions and experts
- information and motivation of the public
- proposals for standardized recording and analysis of losses

Conclusion

The fundamental significance of natural disasters to the insurance industry, which has again increased dramatically in recent decades, makes all activities in the context of IDNDR

a matter of keen interest. At the same time the insurance industry, with its many years of worldwide loss experience, can draw upon extensive know-how which can be of great service in the development and implementation of the IDNDR programme. Furthermore the wording of insurance conditions strongly influences the behaviour of the population as regards preparedness; it should consequently be used to contribute to motivation efforts. In short, there is a sizeable range of opportunities for joint action by IDNDR and the insurance industry which, if the available capacities are utilized to the full, can do a great deal to halt the ominous trend towards increasing disasters and thus ensure that the success of IDNDR endures far beyond the Decade.

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The full text has been presented in the Workshop on the Cooperation of the Construction and Insurance Industries with the IDNDR, Frankfurt, 4-5 March 1992, and is available from the Author. Contact: Dr. Gerhard Berz, Munich Reinsurance Company, D-80791 Munich. Tel.: +49 89 3891-5290; Fax: +49 89 39 90 56/7.

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ANNEX D

LIST OF OFFICIAL BODIES WITH DISASTER MANAGEMENT RESPONSIBILITIES

Directorate of Meteorology
Ministry of Relief
Directorate General of Relief and Rehabilitation
Cyclone Preparedness Programme
Radio Bangladesh
Bangladesh Television
Cabinet Division
Planning Commission
NGO Affairs Bureau
Ministry of Health
Ministry of Food
Ministry of Agriculture
Ministry of Environment and Forest
Ministry of Fisheries and Livestock
Directorate of Livestock
Directorate of Fisheries
Ministry of Defence
Civil Aviation and Tourism
Bangladesh Army
Bangladesh Navy
Bangladesh Air Force
Ministry of Home Affairs
Bangladesh Rifles
Bangladesh Police
Directorate of Ansars and VDP
Fire Services and Civil Defence Directorate
Ministry of Communication
Railway Division
Roads and Roads Transport
Ministry of Shipping
Ministry of Works
Ministry of Social Welfare and Women Affairs
Ministry of Local Govt. Rural Development and Co-operatives
Local Government Division
Rural Development and Co-operatives Division
Ministry of irrigation Water Development and Flood Control
Bangladesh Water Development Board
Ministry of Foreign Affairs
Ministry of Finance
Finance Division
External Resources Division
Ministry of Industries
Ministry of Education
Ministry of Commerce
Ministry of Post and Tele-Communication
Ministry of Energy and Mineral Resources
Energy Division
Petroleum and Mineral Resources Division
Divisional Commissioners
Deputy Commissioners
Upazila Parishad
Union Parishad

PROJECT DESIGN SUMMARY LOGICAL FRAMEWORK

Project Title & Number: Support to Disaster Management (BGD/92/002)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall (Sector) Goal</p> <p>To reduce the human, economic and environmental cost of disasters in Bangladesh.</p>	<ul style="list-style-type: none"> Since the incidence of severe cyclones, floods, and other potentially damaging phenomena is inherently unpredictable and as their intensity varies greatly, it may not be possible to directly verify or measure the effectiveness of the Programme intervention in the short-term. The Programme will take action at various levels simultaneously: at union and community level; at district/thana level; and at national level. Work at local level will be initiated in three districts and be extended progressively. A total of 50-60 	<p>The success or otherwise of the Programme will be indicated by the actual losses caused by natural disasters in the coming years, whether these are less than might otherwise have been expected on the basis of past experience, and the speed with which communities affected by disasters recover.</p> <p>thanas in 15 districts should be covered by the end of the three-year period. A total of 350-400 unions, representing a total population of some 10 million people, should therefore be covered during the period.</p>	<ul style="list-style-type: none"> Severe cyclone, floods and potentially damaging phenomena will continue to affect Bangladesh Sustained commitment to the Programme intervention at the highest level in Government. Creation of National Disaster Management Council and NDM Advisory Committee. Inter-Ministerial Disaster Management Coordination Committee considers DMB outputs in a timely manner and gives necessary approval for wide dissemination. Population in disaster prone areas willing and able to participate in the programme.
<p>Programme Intervention Goals</p> <ol style="list-style-type: none"> To increase the capacities of households and local communities in the highly disaster-prone areas to cope with cyclones, floods, and other potentially disastrous situations; To increase the efficiency and the effectiveness of response to emergencies, and expedite recovery following disasters, through enhanced preparedness at all administrative levels based on collaboration between government officials and agencies, NGOs, and other concerned bodies, in all relevant activities (including warning systems, precautionary measures, rescue, relief and rehabilitation operations); and To ensure that measures are taken to reduce disaster risks as much as possible, and that such risks are properly considered in general development planning. 	<ul style="list-style-type: none"> 'Damage' to people, physical infrastructure and the natural environmental reduced. Research into peoples perceptions and previous response and institutional performance completed by Month 3. Preparation of National Disaster Policy by Month 6. Preparation of National Disaster Plan by Month 12. Preparation of National Disaster Standing Orders/Protocols by Month 12. Clear protocols widely distributed to the key players generally by Month 12. Perception of investigators/visitors to disaster prone areas that population seems to be prepared. 	<ul style="list-style-type: none"> Damage assessment reports by GoB, PVDOs, professionals and development partners over a long period, more than 10 years. Publication of ND Policy and ND Plan. Perception of 'players' that arrangement following a disaster went better than before. Perception of victims and players' regarding response time. Perception of victims and players' of effectiveness of actual response activity. Monitoring and Evaluation Reports of IMED; Pre-disaster and post-disaster evaluation reports by DMB, GoB, PVDOs, co-financing donors and others. 	<ul style="list-style-type: none"> Progress towards the achievement of the overall goal, and the specified objectives (purposes) and outputs, would be affected by the occurrence of a major disaster during the lifetime of the Programme intervention. Well organized mass communication drive by persons with high commitment. The technical assistance and related inputs would help the newly established DMB in an initial three year period of intense activity during which a range of innovative activities will be initiated both at national level and in the most disaster prone areas. DMB will operate in as non-bureaucratic a way possible bearing in mind that it is a GoB agency.

	<ul style="list-style-type: none"> - Speed of response (how many hours/day after event did relief arrive). - Speed of community recovery. - Vulnerability/Hazard/Risk analysis incorporated in the design of all projects. - Special Disaster Mitigation projects included in Annual Development Plan (ADP) - Disaster mitigation and other related issues checked by Planning Commission when vetting projects. 	<ul style="list-style-type: none"> - Annual Programme Reviews (ARR) - Quarterly Reports from the National Programme Director. - UNICEF evaluations of training and community mobilisation - Annual Exercises to test the implementation of District, Thana and Union GoB agencies, PVDOs and others Action Plans. - Regular DMB reports on status of DM planning at local level. - Field visits 	<ul style="list-style-type: none"> - The priority districts and thanas will be those that have the highest Hazard Indices as indicated in the Hazard Indices Map prepared by Project BGD/91/021. - Although the DMB will be concerned with all types of disaster, its activities during the first three years will focus particularly on cyclone and flood risks (the major risks). Consideration may also be given to river bank erosion. - At the district, thana and union levels, community education and mobilisation, training workshops, and the development of local level Disaster Action plans will all focus on the particular hazards to which the particular localities are prone. - By the end of three years DMB itself, and training and other activities, will be sufficiently established for the follow up work to be carried out by the regular staff of the DMB. - PVDO representation on all high level committees. - Officers at district, thana and union level will act on MoR directive of 12 July 1993 to form DM Committees and draw up DM Action Plan. - Full regard will be paid to all work that has been carried out under BGD/91/021 and by others notably PVDOs, re-invention of the wheel will be avoided. 	
<p>Programme Intervention Purposes</p> <p>1. Increase awareness at all levels of society concerning the practical ways of reducing disaster risks and losses.</p>	<p>1.1: Increased awareness and understanding among the general public of the measures that can be taken at household and community levels to reduce disaster risks and losses.</p>	<p>Reports and materials published; briefings and events held and summary reports prepared.</p>		

<p>2. Strengthen national institutional capacity for disaster management with emphasis on preparedness and support to disaster management committees at district, thana and union levels.</p>	<p>1.2: Increased understanding of the status and possibilities for disaster preparedness and proofing among Members of Parliament, senior officials, and other influential groups.</p> <p>1.3: Basic information concerning disaster risks, preparedness arrangements, and proofing possibilities, included in school curricula and teacher training.</p> <p>2.1: DMB serving as an effective national co-ordination unit for disaster management -- promoting prevention/mitigation and preparedness measures at all levels, and serving as a national Emergency Operations Centre (EOC) during emergencies -- with necessary expertise (trained staff), facilities, documentation, information and communication systems.</p> <p>2.2: A national policy statement and overall strategy for disaster management for approval the Government.</p> <p>2.3: A National Disaster Plan approved and published, incorporating, amongst other things, refined Standing Orders/Protocols (definitions of responsibilities, co-ordinating mechanisms, lines of communication), and arrangements for necessary logistic support services.</p> <p>2.4: Up-dated and up-graded internal contingency (disaster action) plans in key line agencies and other relevant bodies.</p> <p>2.5: A core group of individuals experienced in managing emergency and post-disaster operations on call at short-notice.</p> <p>2.6: Improved arrangements to ensure the rapid availability, following disasters, of supplies necessary to ensure survival and meet basic needs, and to expedite recovery.</p>	<p>Briefings and study tour held and summary reports prepared.</p> <p>Textbooks published, DM included in curricula and being taught.</p> <p>SOPs/protocols prepared, and approved by IMDMCC and widely disseminated, MIS and related systems up and running.</p> <p>Statement, strategy and DM programme prepared, approved by NDMC/IMDMCC and widely disseminated.</p> <p>Protocols and Plan prepared, approved by NDMC/IMDMCC, widely circulated and exercises held to test workability/readiness.</p> <p>Contingency Plans prepared, approved by IMDMCC, disseminated and exercises held to test workability/readiness.</p> <p>Roster published every 6 months, regular contact with rostered personnel and holding of workshops.</p> <p>Protocols/procedures prepared, approved by IMDMCC, disseminated and exercises held to test readiness/workability.</p>
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<p>3: Enhance the knowledge and skills of key personnel having disaster management responsibilities, develop in-country disaster management training capabilities, and provide relevant operational guidelines in the form of a Disaster Management Handbook.</p>	<p>2.7: Improved telecommunications for disaster-related purposes. This includes: adequate telecommunications within the DMB; standing arrangements for collaboration during emergencies between organisations operating telecommunication systems; (including PVDOs) and improved access to telecommunications by operational assistance agencies.</p> <p>3.1: Senior staff of the DMB and key personnel in selected training institutes and other organizations trained in disaster management, and exposed to experiences and arrangements in some other countries in the region.</p> <p>3.2: A range of education and training resources (trainers and materials) available, and the materials widely distributed, to promote and support disaster management training for various target audiences and at different levels.</p> <p>3.3: Increased capacity of in-country organizations providing disaster management training.</p> <p>3.4: All DCs, ADCs and DRROs, and TNOs and PIOs from the selected (most disaster prone) thanas, trained in basic disaster management and their specific responsibilities</p> <p>3.5: Disaster management modules introduced into the basic and refresher training of a wide range of government personnel (including BCS officers, police, field staff of line agencies, PVDOs etc.) and others, including religious leaders.</p> <p>3.6: A Disaster Management Handbook (for government personnel and others) covering, in the first instance, general aspects of disaster preparedness, proofing, and response, and specific aspects relating to cyclones and floods.</p>	<p>Equipment installed and operational, protocols prepared, approved by IMDMCC, disseminated and system used during exercise.</p> <p>Workshops, courses and study tours held and relevant follow-up reports published by DMB.</p> <p>Taskforce on DM Training and Awareness set up, meetings held, training needs determined, training materials and curricula developed, courses held and follow-up reports published.</p> <p>Register of training organisations prepared, capacity enhanced by provision of technical assistance and materials, reports published by DMB.</p> <p>Workshops held, training imparted and follow-up reports prepared and published by DMB.</p> <p>Needs assessed, modules developed, training courses held and follow-up reports prepared by DMB.</p> <p>Review of all available materials, procedures devised and approved by IMDMCC, 'draft' Handbook distributed and based upon comments received 'final' Handbook prepared, approved and widely disseminated.</p>	
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<p>4: Establish disaster action plans in the most disaster prone districts and thanas, and mobilize local communities in the most disaster prone areas to prepare and protect themselves, and to increase their own capacities to cope with and recover from disasters.</p> <p>5: Promote proven local-level risk reduction ("proofing") measures and develop post-disaster assistance strategies to maximize recovery benefits.</p> <p>6: Improve the effectiveness of warnings and warning dissemination systems, and the guidelines for facilities at shelters and evacuation sites for populations in high-risk areas.</p>	<p>4.1: Model disaster action plans for use at district, thana and union levels, and guidelines on preparing such plans including hazard mapping and vulnerability analyses.</p> <p>4.2: Disaster action plans, including hazard maps and disaster profiles, prepared by the Disaster Management Committees in the 15 selected (most disaster prone) districts and 50/60 thanas, and in 350/400 unions within those thanas.</p> <p>4.3: Enhanced public awareness in the selected, most disaster-prone thanas, of actions that can be taken at household and community levels to reduce losses due to the particular hazards they face, and to cope with and recover from disasters that do occur.</p> <p>5.1: Tried and tested, low-cost techniques for 'proofing' (risk reduction) measures to reduce damage and losses at household and community level in rural and urban areas.</p> <p>5.2: Recommendations concerning the viability of insurance against flood and cyclone damage for particular population groups, and/or mutual savings schemes.</p> <p>5.3: Recommendations for improved strategies for assistance to disaster-affected populations to promote rapid and sustainable recovery, and the ways in which these assistance strategies could be tested and progressively introduced.</p> <p>6.1: Improved cyclone warnings providing more specific information to threatened populations.</p> <p>6.2: Improved local-level flood warning dissemination systems.</p> <p>6.3: Improved guidelines for facilities at shelters and other safe (evacuation) sites in the high-risk cyclone and flood-prone areas, and their management.</p>	<p>Guidelines prepared and distributed, Model Disaster Action Plans developed and disseminated.</p> <p>Workshops held and Action Plans published by the DMCs.</p> <p>Studies and action research carried out and reported upon, strategies devised, motivators, identified and trained, briefings held at local level and programme being carried out.</p> <p>Studies and pilot testing carried out and reports prepared and published.</p> <p>Studies carried out and reports prepared and published.</p> <p>Studies and pilot schemes carried out.</p> <p>Research carried out improved 'messages' devised and field tested during exercises; Improved system of cyclone warnings for dissemination at local level put in place.</p> <p>Research carried out and local flood warning system devised and put in place</p> <p>Guidelines prepared and widely disseminated, visits/reports prepared by DMB staff and others.</p>	<p>Studies to be undertaken in the context of the present Programme Intervention will be specifically designed to build on and complement those that have already been undertaken in the context of BGD/91/021 and by other organizations, notably PVDs. In these cases, the emphasis would be on 'action research'.</p>
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<p>Inputs</p> <p>The Government will provide inputs in kind being the regular staff of the DMB, including all normal allowances, local travel/DSA, and the local costs in relation to: the provision and maintenance of office premises; related utilities all taxes including CDVAT and taxes which may be levied on monies paid to the international consultants.</p> <p>UNDP and other donors associated with UNDP on a co-financing basis will provide technical assistance, vehicles, and essential office supplies, computing and other equipment, overseas training fellowships and study tours and funds for field research for the production of the Disaster Management Handbook, other guidelines and plans.</p>	<p>Effective DMB staff is post, offices provided, tax liabilities met.</p> <p>Technical assistance staff fielded and (49mm international and 275mm national), vehicles and other equipment procured and operational, funding for training and DMH etc. provide</p>	<p>Regular reports by DMB, co-financing donors and evaluation missions.</p> <p>Regular reports by DMB, co-financing donors and evaluation missions.</p>	
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<p>Program Interventions</p> <p>1. Increase awareness at all levels of society concerning the practical ways of reducing disaster risks and losses.</p> <p>Output</p> <p>1.1: Increased awareness and understanding among the general public of the measures that can be taken at household and community levels to reduce disaster risks and losses.</p>	<p>1.1.i: Completion of research (needs assessment) to determine the extent of knowledge and any misconceptions concerning disaster management by Month 3.</p> <p>1.1.ii: Production of audio-visual materials and information kits for use in briefing sessions on improved disaster preparedness and cyclone and flood proofing by Month 9.</p> <p>1.1.iii: Production of materials for use by the mass media concerning disaster preparedness and practical risk reduction measures that household and local communities can take by Month 9.</p> <p>1.1.iv: Briefings arranged and information and documentation on disaster management provided on an ongoing basis to news media representatives/reporters mainly by end Month 12.</p> <p>1.1.v: Annual national disaster preparedness days to promote awareness and test preparedness plans held at various levels, to involving government officers schools, the business community, professionals and other associations, PVDOs, and, the people in the high-risk areas.</p> <p>1.2.i: Briefing sessions arranged in Dhaka for Members of Parliament and officials of Deputy Secretary rank and above on disaster preparedness and possibilities for practical, local level cyclone and flood proofing measures, main activity in first 12 months.</p> <p>1.2.ii: Short study tour arranged for policy makers and senior officials to review arrangements for cyclone preparedness in neighbouring countries before end Month 9.</p>	<p>Report published</p> <p>Materials and kits published and being used.</p> <p>Materials produced and being disseminated by mass media.</p> <p>Briefings held and proceedings published after each.</p> <p>Three events held and proceedings published each year.</p> <p>Briefings held and proceedings published following each.</p> <p>Tour held and report prepared and published.</p>	<p>The Taskforce on DM Training and Awareness (Sec 3.2.1) would gather together all existing materials and thoroughly review it before initiating the preparation of new materials.</p>
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Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>1.3: Basic information concerning disaster risks, preparedness arrangements, and proofing possibilities, included in school curricula and teacher training.</p> <p>Programme Intervention Purpose</p> <p>2. Strengthen national institutional capacity for disaster management with emphasis on preparedness and support to disaster management committees at district, thana and union levels.</p> <p>Outputs</p> <p>2.1: DMB serving as an effective national co-ordination unit for disaster management -- promoting prevention/mitigation and preparedness measures at all levels, and serving as a national Emergency Operations Centre (EOC) during emergencies -- with necessary expertise (trained staff), facilities, documentation, information and communication systems.</p>	<p>1.2.iii: Briefing sessions arranged at divisional HQs for officials, public representatives, PVDOs, businessmen, and others on disaster preparedness and possibilities for practical, local-level cyclone and flood preparedness and proofing measures by Month 24.</p> <p>1.3.i: Inclusion of information concerning disaster risks and the practical possibilities to reduce those risks in text books and other materials for use in grades V-VIII by Month 24.</p> <p>1.3.ii: Inclusion of disaster management information relevant to each particular geographic area in the training given to primary and secondary school teachers by Month 24.</p>	<p>Five briefing sessions held and proceedings prepared and published following each session.</p> <p>Text books etc published, distributed and being used.</p> <p>DM information in curricula and being taught.</p>	
	<p>2.1.i: Preparation of standard operating procedures for the DMB by end Month 3.</p> <p>2.1.ii: Enhanced disaster related databases and development of additional systems to support prevention and preparedness planning, emergency response, and post-disaster rehabilitation programmes, continuous activity over 36 months.</p> <p>2.1.iii: Evaluation of Geographic Information Systems (GIS) in support of disaster management at national and district levels, and, if appropriate, installation and testing at district level, main activity in first 12 months.</p> <p>2.1.iv: Development of a computerized catalogue and referencing system for the DMB library/documentation centre by end Month 3.</p>	<p>SOPs prepared and widely distributed</p> <p>Databases and systems in place and being used.</p> <p>Evaluation report prepared and necessary action taken.</p> <p>System in place and being used.</p>	

Narrative Summary	Objective Verifiable Indicators	Means of Verification	Important Assumptions
<p>2.1: A national policy statement and overall strategy for disaster management for approval the Government.</p> <p>2.2: A National Disaster Plan approved and published, incorporating, amongst other things, refined Standing Orders/Protocols (definitions of responsibilities, co-ordinating mechanisms, lines of communication), and arrangements for necessary logistic support services.</p> <p>2.3: Up-dated and up-graded internal contingency (disaster action) plans in key line agencies and other relevant bodies.</p> <p>2.4: A core group of individuals experienced in managing emergency and post-disaster operations on call at short-notice.</p>	<p>2.1.v: Preparation of protocols covering regular liaison and information exchange with the disaster management focal points in concerned line agencies, the Disaster Mitigation and Reconstruction Cell and with bodies concerned with environmental protection by end Month 3, with continuous exchange thereafter.</p> <p>2.1.vi: Preparation of protocols delineating procedures to enable DMB to act as the national EOC by end Month 6.</p> <p>2.2.i: Preparation of a national policy statement concerning disaster management by end of Month 6.</p> <p>2.2.ii: Preparation of an outline strategy and draft for an overall (comprehensive) Disaster Management Programme by end of Month 12.</p> <p>2.3.i: Preparation of Standing Orders/Protocols listing responsibilities of all concerned Ministries, line agencies, PVDOs and other bodies in relation to disaster management by end of Month 9.</p> <p>2.3.ii: Preparation of plans for logistic support operations at times of emergency by end of Month 6.</p> <p>2.3.iii: Preparation and issue of draft overall National Disaster Plan, incorporating the revised Standing Orders/Protocols and logistics plan by end of Month 18.</p> <p>2.4.i: Publication by BWDB, key line agencies, other relevant bodies, water control projects and PVDOs of their internal contingency (disaster action) plans by end of Month 13.</p> <p>2.5.i: Regular publication of a current roster of individuals, with proven experience of managing emergency assistance operations; assurance that all rostered individuals are available at short notice and have up-to-date instructions; and the holding of periodic group training workshops by end of Month 18.</p>	<p>Protocols prepared, approved by IMDMCC widely disseminated and being used.</p> <p>Protocols prepared, approved by IMDMCC, widely disseminated and being used.</p> <p>Statement prepared, approved by NDMC/IMDMCC and widely disseminated.</p> <p>Strategy and Programme prepared, approved by NDMC/IMDMCC and widely disseminated.</p> <p>SOs/Protocols prepared, approved by IMDMCC, widely disseminated and exercises held to test workability/readiness.</p> <p>Plans prepared, approved by IMDMCC and widely disseminated and exercises held to test workability/readiness.</p> <p>ND Plan prepared, approved by NDMC/IMDMCC, widely disseminated, and exercises held to test workability/readiness.</p> <p>Contingency Plans prepared, approved by IMDMCC, disseminated and exercises held to test workability/readiness</p> <p>Roster published every 6 months, regular contact with rostered personnel to ensure availability and holding of workshops.</p>	

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<p>2.6: Improved arrangements to ensure the rapid availability, following disasters, of supplies necessary to ensure survival and meet basic needs, and to expedite recovery.</p> <p>2.7: Improved telecommunications for disaster-related purposes. This includes: adequate telecommunications within the DMB; standing arrangements for collaboration during emergencies between organisations operating telecommunication systems; (including PVDOs) and improved access to telecommunications by operational assistance agencies.</p> <p>Programme Intervention Purpose</p> <p>3: Enhance the knowledge and skills of key personnel having disaster management responsibilities, develop in-country disaster management training capabilities, and provide relevant operational guidelines in the form of a Disaster Management Handbook.</p> <p>Outputs</p> <p>3.1: Senior staff of the DMB and key personnel in selected training institutes and other organizations trained in disaster management, and exposed to experiences and arrangements in some other countries in the region.</p>	<p>2.6.i: Preparation of protocols covering arrangements for the supply and stockpiling of commodities and equipment commodities and equipment by end of Month 6.</p> <p>2.6.ii: Development and introduction of effective 'fast track' import clearance procedures for relief materials by end of Month 9.</p> <p>2.7.i: Installation, operation and maintenance of telecommunications equipment being purchased under BGD/91/021 in the premises of the DMB and in selected districts by end of Month 3.</p> <p>2.7.ii: Issue of protocols for the mutual use of telecommunication networks during emergencies by end of Month 9.</p>	<p>Protocols prepared, approved by IMDMCC, widely disseminated and exercises held to test workability/readiness.</p> <p>Procedures agreed and put in place.</p> <p>Equipment installed and operating.</p> <p>Preparation of protocols, their approval by IMDMCC and dissemination and use of networks during exercises.</p>	<p>Participants continued service in their current posts, contributing directly to the Programme Implementation.</p> <p>Workshop held and report published.</p> <p>Courses held and report published.</p> <p>12 courses, each of 2 weeks, held and reports published.</p> <p>Three tours held and reports published.</p>
	<p>3.1.i: Short general management and team training workshop arranged for the staff of the DMB by end of Month 3.</p> <p>3.1.ii: Overseas training in 4-6 week disaster management courses arranged for up to 16 persons, ongoing over 36 months.</p> <p>3.1.iii: Participation of personnel from training institutes and other organizations in disaster management courses arranged by in-country bodies, ongoing over 36 months.</p> <p>3.1.iv: Study tours arranged for senior staff of the DMB and from training institutes (up to 18 persons in total) and other organizations to learn from the experiences of other countries in the region that face similar hazards over first 24 months.</p>		

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>3.2: A range of education and training resources (trainers and materials) available, and the materials widely distributed, to promote and support disaster management training for various target audiences and at different levels.</p>	<p>3.1.v. Refresher training arranged for personnel trained under 3.1.ii and others who have benefited from specialist disaster management training in Year 3.</p> <p>3.2.i: Taskforce on disaster management awareness and training, established and definition of the disaster management training needs and the related needs for curricula and training material by end Month 6.</p> <p>3.2.ii: Preparation, production and distribution of training materials suitable for the various target groups/audiences by end Month 12.</p> <p>3.2.iii: Training courses in the organization of disaster management workshops for trainers (TOT) two courses held by end Month 12, further two courses held by end of Month 24.</p> <p>3.3.i: Preparation and maintenance of a current register of organizations with proven capacity disaster management training and the enhancement of their capacity through the provision of documentation, training material's, advice and equipment, ongoing throughout 36 months.</p>	<p>Training arranged and reports published.</p> <p>Taskforce created, regular meetings held, training, and related materials, needs assessment report prepared, approved and acted upon.</p> <p>Materials published, distributed and used.</p> <p>Courses, each of three weeks held, reports prepared and follow up visits/reports carried out by DMB Director, Training, to see that materials etc used.</p> <p>Register prepared, capacity enhanced and follow up visits/reports carried out by DMB, Director, Training.</p>	
<p>3.3: Increased capacity of in-country organizations providing disaster management training.</p>	<p>3.4.i: Disaster management workshops held for all DCs, ADCs and DRROs at divisional level, mainly within first 12 months.</p> <p>3.4.ii: Disaster management workshops held at district level for TNOs and PIOs in the fifteen selected (most disaster prone) districts ongoing throughout 36 months.</p> <p>3.4.iii: Orientation training held for the Union Chairmen and Union Secretaries within the 50/60 selected (most disaster-prone) thanas, ongoing throughout 36 months.</p> <p>3.5.i: Inclusion of appropriate disaster management modules in regular courses for all levels of personnel and provision of relevant material and resource persons, mainly within first 12 months.</p>	<p>Five workshops held and reports prepared.</p> <p>Fifteen workshops held and reports prepared.</p> <p>Training imparted and reports prepared.</p> <p>Modules prepared, included in courses, courses given and follow up visits/reports prepared by DMB, Director Training.</p>	
<p>3.4: All DCs, ADCs and DRROs, and TNOs and PIOs from the selected (most disaster prone) thanas, trained in basic disaster management and their specific responsibilities.</p>			
<p>3.5: Disaster management modules introduced into the basic and refresher training of a wide range of government personnel (including BCS officers, police, field staff of line agencies, PVDOs etc.) and others, including religious leaders.</p>			

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>3.6: A Disaster Management Handbook (for government personnel and others) covering, in the first instance, general aspects of disaster preparedness, proofing, and response, and specific aspects relating to cyclones and floods.</p>	<p>3.5.ii: Definition by line agencies of training needs of their staff, preparation of short modules for inclusion in the basic and/or refresher training, and the holding of disaster management workshops, within 24 months</p> <p>3.6.i: Review of existing procedures and criteria for initial damage and needs assessments following a disaster; and policies and guidelines concerning possible assistance needs and standards of provision by Month 6.</p> <p>3.6.ii: Preparation of improved procedures, guidelines and criteria for early assessments; guidelines on possible assistance needs and standards of provision; guidelines and decision aids for resource allocations (including refined "distress/deprivation" factors); and guidelines on accountability by Month 9.</p> <p>3.6.iii: Prepare a draft Disaster Management Handbook, and issue to the Disaster Management Committees at district, thana and union levels, concerned line agencies, PVDs and others concerned by Month 18.</p> <p>3.6.iv: Prepare and publish a refined and expanded version of the Handbook by Month 30.</p>	<p>Training needs identified, modules prepared and included in courses etc., relevant workshops held and reports prepared.</p> <p>Review completed, improved procedures etc prepared, approved by IDMMCC, and disseminated.</p> <p>'Draft' Handbook prepared and distributed for field testing and comment.</p> <p>'Final' Handbook prepared, approved by IDMMCC, published and widely distributed, follow up visits/reports by JMB staff to monitor use.</p>	<p>Relevant material from the Disaster Management Handbook for Bangladesh published in April 1993 by BOPC would be incorporated in the DMH.</p>
<p>Programme Intervention Purpose</p> <p>4: Establish disaster action plans in the most disaster prone districts and thanas, and mobilize local communities in the most disaster prone areas to prepare and protect themselves, and to increase their own capacities to cope with and recover from disasters.</p>	<p>4.1: Preparation and issue of guidelines for the preparation of simple hazard maps and basic vulnerability analyses at district, thana and union levels by end of Month 3.</p>	<p>Guidelines distributed and hazard maps and vulnerability analyses prepared at local level, follow up visits/reports by DMB staff.</p>	
<p>Outputs</p> <p>4.1: Model disaster action plans for use at district, thana and union levels, and guidelines on preparing such plans including hazard mapping and vulnerability analyses.</p>			

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>4.2: Disaster action plans, including hazard maps and disaster profiles, prepared by the Disaster Management Committees in the selected (most disaster prone) districts and thanas, and in unions within those thanas.</p> <p>4.3: Enhanced public awareness in the selected, most disaster-prone thanas, of actions that can be taken at household and community levels to reduce losses due to the particular hazards they face, and to cope with and recover from disasters that do occur.</p>	<p>4.1.ii: Prepare model disaster action plans for use at district, thana, and union levels by end of Month 4.</p> <p>4.2.i: Priority 50/60 thanas (and 15 districts) to be taken up for assistance in the three year period for the development of thana level Action Plans selected by Month 4.</p> <p>4.2.ii: Workshops held for the Disaster Management Committees in the selected districts, thanas and unions and the most accurate maps and data or hazard maps distributed to Disaster Management Committees, ongoing over 30 months.</p> <p>4.3.i: Undertake research and pilot projects at grass-roots level in priority areas, during first 12 months, to:</p> <ul style="list-style-type: none"> - determine people's perceptions and attitudes to disasters and ways of reducing losses; - identify proven risk reduction (proofing) response and recovery techniques and strategies that can be adopted by individual households or villages; - identify the most effective communications strategies and methods; and - develop, through experimentation, participatory strategies for increasing popular awareness and understanding of possibilities for self-help. <p>4.3.ii: Develop community mobilization strategies, prepare and produce information and motivational materials for use at community level, mainly by end of Month 12.</p> <p>4.3.iii: Identify and mobilize potential motivators, establish linkages and co-operation with other resource organizations and individuals at thana level, union and village levels in the selected areas, and provide training for the selected motivators, mainly by end of Month 12.</p>	<p>Model plans prepared and distributed to DMCs at various levels.</p> <p>Most disaster prone districts and thanas identified</p> <p>Workshops held and materials distributed follow up visits/reports prepared by DMB staff. Publication by DM Committees in 15 districts, 50/60 thanas and 350/400 unions of hazard maps, disaster profiles, and disaster action plans for their own areas.</p> <p>Research and pilot projects carried out and reports published.</p> <p>Strategies developed, materials prepared and disseminated.</p> <p>Motivators trained, linkages established and cooperation assured, visits/reports by DMB staff.</p>	<p>The Taskforce on DM Training and Awareness would gather together all available materials and review it before initiating the preparation of new materials.</p>

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Narrative Summary	Objectively Verifiable	Means of Verification	Important Assumptions
<p>Programme Intervention Purpose</p> <p>5: Promote proven local-level risk reduction ("proofing") measures and develop post-disaster assistance strategies to maximize recovery benefits.</p> <p>Outputs</p> <p>5.1: Tried and tested, low-cost techniques for 'proofing' (risk reduction) measures to reduce damage and losses at household and community level in rural and urban areas.</p> <p>5.2: Recommendations concerning the viability of insurance against flood and cyclone damage for particular population groups, and/or mutual savings schemes.</p> <p>5.3: Recommendations for improved strategies for assistance to disaster-affected populations to promote rapid and sustainable recovery, and the ways in which these assistance strategies could be tested and progressively introduced.</p>	<p>4.3.iv: Advocacy/promotional events held in the selected districts, thanas and unions, to raise public awareness, ongoing throughout 36 months.</p> <p>4.3.v: Community mobilization programmes through the Union Disaster Management Committees initiated to motivate and help village/neighbourhood communities to organize themselves individually and collectively, ongoing throughout 36 months.</p> <p>5.1.i: Undertake further studies and pilot testing at community level, of techniques that can be applied at community level in rural and urban areas to reduce damage and losses due to cyclones and floods, mainly within first 18 months.</p> <p>5.2.i: Field studies undertaken to assess the viability of insurance and mutual savings schemes, to provide some degree of protection for low-income groups against flood and cyclone damage, mainly within first 24 months.</p> <p>5.3.i: Studies and pilot schemes undertaken to develop and test alternatives to existing relief strategies that could promote recovery and reduce dependence, while meeting humanitarian needs following a disaster, mainly within first 24 months.</p>	<p>Events held reports prepared and published, visits/reports by DMB staff and UNICEF.</p> <p>Programmes being carried out, visits/reports by DMB staff and UNICEF.</p> <p>Studies and pilot testing carried out and reports prepared and published.</p> <p>Studies carried out and reports prepared and published.</p> <p>Studies and pilot schemes carried out.</p>	

Programme Intervention Purpose

6: Improve the effectiveness of warnings and warning dissemination systems, and the guidelines for facilities at shelters and evacuation sites for populations in high-risk areas.

Outputs

6.1: Improved cyclone warnings providing more specific information to threatened populations.

6.2: Improved local-level flood warning dissemination systems.

6.3: Improved guidelines for facilities at shelters and other safe (evacuation) sites in the high-risk cyclone and flood-prone areas, and their management.

Cyclone warnings broadcast by Radio BD and BD TV, and issued through other channels providing more specific information for threatened populations in terms that these populations understand.

Local-level flood warning dissemination arrangements developed in selected high risk areas.

Improved guidelines prepared and issued for the establishment and management of facilities at shelters and other safe ('evacuation') sites in the high risk cyclone and flood prone areas.

6.1.i: Undertake communications research to establish and test more specific and explicit warning messages by end of Month 6.

6.2.i: Develop and test local, community-based, flood warning dissemination arrangements by end of Month 18.

6.3.i: Preparation of guidelines for the facilities to be provided at shelters and other safe (evacuation) sites and the management of those facilities during an emergency by end of Month 18.

NOTES ON DISASTER PREPAREDNESS PLANNING WITHIN A THANA

1. Introduction

A number of distinct steps which are outlined in Section 2 will be needed to successfully develop a Thana-level Disaster Action Plan.

Section 3 headed 'Thana Disaster Action Planning', includes a draft outline for a Thana Plan, and discusses the content required for each thana.

For actual use at thana level, Section 3 might be produced in the format of a workbook, with each item being given a separate page (the text being printed at the top of the page) which can then be completed with the required information, initially by hand, then by typewriter. Additional pages could be inserted as needed. However, to save paper, the version to be distributed to the first Thana Disaster Management Committee (DMC) meeting (See Table 2.1 - Step 3) could be printed as a continuous document.

Meetings of the Thana DMC should be held in a workshop format, with participants sitting around a large table, or in a ring (or a square) with tables on which they could place papers and write.

2. Process for Developing a Thana Disaster Action Plan

The steps that might be followed to develop a Thana Disaster Action Plan are discussed below. The process should be refined or adapted on the basis of experience in one or two pilot thanas.

- a) **Detailed discussion with Zonal Disaster Preparedness Specialist (under BGD/92/002) DRRO and PIO:** to ensure that they (the ZDPS, DRRO and PIO) understand what is needed and the approach envisaged, and to discuss the particularities of the thana from their experience. [This will require fairly detailed explanation and discussion -- perhaps ½ day -- in the early (pilot) thanas, until the proposed training workshops for DRROs and PIOs have been initiated.]
- b) **Discussion with TNO, including ZDPS, DRRO and PIO:** to ensure that the TNO understands what is needed and the approach envisaged, and to discuss the local situation. [1-2 hours]
- c) **First Meeting of the Thana DMC (1-day workshop):** to review experience and discuss what can and should be done locally, now, to reduce vulnerability and prepare for the next disaster. A detailed agenda should be prepared, printed and distributed in order to focus the discussion (See Table 2.1). A skilled chairman would be essential to allow some expressions of concern about embankments and shelters to be registered, but then keep the discussion focused on what can, and should, be done now, locally, to prepare for the next disaster that could happen "tomorrow". The result of the meeting/ workshop should be a general understanding of the need and the possibilities for greatly improved local-level preparedness, the designation of a Working Group (sub-committee) to prepare a draft Plan, and an agreement to reconvene to refine, adopt and implement the Plan.

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TABLE 2.1

**Agenda for First Meeting of Thana Disaster Management Committee
to discuss Disaster Preparedness Planning**

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1. What has been the impact of cyclones (or floods) in the locality and what are the underlying causes of losses?
 [What kind of damage and losses were sustained in 1970/85/91 in cyclone-prone areas (in 1987/88 in flood-prone areas)?]
 [Why were losses so high? What were the underlying causes of the vulnerability, e.g.: Not enough safe sites? Not enough trees? No precautions taken to preserve valuables? Warnings not disseminated early enough or not believed? Inadequate maintenance of embankment? Blocked sluice gates?]
 2. Which localities are the most hazard-prone and vulnerable?
 [Which areas (unions and villages) have been worst affected in the past and must be considered the most vulnerable today, taking account of any major embankments or other protective structures that have been completed recently or remain unrepaired since the last disaster?]
 3. What can be done locally, in the short term, to reduce risks and vulnerability?
 [A major cyclone (or flood) may occur in the next few weeks or months: more embankments and cyclone shelters may be desired, but would necessarily take years to complete and resources will never be available to provide shelters for everyone: what can and should be done now, with resources presently available, to: Reduce vulnerability at household level? Ensure effective dissemination of warnings? Identify safe sites and plan evacuation routes? Protect household valuables, water supplies, essential services, etc.?
 4. What can be done locally, in the short term, to ensure prompt and efficient rescue and relief operations, and to accelerate rehabilitation and recovery?
 [What was the experience of organizing the Control Room and managing rescue, relief and rehabilitation operations last time? What problems were encountered and what lessons should be learned? How should we plan to organize ourselves to be ready for the next time?]
 5. Who does what? What resources are available? How do we ensure co-ordination and overall efficiency?
 [What human and material resources are available locally? How can the best use of those resources be assured? How can additional resources, if needed and available, best be used to save lives and promote recovery? How can duplication of effort be avoided and resources be focused on the real priorities?]
 6. What kind of a Disaster Action Plan is needed? Does the draft prepared by the DMB provide a suitable basis, or starting point?
 [Distribute copies of the draft Plan, translated into Bangla. Explain and discuss the draft in general terms.]
 7. How shall we proceed?
 [Encourage the DMC to form a working group of 6-8 persons to work with the DMB staff, DRRO and PIO to prepare a first draft in consultation with other members of the DMC as required.]
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- d) **Preparation of a Draft Plan by the Working Group:** several meetings of the Working Group together with the DMB staff member(s), (including ZDPS) the DRRO and PIO, and individual sessions with representatives of other key bodies/organizations not included in the Working Group, to prepare [perhaps over a 4-week period] a rough, concise draft. The DMB staff, DRRO and PIO will have to be ready to undertake much of the actual compilation and drafting on the basis of information and suggestions provided by others:

with reference to Section 3.2 below

- start with 3.2.1, 3.2.2, and Annexes A (maps), B (profile) and C (list of contacts);
- then specify 3.2.3 and 3.2.4; (complete 3.2.5 only after the various topics have been discussed and requirements for any sub-committees have been identified);
- give detailed attention to 3.2.6 (promoting proofing and coping measures);
- finally, specify arrangements for the warning, disaster and recovery phases.

It should be noted that the draft might not necessarily be complete in all aspects. Where special problems/issues are identified, these should be highlighted in the draft and brought forward for discussion at the next meeting of the DMC. [d) might take 4 weeks]

- e) **Second meeting of Thana DMC to review and discuss the draft Plan:** the draft should be presented and explained to the full DMC, and any outstanding issues highlighted. Copies of the draft should be provided to all members a few days in advance. After a general discussion, all members should be requested to further study the draft and provide the TNO/PIO with specific suggestions for refinements or modifications within a defined period (say 2 weeks).
- f) **Refinement of the Draft by the Working Group:** further meetings of the working group together with the DMB staff member(s), the DRRO and PIO, and consultations with others as required, leading to a refined draft. [allow 4 weeks]
- g) **Third meeting of Thana DMC to review and, if possible, finalize and adopt the Plan (initial version):** copies of the revised draft should be provided to all members a few days in advance, and the meeting discuss and attempt to resolve any outstanding issues, and agree on how to proceed with implementing the Plan.

[A further round of refinement by the Working Group and another DMC meeting might be required in some cases, especially if there has not been sufficient real consultation during the previous periods (3.2.4 and 3.2.6).]

- h) **Implementation:**

3. Thana Disaster Action Planning

3.1 Explanatory Notes

This notes provides and outline of the details to be compiled and plans to be developed to cater for disaster preparedness within a thana. This outline must be refined and expanded on the basis of pilot planning exercises and tests in a few representative thanas.

a) Policies and Responsibilities:

The primary responsibility for preparedness planning and response at community level to both warnings and the occurrence of a disaster lies with the people themselves.

The Government and other assistance agencies, particularly NGOs and voluntary organizations, provide advice and assistance to local communities in relation to both preparedness and response. This assistance is primarily aimed at reducing vulnerability to known hazards and increasing the capability of communities to cope with and recover from disasters that do occur. The Government also seeks to provide forecasts and warnings of imminent threats, and to ensure the protection and rehabilitation of essential infrastructure and the continuity and/or rapid restoration of basic services. Relief, where needed to save lives in the immediate aftermath of a disaster, is provided within the limits of available resources and on the basis of objective assessments of the needs of particular communities.

Within this general framework, the particular responsibilities of the various administrative levels union, thana and district, may be as indicated in Table 3.1., 3.2, and 3.3 (subject to formal confirmation in the context of revised Standing Orders for Disaster).

b) Basic Principles

Disaster Action Plans must be drawn up at all levels: district, thana, union and village. Each Plan must be adapted to the particular local situation and be based on:

- (i) clearly stated objectives that are understood and agreed by all concerned;
- (ii) up-to-date information concerning risks faced and resources available locally; and
- (iii) relevant national policies and the specific responsibilities of union, thana and district level bodies (including authorities and arrangements for accountability).

The Plan must be clear, concise and understood by all concerned, by everyone who is expected to be involved in its implementation. Representatives of all concerned must participate in drawing up the Plan under the auspices of the thana disaster management committee.

c) Relationship between Thana, Union and District Plans:

Plans at the various levels must be specifically designed to complement each other. The Thana Plan must provide for action and the management of resources (human and material) at the level of the thana to fulfill the thana-level responsibilities indicated in Table 3.1/3.3 (inc). This includes action to supervise, guide, support and assist the union-level authorities and local communities as required, but not to take over (usurp) their responsibilities. Similarly, the Thana Plan should provide for reporting to, and requesting and receiving support and assistance from, the district level, when required.

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TABLE 3.1

Proposed Responsibilities of
Union Disaster Management Committees

Union Disaster Management Committee (Union DMC) would be responsible for:

- i) ensuring that the local population is informed about the practical measures they can take (individually and collectively) to reduce risks, and promoting community-level risk reduction and coping mechanisms;
- ii) drawing up a Disaster Action Plan for the union to ensure the readiness and ability of the local communities, union authorities and local organizations to respond effectively and efficiently to warnings of an imminent threat and to the occurrence of a disaster, including:
 - ensuring that cyclone and flood warnings are promptly and effectively disseminated locally, and that people know what to do to protect themselves and their property;
 - designating evacuation/shelter sites to which people should move when need arises, and individuals (leaders) to be responsible for organizing particular services at those sites;
 - arranging, in collaboration with the thana-level authorities, to ensure potable water supplies at the designated sites, and the delivery of other services, when required;
 - contingency plans for local rescue and initial relief activities, for communicating with the thana headquarters, and for local action to help the worst-affected households to recover;
- iii) organizing, in collaboration with the thana authorities, periodic information campaigns, and practise drills for warning dissemination, evacuation, rescue and initial relief operations;

In the event of a disaster

- iv) organizing initial rescue activities using locally-available means, when required, and collaborating with other rescue services, when assigned;
 - v) compiling data on the impact of the disaster and forwarding the same to the thana authorities following the guidelines (to be) provided by the DMB and the thana authorities;
 - vi) organizing the distribution of relief and rehabilitation assistance in line with the general guidelines (to be) provided by the DMB and the thana authorities, using both locally-available resources and any additional resources provided by/through the DRR or other bodies,
 - vii) accounting to the thana authorities and other contributing agencies for the use of the resources provided.
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TABLE 3.2

**Proposed Responsibilities of
Thana Disaster Management Committees**

Thana Disaster Management Committee (Thana DMC) would be responsible for:

- i) ensuring that broadly-based Union DMCs are formed, function effectively, receive relevant guidelines and information, and benefit from available training opportunities;
- ii) promoting awareness and the implementation of local-level risk reduction ("proofing") and coping mechanisms of proven effectiveness;
- iii) ensuring that disaster risks, and possibilities for reducing vulnerability and risks, are fully considered in the local-level planning and implementation of development projects;
- iv) drawing up a Disaster Action Plan for the thana to ensure the readiness and ability of the thana authorities and local organizations to respond effectively and efficiently to warnings of an imminent threat and to the occurrence of a disaster, including:
 - ensuring that cyclone and flood warnings are promptly and effectively disseminated to all officials and other concerned parties within the thana and to those responsible at union level;
 - designating evacuation/shelter sites to which residents in the thana headquarters should move when need arises, and individuals to be responsible for organizing particular services at those sites;
 - arranging potable water supplies at the designated sites at the thana headquarters and the delivery of other services, when required, and, in collaboration with the Union DMCs, ensuring the provision of similar facilities and services at designated sites at union level;
 - contingency plans for support to the union DMCs in rescue and initial relief activities, for establishing communications with the unions and the district headquarters, and for maintaining/re-establishing essential services;
- v) organizing, in collaboration with the district and union authorities, periodic information campaigns within the thana, and practise drills for warning dissemination, evacuation, rescue and initial relief operations;

in the event of a disaster

- vi) operating an emergency operations centre (information centre and control room) to co-ordinate evacuation, rescue and relief operations throughout the thana;
- vii) organizing rescue activities within the thana using locally-available means, when required, and co-ordinating the operations of other rescue services, when assigned;
- viii) obtaining and verifying data on the impact of the disaster from union level and from thana officials, arranging surveys by officials and other competent individuals, and hence compiling assessments of needs and establishing priorities following the guidelines (to be) provided by the DMB and the district authorities;
- ix) forwarding data on damage, needs and available resources, and assessed priority requirements for relief and rehabilitation to the district authorities;
- x) drawing up carefully prioritized plans for local-level rehabilitation incorporating risk reduction measures to the extent feasible;
- xi) allocating and arranging the delivery within the thana of available resources for rescue operations, relief and rehabilitation on the basis of objective assessments of need and in line with the general guidelines (to be) provided by the DMB and the district authorities, using both locally-available resources and any additional resources provided by/through the DRR or other bodies;
- xii) supervising the distribution and use of relief and rehabilitation assistance, and accounting to the district authorities and other contributing agencies for the use of the resources provided.

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TABLE 3.3

**Proposed Responsibilities of
District Disaster Management Committees**

District Disaster Management Committee (District DMC) would be responsible for:

- i) ensuring that broadly-based Thana DMCs are formed, function effectively, receive relevant guidelines and information, and benefit from available training opportunities;
 - ii) ensuring that disaster risks, and possibilities for reducing vulnerability and risks, are fully considered in the district-level planning and implementation of development projects;
 - iii) drawing up a Disaster Action Plan for the district to ensure the readiness and ability of the thana authorities and local organizations to respond effectively and efficiently to warnings of an imminent threat and to the occurrence of a disaster, including:
 - ensuring that cyclone and flood warnings are promptly and effectively disseminated to all officials and other concerned parties within the District, and to those responsible at thana level;
 - designating evacuation/shelter sites to which residents in the district headquarters should move when need arises, and individuals to be responsible for organizing particular services at those sites;
 - arranging potable water supplies at the designated sites at the district headquarters and the delivery of other services, when required, and, in collaboration with the Thana DMCs, ensuring the provision of similar facilities and services at designated sites at union level;
 - contingency plans for support to the thana DMCs in rescue and initial relief activities, for establishing communications with the thanas and the national EOC/DMB, and for maintaining/re-establishing essential services throughout the district;
 - iv) organizing, in collaboration with the DMB and thana authorities, periodic information campaigns within the district, and practise drills for warning dissemination, evacuation, rescue and initial relief operations;
- in the event of a disaster**
- v) operating an emergency operations centre (information centre and control room) to co-ordinate support to evacuation, rescue, relief and initial rehabilitation operations throughout the district;
 - vi) supervising rescue activities within the district including mobilizing locally-available means, when required, and co-ordinating the deployment of other rescue services to the worst-affected thanas, when assigned;
 - vii) obtaining and verifying data on the impact of the disaster from thana officials and Thana DMCs, arranging surveys by officials and other competent individuals, and hence compiling assessments of needs and establishing priorities following the guidelines (to be) provided by the DMB and other national authorities;
 - viii) forwarding data on damage, needs and available resources, and assessed priority requirements for relief and rehabilitation to the national EOC/DMB;
 - ix) drawing up carefully prioritized district plans for rehabilitation incorporating risk reduction measures to the extent feasible;
 - x) allocating and arranging the delivery to thanas of available resources for rescue operations, relief and rehabilitation on the basis of objective assessments of need and in line with the general guidelines (to be) provided by the DMB and the district authorities, using both locally-available resources and any additional resources provided by/through the DRR or other bodies;
 - xi) supervising the distribution and use of relief and rehabilitation assistance, and accounting to the relevant national authorities and other contributing agencies for the use of the resources provided.

3.2. Outline for a Thana Disaster Action Plan

N.B. The information compiled in the Annexes (see page 13) constitutes a vital, integral part of the Plan.

3.2.1 Objectives

Specify the objectives in relation to disasters. In general the aim is to reduce the human and economic costs of disasters in the locality by:

- increasing awareness of the risks and of the practical possibilities for reducing those risks through action at household, community, union and thana levels;
- promoting the implementation of such risk reduction (protection and proofing) measures as much as possible through local initiative and resources;
- improving local warning dissemination systems in relation to cyclones and/or floods, as appropriate;
- establishing and practising local (contingency) plans for evacuation, rescue, needs assessment, relief and initial rehabilitation measures.

Within that general framework, detailed objectives may be elaborated relevant to the locality concerned.

3.2.2 Hazards/Disaster risks

List the specific areas, population groups, crops, other economic activities, community services, roads, other communications links, and other local facilities that are likely to be seriously affected by each particular hazard to which the area is prone: cyclone, severe river flood, flash flood, or other potential disaster.

Prepare maps (based on the LGED Plan Books) showing the areas, specific villages, infrastructure and facilities that are vulnerable to the impact of cyclones, severe floods, or other hazards. Include these hazard/vulnerability maps as Annex A(ii) to the Plan.

- In relation to cyclones: show the height of the storm surge that reached particular locations during the worst cyclone in living memory (probably 1970 for the Bhola/Patuakhali/barguna area; 1985 for Sandwip and Urri Char; 1991 for Chittagong and Cox's Bazar). Also show the areas where water has remained for several days after the cyclone due to problems of drainage.
- In relation to riverine flooding: show the flood depths in particular locations/areas, and the roads and other lines of communication that were cut, during 1988 or whatever is considered locally to be the worst flood in recent memory.
- In relation to flash floods: show separately the areas that have been totally defastated in the past, and those that have suffered substantial damage.

3.2.3 General Responsibilities of the Thana Disaster Management Committee (Thana DMC)

Summary statement of the responsibilities of the thana-level committee and thana authorities, and the relationship with the union and district levels. (See Tables 3.1/3.3).

3.2.4 Composition of the Thana Disaster Management Committee (Thana DMC)

List the ex officio members, official representatives of relevant organizations/bodies, and any co-opted members.

Describe arrangements for co-operation with other relevant bodies.

3.2.5 Composition and Functions of Sub-Committees of the Thana DMC

Specify the responsibilities and membership of any sub-committees formed for specific functions: e.g. promotion of community-level proofing and preparedness; warning dissemination systems; evacuation arrangements, shelters and safe sites; needs assessment and allocations for relief and rehabilitation; etc.

3.2.6 Local-level Protection and Proofing Measures

Specify:

- (i) The measures (of proven effectiveness) that can be taken by households, individually or collectively, to reduce risks and losses in the event of a cyclone, flood or other form of disaster to which the area is prone, and which enhance their ability to cope with and recover from such disasters;
- (ii) Arrangements and programmes (existing and planned) to enhance the awareness of vulnerable populations and all others concerned of the actions (defined above) that people can and should take to reduce risks and losses;
- (iii) Practical measures and programmes (existing and planned) to promote the implementation of appropriate measures (as defined above) at community level;
- (iv) Measures (underway or planned) at the thana level to reduce risks and losses to infrastructure, public facilities and the local economy.

3.2.7 Warning Systems and Precautionary Response

Specify:

- (i) Arrangements within the thana for disseminating cyclone and/or flood warnings, where relevant, to: the people in the at-risk areas; all concerned officials; the managers of important establishments. In each case, list:
 - the individuals responsible to ensure that warnings are conveyed;
 - the means by which information is to be passed to specified recipients; and
 - back-up arrangements to be used in case of difficulties in communications.
- (ii) The actions to be taken by particular bodies or persons on receipt of particular levels of warning, including action to:
 - inform other people, and organize/assist in evacuation, where necessary;
 - protect infrastructure and property for which they are responsible, including vital supplies and service delivery facilities;
 - help others to protect vital supplies and facilities; and
 - prepare to organize community action and/or official services to act in the immediate aftermath of any eventual disaster impact.

3.2.8 Arrangements for Evacuation

Specify:

- (i) The conditions under which people should evacuate themselves to safe sites, or evacuations to arranged by the local authorities either in response to a warning or following a disaster impact.
- (ii) The areas from which people are most likely to need to evacuate/be evacuated (based on union-level plans), and the locations of shelters or safe sites to which people from particular areas/locations should move.
- (iii) The assistance to be provided to union authorities in relation to the evacuation of the population, in particular in the planning, administration and servicing of shelters and safe sites.
- (iv) Arrangements for evacuation within the thana headquarters, and of particular institutions or establishments within the thana, including the sites to which particular groups should move, the facilities available there (especially water supply and sanitation), and the persons responsible for organizing/administering the shelter or safe site.

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- (v) Arrangements for communications with, and the delivery of assistance to, the designated shelter/evacuation sites throughout the thana
 - (vi) Special considerations and provisions for vulnerable groups.

Show the location of designated shelter/evacuation sites on a map in Annex A(iii). Include in Annex D a table listing each site; the particular area or group that it is to serve; the arrangements for water supply, sanitation, shelter and cooking; and the person(s) responsible for administering the site during an evacuation.

3.2.9 Arrangements for Rescue and Casualty Care

Specify:

- (i) The officer/individual responsible for co-ordinating search and rescue activities within the thana, and the resources that are expected to be mobilized for the purpose within the thana and from outside.
- (ii) The areas expected to be of highest priority for rescue services following a cyclone or during a severe flood, and the types of boats or other transport likely to be needed.
- (iii) The assistance to be provided to the union authorities in organizing rescue activities.
- (iv) Arrangements for rescue activities within the thana headquarters.
- (v) The criteria to be applied in assigning available rescue capacity to different localities.
- (vi) Arrangements to co-ordinate the movement of rescue teams with those of health and other personnel.
- (vii) Locations where emergency medical care facilities may be established, when needed, by mobile medical teams.
- (viii) Special considerations and provisions for vulnerable groups.

3.2.10 Arrangements for Burial

Specify any support and assistance to be provided to union authorities to ensure the rapid and appropriate burial of the dead in cases where large numbers of people have been killed.

3.2.11 Establishment and Operation of a Thana Control Room

Specify:

- (i) the location (room) to be used as Control Room at times of disaster;
- (ii) who will be in overall charge of the Control Room, when activated, and the persons who will deputize to ensure round-the-clock (24-hour) operation, when required;
- (iii) the means that will normally be expected to be used to communicate with each union and the district headquarters, and the alternative/back-up means of communication to be used, or set up, in case normal means are disrupted;
- (iv) the records that will be kept, the forms to be used, and the information to be displayed on wall charts and/or maps; [Specific guidelines to be developed by the DMB in due course]
- (v) arrangements to provide emergency lighting and power for communications.

3.2.12 Restoration/Provision of Telecommunications

Specify arrangements for the restoration or provision of telecommunications links with the district headquarters and within the thana, when these are disrupted. [Arrangements to be agreed with the District DMC and relevant departments.]

3.2.13 Security/Protection of Property

Specify (in liaison with relevant district authorities) the action to be taken by the police, VDP and others to ensure order within the community and the protection of personal and public property throughout the thana.

3.2.14 Damage and Needs Assessment and Reporting

Specify

- (i) Responsibilities and specific arrangements for assessing damage and needs, and for reporting such data to the TNO/TDMC, including both information from union authorities/DMCs and from special assessment teams (including thana officers and other competent, independent persons).
- (ii) Arrangements for the consolidation and analysis of data at the thana level (in the Thana Control Room), and for the submission of reports to the district level (DC through the District Control Room) and to the EOC/DMB.
- (iii) Arrangements to form assessment teams and to dispatch them to the worst affected areas to assist in initial assessment and to verify information from other sources, when required.

3.2.15 Co-ordination of Assistance

Specify responsibilities and practical arrangements to co-ordinate the relief and rehabilitation assistance activities of different groups, from within the thana and from outside. Arrangements, to be established in liaison with the district authorities/DMC, should normally include:

- (i) regular meetings of the Thana DMC including representatives of all organizations providing assistance in the thana; and
- (ii) arrangements to provide any independent assistance groups arriving in the area with information and guidance on unmet needs and priorities of different areas within the Thana; this may in some cases best be done through the operation, during the first few days, of a special Information Centre on the main access route for outsiders arriving in the Thana.

3.2.16 Management of Relief Supplies

Specify:

- (i) responsibilities and arrangements for the reception and storage of relief supplies, and for maintaining records and accounts;
- (ii) criteria for allocation to unions and selection of beneficiaries;
- (iii) responsibility for deciding allocations at thana level;
- (iv) arrangements for accounting and reporting within thana and to district authorities on use of resources;
- (v) arrangements for monitoring the final distribution of supplies to beneficiaries.

3.2.17 Restoration of Essential Services

Specify, in liaison with the District DMC and relevant departments, priorities and responsibilities for action to restore essential community services. This includes both primary responsibility and others who would be expected to provide support.

3.2.18 Support to Rehabilitation

Specify, in liaison with the District DMC and relevant departments:

- (i) probable priorities and the inputs likely to be required to support self-help rehabilitation of housing, agriculture, and the regeneration/creation of employment opportunities;
- (ii) arrangements to co-ordinate action within each sector at thana level, including the designation of a focal point and, possibly, the establishment of a sub-committee of the Thana DMC. [The DMC should maintain an overview and seek to ensure a balance and complementarity between assistance in the various sectors.]

3.2.19 Logistics

Specify, on the basis of experience and specific contingency scenarios, and in liaison with both the union DMCs and the district authorities:

- (i) where supplies that might be required for relief and rehabilitation purposes are normally available locally, and where any supplies from outside the thana are likely to arrive, when needed;
- (ii) the areas where particular types of personnel and relief/rehabilitation supplies are likely to be needed in the immediate aftermath of a cyclone, flood or other disaster, and the locations to which they should be delivered (where they should be able to be received and stored, and from where they can be distributed);
- (iii) the means of transport likely to be required and available within the thana to move personnel and supplies to those locations, and arrangements for requisitioning and/or contracting transport;
- (iv) the specific locations and premises where supplies would be stored temporarily at thana and union levels, or elsewhere, including who would be responsible at each location and the records to be kept (forms to be used to record receipts and issues);
- (v) responsibility and procedures for co-ordinating use of transport, storage and related services within the thana in support of priority relief and rehabilitation activities.

3.2.20 Arrangements for Testing and Up-dating the Plan

Specify the arrangements that will be made to test the Plan periodically, and to review and up-date it as and when required.

3.3 Annexes to the Thana Disaster Action Plan:

A Maps

- (i) General thana map, showing union boundaries, villages, roads, bridges, markets, ghats, electricity and telephone lines, health facilities, LSD, other storage facilities, etc.
- (ii) Hazard/Vulnerability maps (see 3.2.2)
- (iii) Shelter/Evacuation Site map (see 3.2.8)

B General Thana Profile -- tabulated data complemented by maps:

- (i) **General**
Population data: table giving figures by category union-wise with thana totals
Agricultural and employment profile
Normal disease patterns and nutritional status, with usual seasonal changes and special problems observed following previous disasters
Distances, normal communication means (pucca road, kutcha road, river) and travel times to each union, the district headquarters, and other significant locations
Health service facilities: location, staff, service capacity of hospitals, health centres, MCH clinics, etc.
Water supplies:
- (ii) **Logistics**
Telecommunications links within the thana and to the district headquarters
Storage facilities: location, size/capacity and ownership of warehouses/stores
Transport capacity: number of trucks and boats normally based in the thana, their capacity and ownership, and the means by which they can be mobilized to meet emergency needs
Motor fuel: location, ownership and normal stock levels of petrol and diesel
Food Dept stocks: normal LSD stock levels during particular seasons
Private traders: names, locations, normal stock levels of significant traders supplying food grains, oil, shelter materials, household utensils, kerosene, etc.

C Contacts:

- (i) **At thana level**
List of government agencies, NGOs, voluntary organizations, and other bodies present in the thana who have, or could have, a role in disaster prevention, preparedness or response, with name of responsible officer and his/her deputy, office and residential addresses and telephone numbers.
- (ii) **At union level**
List of individuals designated by each union disaster management committee as responsible for particular disaster-related functions [to be specified in the model union-level Disaster Action Plan].

D Shelter/Evacuation sites -- a tabulation showing the location, catchment area, facilities and responsible persons for each designated shelter/evacuation site.

E* Guidelines for Rescue Teams

F* Guidelines for Managing and Organizing Services at Shelters/Evacuation Sites

G* Damage and Needs Assessment Guidelines and Reporting Format(s)

H Distribution List (for the Plan)

- * These items will be based on standard guidelines and report formats to be prepared by the DMB in due course -- on the basis of work in the first few (pilot) thanas and in collaboration with other concerned departments and competent organizations, including CPP, BDRCS and NGOs.

ANNEX G

Summary of Contacted Organisations

NGO	Donor	Firm	GOB	Military	Projects
OXFAM	ODA	CAR	MOR	Army	MCS
PACT	UNDP	EPC	FPCO	DSC	FAP14
GALRD	WMO	Citech	LGED	BAF	FAP4
BDPC	IDNDR	HOC	BWDB	Navy	FAP18
ADAB	UNDRO	DDC	MOH		FAP7
BRCS	EEC	Intertact	NIPSOM		FAP25
CARE	BHC	ISPAN	MOFro		FAP23
BRAC	USAID	SADMC	BMD		FAP19
ICDDR,B	SDC	BIA	SPARRSO		FAO
IIEDH	JICA	Delta	DPHE		Sandwell/Forestry MP
CSC	WB	Motorola	MOI		FAP26
CPP	CIDA		RHD		EIP
EPR	ADB		Forest		SRP
CARITAS	Italc		NGOBur		
SCF	SIDA		ERD		
PMUK	German		MOShip		
Pathfinder	Aust.		MOAgr.		
IVS	WFP		MOFish.		
HKI	UNICEF		CivAd		
BPHC	WHO		PC		
Concern	Brit.Coun.		CD/FS		
	CIRDAP		PTT		
	WHO		DAE		
	NORAD		Rifles		
			Police		
			T&T		
			BADC		
			Grameen Bank		
			PWD		
			Railway		
			BARD		
			BBS		
			PDB		
			BPATC		
			MassComm.		
			NILG		
			BIWTA		
			NAEM		
			MO Education		



ANNEX E

AGENCIES AND PERSONNEL CONTACTED

The following list give details of the agencies contacted, and the personnel met, the date of the meeting and the initial of the project staff who attended. Notes have been prepared for all such meetings.

Date	Organisation	Name	Designation	Project Staff
27.2.1992	OXFAM	Pram Unia	Regional Manager	MPG
04.3.1992	ODA	Peter Burton Josie Robinson Stephen Hillier	Head, Disaster Unit B'desh Desk Officer B'desh Desk Officer	MPG MPG MPG
18.3.1992	Cambridge Architectural Research	Andrew Coburn	Director	MPG
22.3.1992	UNDP Dhaka	K A Hafiz T. Kayano	Asst. Resident Rep. Project Officer	MPG DNM
22.3.1992	Min. of Relief	Md Hussain Khan Motabur Hussain	Jt. Secretary Dy Chief	MPG MPG
22.3.1992	UNDP Dhaka	Winston Temple K A Hafiz	Dy Res Rep Asst Res Rep	MPG MPG
23.3.1992	UNDP Dhaka	Charles H Larismont K A Hafiz	Resident Representative Asst Res Rep	MPG MPG
23.3.1992	FPCO	Siddique	Chief Engineer	MPG
24.3.1992	Min of Relief	Abdul Hakim Hossain Khan Winston Temple K A Hafiz	Secretary a.i. Jt Secretary Dy Res Rep UNDP Asst Res Rep UNDP	MPG MPG MPG MPG
24.3.1992	PACT (PRIP)	Richard Holloway	Executive Director	MPG
25.3.92	FPCO	Team Leaders Eighth Monthly Meeting		MPG
25.3.1992	FPCO	Nurul Huda	Chairman	MPG
27.3.1992	LGEb	Q I Siddique	Engineering Adviser	MPG
28.3.1992	EPC	Zeaul Huq	Managing Director	MPG
29.3.1992	OALRD	Saidur Rahman	Consultant	MPG
29.3.1992	Multipurpose Shelter Project	Prof. J R Chowdhury Tanvir Mohammad	Team Leader Journalist	MPG MPG
04.4.1992	JIMD House, Comberton	JIMD Hugh Brammer Steve Jones	Consultant Consultant Consultant	MPG MPG MPG
08.4.1992	WMO Director of Hydrology & WR	Dr. John C Rodda	Director	MPG
08.4.1992	WMO Office of Chief TCP	Don Vickers Abe	Consultant Chief	MPG MPG
09.4.1992	IDNDR	R M Hamilton	Acting Director	MPG
09.4.1992	UNDRO	Maureen Lee Rosa Delgado Ola Almgren Giles Whitcomb Marie-Jo Floret	Information Officer UNIENET Operator Coordinator A/P Region Chief, Information Br. Officer i/c MIS	MPG MPG MPG MPG MPG
18.4.1992	BWDB/WMO	J E Dent	CTA BGD/88/13	MPG
20.4.1992	BDPC	S A Kafi	Director	MPG

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22.4.1992	MOR	Hussain Khan	Project Director BGD/91/021	MPG
25.4.1992	MOR	Hussain Khan	-H-	MPG
27.4.1992	EEC	Nick Robert	Disaster Coordinator	MPG
28.4.1992	BHC	Wayne Evans Ian McPherson	2nd Sec Aid Fisheries Adviser	MPG MPG
28.4.1992	USAID	S Ali Noor	Population Specialist	MPG
29.4.1992	SOC	Henri F Morand	First Secretary (Dev.)	MPG
29.4.1992	JICA	Takeshi Naruse	Deputy Res Rep	MPG
29.4.1992	FPCO	Team Leaders Ninth Monthly Meeting		MPG
30.4.1992	World Bank	Ross Wallace	Flood Plan Coordinator	MPG
30.4.1992	CIDA	Brian Proskurniak	First Secretary (Dev.)	MPG
30.4.1992	USAID	Dr Jose Garzon	Programme Officer (NGOs)	MPG
02.5.1992	ADB	Nurul Huda K H Talukdar	Project Officer (Infr.) Project Officer (RD)	MPG MPG
03.5.1992	BHC	Sylvia Islam	NGO Liaison Officer	MPG
03.5.1992	BHC	Wayne Evans	Second Sec. Aid	MPG
03.5.1992	Italian Development Cooperation	Dr Vincenzo Ragone	Italian Coop. Officer	MPG
03.5.1992	World Bank	Saeed Ahmed Rana	WR Adviser	MPG
04.5.1992	UNDP Dhaka	K A Hafiz	Asst Res Rep	MPG
04.5.1992	SIDA	Mats Svensson Bo Sundstrom	Councillor DCO 3rd Secretary (Dev.)	MPG MPG
04.5.1992	German Embassy	Gerhard Thiedeman	1st Sec (Dev Coop)	MPG
05.5.1992	World Bank	Paul N Hubbard	Chief, Operations Unit	MPG
05.5.1992	Min of Relief	Hussain Khan	Project Director	MPG
05.5.1992	Australian HC	Dr Chris Kenna	1st Dec. Dev. Asst.	MPG
05.5.1992	OXFAM	Mark Goldring Saidur Rahman	OXFAM Country Rep. NGO Consultant	MPG MPG
06.5.1992	SR House	Siddiquer Rahman	Ex Cabinet Secretary	MPG
06.5.1992	FAP-14 Office	Dr. Mostafa Alam Dr. Shamsul Alam Dr. Suzanne Hanchett Dr. Keith Pitman	Team Leader	MPG MPG MPG MPG
07.5.1992	Min of Health	Dr. Aftabuddin Khan Dr. Bipin K Verma	Dep. Dir. CDC EPR Consultant	MPG MPG
07.5.1992	ADAB	Karim Khalid Saidur Rahman	Director Disaster Preparedness NGO Consultant	MPG MPG
07.5.1992	FAP-4	R I Thiagarajah	Team Leader	MPG
09.5.1992	NIPSOM	Various Organisations involved in Banskhali Disaster Preparedness and Response Project funded by Italy		MPG

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10.5.1992	BRCS HQ	A S M Akram Emdad Hussain	Director DPP Director CPP	MPG MPG
10.5.1992	FAP-18 Finnmap	Heikki Perenius	Project Manager	MPG
10/11.5.92	UNDP Dhaka	K A Hafiz	Asst Res Rep	MPG
12.5.1992	Min of Relief	Md. Hussain Khan K. A. Hafiz	Project Director Asst Res Rep	MPG MPG
12.5.1992	WFP	Gaston Eyben	Dir of Ops	MPG
12.5.1992	FAP 7	Bjarna Mathieson	Team Leader	MPG
13.5.1992	Min. of Food	Mutiur Rahman	Jt. Secretary	MPG
13.5.1992	Bangladesh Met Department	M H Khan Chowdhury Shajedur Rahman	Director Dy Director	MPG MPG
14.5.1992	CARE	Earl Goodyear Saidur Rahman	CARE Rep. NGO Coordinator	MPG MPC
17.5.92	MOR	Hossain Khan	JS/PD	SLM, MPG
17.5.92	PACT PRIP	R Holloway	Director	SLM, MPG
17.5.92	PACT PRIP	R Holloway	Director	SLM, MPG
17.5.92	UNDP	Dhaka	K. A. Hafiz ARR	SLM, MPG
17.5.92	BRAC	F.H. Abed	Executive Director	SR, MPG
17.5.92	CITech	G.Mohiuddin	Director	SLM, MPG
18.5.92	HOC	Dr.S.Huq	President	DNM, MPG
19.5.92	SPARRSO	Dr.MA Chowdhury	Director	SLM
19.5.92	UNICEF	Nurul Islam	Prog.Officer	SLM
19.5.92	DPHE	Amin UAmed	CE	SLM, AR
19.5.92	FAP-25	J Rasmussen	TL	SLM
19.5.92	MOR DG	Hossain Khan	Ag.DG	DD,RR,
19.5.92	FPCO	Monthly Meeting	All Team Leaders	MPG
20.5.92	UNDP	K A Hafiz	Asst. RR	MPG
20.5.92	HOC	Dr.S.Huq	President	SA,FAK,AR
20.5.92	FAP-23	Dr. IC Tod	Consultant	TJ,ROC,MPG
20.5.92	MO Food	Motiur Rahman	JS	SLM
20.5.92	DDC	Dr.JRC	TL,MPCS	RO,SLM
20.5.92	LGEB	QI Siddique	EA	SKS,NN,MPG
20.5.92	MO Health	Dr.Aftabuddin	Director	SLM
21.5.92	SR Hse, Banani	Siddiquer R	IS	SA,MHKC, TJ,RO,MPG
21.5.92	FAP19	Tim Martin	TL	TW,AR,SLM
21.5.92	FAP4		R Thiagrajah	TLMP,RT, SLM, IS
22.5.92	CARE	E Goodyear	RR	SLM
22.5.92	MM RO	Wrap up meeting		TJ,RO,MPG

23.5.92	Various places				
23.5.92	HOC Office	Dr.S. Huq	President	MPG, MLAB	
23.5.92	MPCS Office	Dr.JRC	Team Leader	FAK,MB, MPG	
24.5.92	FPCO	Mr.Safi	Ag.CE	MB, MPG	
24.5.92	UNDP Dhaka	K A Hafiz	ARR	AR,GH, SA,RO, MLAB,MPG	
24.5.92	MOIWDFO	F Hayat	Addl.Secy	MPG	
24.5.92	LGEB	P Bertilsson	CTA, ILO	AKA,KAH,SA	
24.5.92	DDC	Dr. Nishat	Consultant	SKS,SM, AR, MPG	
24.5.92	HOC	Faruk Azia	NR Consultant	MLAB	
24.5.92	DG Food	Nurul Afser	Dy.Director	MLAB	
25.5.92	Mirzapur UZ	S. Zakaria	UNO	SLM,RO,AR	
25.5.92	Tangail Dist.	S.Akramuzzamen	DC ADC(M),ADC(R)	SO,SLM,RO AR	
25.5.92	RHD Office	Ataur Rahman	CE	SLM,RO,AR	
25.5.92	LGEB	HQ Monowar Chow.	SE(P)	MPG	
26.5.92	UNICEF	Philip Wan	C,W&ES	MPG	
26.5.92	Forest Dept.	A A Bhuiyan	Directorq	MPG	
26.5.92	WHO	Dr.Verma Dr.V.Ragone	EPR Officer Italcoop	SA,NU,MLAB	
26.5.92	MPCS Program	Dr.JRC	Team Leader	SA,RO,	
26.5.92	PACT	R Holloway	Director	NA	
26.5.92	UNDP Dhaka	K A Hafiz T. Kayano	ARR Programme Off.	SLM,MPG	
26.5.92	Approtech	Amjad Hossain	MD	SLM, MPG	
26.5.92	NGO Aff.Bureau	Shahidul Alam Mir MA Wahed Saidur Rahman	DG Director NGO Coordinator	MPG	
27.5.92	FAO Project	Frans V d Ven	CTA	MPG	
27.5.92	Kampsax	B Mathiesen		MLAB	
27.5.92	World Bank	Dr R Islam	PO(Ind)	NA	
27.5.92	World Bank	Dr. R Islam	PO(Ind)	MPG, NA	
27.5.92	ERD	K M Ejazul Huq	Addl.Secy.	MPG	
27.5.92	UNICEF	Cole Dodge	Director	RO	
27.5.92	WFP	G Eyben M Jones	Director Project Officer	RO	
27.5.92	MO Shipping	M A Malik	Secretary	SA,RO,MPG	
27.5.92	MO Agricul.	K M Rabbani	Secretary	SA,RO,MPG	
28.5.92	SR House	Siddiquer R	Inst.Specialist	MPG,MLAB	

Date	Organization	Name	Position	Remarks
28.5.92	Sandwell Inc.	R McFarlane W Treygo		MLAB
28.5.92	Italcoop	Dr B Ragone	Coordinator	MPG, MLAB
28.5.92	MO Fisheries	Secy. Fisheries		SA, MPG, RO, MLAB
28.5.92	ICDDR, B	G Wright J Mortoza	Computer Spec.	SA, RO
28.5.92	IIEDM	Dr. S Satiullah	Secy. Gen.	NA
28.5.92	Met Dept.	M F Quayum	Dy Director	NA
28.5.92	SPARRSO	Dr A M Chow.	Director	MLAB, MPG
28.5.92	SR House	Siddiquer R	IS	MLAB, MPG
28.5.92	Italcoop	Dr B Ragone	Coordinator	SA, RO, MLAB, MPG
28.5.92	MOLF BS	AZM Nasiruddin	Secretary	MPG
28.5.92	UNDP	K A Hafiz	ARR	NA
30.5.92	Civ. Aviation	M Rahman N Amin	DD Comm. SCO	SA, RO, MPG
30.5.92	Plann. Comm.	Mokammel Huq	Member	NA
30.5.92	Met. Office	S M Noor	Asst Director	NA, MPG
31.5.92	MOR	Hossain Khan	JS/PD	RO
31.5.92	CARE	Earl Goodyear	Res. Rep.	RO
31.5.92	FAO	Frans v d Ven	CTA	SA, RO, MPG
01.6.92	BWDB	M Razzaque	Chairman	SA, RO, MPG
01.6.92	BWDB	J Dent	CTA	MPG
01.6.92	UNDP Dhaka	K Hafiz	ARR	RO
01.6.92	FAP-14	Rosana Akar and colleagues		DNM, MPG
01.6.92		R Kay	CRMC	S Ahmed NA
01.6.92	BWDB	J E Dent Deputy Dir.	CTA	NA
02.6.92	CD&FS	Brig. N I Laskar	DG	SA, NA, RO, MPG
02.6.92	PTT	S I Khan	Chairman T&T	PR, MPG
02.6.92	PACT (PRIP)	Graham Wright R Holloway	Consultant Director	MPG
02.06.92	UNDP	K A Hafiz T Kayano	ARR, UNDP PO	
02.06.92	ODA	Sylvia Islam Mark Goldring M. Khalid	OXFAM ADAB ACAB	MPG SA, RO
02.6.92	Fire Service	Brig. N. I. Laskar Civil Defence	DG + 3 Directors	SA, RO
02.6.92	BRCS Delegate	M Fortier	Chief Delegate	RO
03.6.92	BRCS CPP	Emdad Hossain	Director CPP	NA
03.6.92	UNICEF	M. Roedkowsky	CPO	RO, MPG

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03.6.92	UNDP, Dhaka	Y A Hafiz	ARR	MPG
03.6.92	MOR	M A Hakim Hossain Khan	Secretary Jt. Secretary	RO, MPG
03.6.92	PACT FRIP	R Holloway	Director	SA, RO
03.6.92	INTERTECT	Fred Cuny R Hill	Consultant Associate	RO
04.6.92	Siddiquer R	Chairman, POS		MPG, RO
04.6.92	ADPC	Terry Jeggle	Coordinator	RO
04.6.92	FAP:26	I M Hirsolmen	Consultant	RO, MPG
04.6.92	CSC	M. Rahman Khan	MD	DNM, MPG
06.6.92	DAE	Dr. A. Rahman	DG	SA, RO, MPG
06.6.92	LGEB	Per Bertilsson	CTA	MLAB, MPG
06.6.92	MPCS Project	Prof S Islam Dr. K M Ahmed	Consultant Consultant	NA
06.6.92	MPCS Project	Dr. J R C	Team Leader i/c Mapping	MLAE, MPG
07.6.92	Halcrow	R Thiagarajah Gardener Paramanathan	Team Leader Coastal Engineer I&D Engineer	MLAB
07.6.92	Police Dept.	Azizul Huq	AIG	SA, RO, NA
07.6.92	T&T Board	Fazlur Rahman M Ismail	Dir. Int. Divisional Eng.	NA
08.6.92	BADC	M. A. Hashim	Member-Planning	RO
09.6.92	BDPC	Saidur Rahman	Director	RO
11.6.92	Grameen Bank	Dr. Md. Yunus	Managing Director	SA, RO
14.6.92	CARE/PACT	E. Goodyear R. Holloway	Director-Food Director	RO
15.6.92	British Council	M. Ward		RO
16.6.92	WFP	Yunus Khan	Training Officer	RO
16.6.92	PWD	Mr. Shah Alam	Chief Architect	MLAB
16.6.92	ISPAN	Tim Martin	T/L, FAP:19	MPG
16.6.92	Police	Md. Sanul Huq	Additional I.G.	NA
18.6.92	UNDP	C. Larsimont	Resident Representative	RO, MPG
23.6.92	T&T	Glam Mowla	General Manager (Plann)	NA
25.6.92	T&T	Abdul Mannan	Director	NA
25.6.92	UNDP	Kh. A. Hafiz	Asstt. Res. Rep.	MPG
26.6.92	MOR	A Z M Hossain Khan	Joint Secretary/P. Dir.	RO, MPG
26.6.92	LGEB	Q. I. Siddique	Engineering Adviser	JSR, AR, PR
28.6.92	UNDP	Kh. A. Hafiz	ARR	RO, JSR
28.6.92	T&T	Kazi Badruddoza	Officer in Charge	NA
29.6.92	NWC (Canada)	H R Khan		RO
01.7.92	CPP	Emdad Hossain	Director	NA

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01.7.92	Railway	Syed Lutfar Rahman	Telecom Engineer	NA
01.7.92	ISPAN	Rosana Aktar		RO
03.7.92	BDDC	Saidur Rahman	Director	RO
04.7.92	BARD	Director of Training	SA, RO	
06.7.92	Railway	Syed Lutfar Rahman	Telcom Engineer	NA
06.7.92	Telcom	Thana Telcom Offrs.		NA
09.7.92	UNDP	Kh. A. Hafiz	Asst.RR	RO
11.7.92	NWC (Canada)	H R Khan		RO
13.7.92	CIRDAP	Dr. Salehuddin Ahmed	Programme Officer	RO
13.7.92	SADMC/IUBAT	Dr. Alimullah	President	RO
14.7.92	CARE	Enrl Goodyear	Director	RO
14.7.92	MOR	M A Hakim	Secretary	RO, JSR
15.7.92	MOR	A Z M Hossain Khan	JS/PD	RO
17.7.92	UNDP (Bangkok)	C. Lamsimont	RR	JSR, RO
29.7.92	DCMU	Meeting of PP		
05.8.92	DCMU	Wrap up Meeting with US Army		
05.8.92	USAID	Ms. Marry Kilgore	Mission Director	JSR
05.8.92	CPT	Emdad Hossain	Director	JSR
06.8.92	Met./Radio	Fakhrul Islam	Regional Director	SA
08.8.92	Met.	Hasanuzzaman Khan	Director	SA
09.8.92	BRAC	Jonathan Hodges		JSR
16.8.92	MOR	A Z M Hossain Khan	JS/PD	JSR, MPG
16.8.92	UNDP	W. Fischer	RR-UNDP	JSR, MPG
16.8.92	DPHE	Lutfe Ali		PR
17.8.92	UNDP	US DPM		JSR, MPG
17.8.92	DCMU	2nd Meeting of PP		
18.8.92	HOC	Dr. Sayeedul Huq	Managing Director	SA, MPG
18.8.92	US:DP	US:DP Mission		SA, MPG
19.8.92	Military	Brig. Ibrahim	Director of Army	SA, MPG
19.8.92	UNDP	Kh. A. Hafiz	Asst.RR	MPG
22.8.92	RHD	Engr. Shamsul Haque	Addl.CE	MR
24.8.92	DCMU	Wrap Up Session		
25.8.92	BBS	Hamidul Huq	Project Director	PR, AR
25.8.92	BMD	Hamiduzzaman	Director	MPG, FA, SA
26.8.92	HoC	Dr. Sayeedul Huq	Managing Director	SA, MPG
27.8.92	CIRDAP	S. Narayan	Deputy Director	MPG
27.8.92	MOR	AZM Hossain Khan	JS/PD	MPG

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27.8.92	UNDP	Kh. A. Hafiz	ARR	MPG
30.8.92	FPCO	M. Nurul Huda	Chairman	SR, SA, MPG
30.8.92	MM	J. Dent	CTA	MPG
31.8.92	FPCO	FAP T/L Monthly Meeting		
01.9.92	MOR	AZM Hossain Khan	JS/PD	AR, PR, MPG
01.09.92	PDB	Engr. M. B. Barua	Director Equipp	MR
02.9.92	UNDP	Kh. A. Hafiz	ARR	MPG
03.9.92	FPCO	Alam Miah	CE	SA, MPG
06.9.92	DCMU	Meeting of PP		
07.9.92	EPR	Fiona duby	PC	IS, MPG
07.9.92	DCMU	Faizul Islam		SA, MPG
07.9.92	UNDP	C. Larsimont	RR	SR, SA, RO, MPG
07.9.92	US:AID	Rosaline Fanale	Director	TJ, MPG
07.9.92	PDB	Engr. S.A. M.R.	Director (Planning)	MR
08.9.92	BIA	Moidul Islam	Chairman	SA, MUA, MPG
09.9.92	UNDP	Kh. A. Hafiz	ARR	BW, MPG
09.9.92	DCMU	Informal Discussion		BW
12.9.92	BDPC	Mr. Sharif Abdullahel Kafi		AR
13.9.92	UNDP	Kh. A. Hafiz	ARR	MPG
14.9.92	CARITAS	Mr. Ruben Gomes	Welfare Director	AR
15.9.92	UNDP	Mh. A. Hafiz	ARR	MPG
16.9.92	Delta	Shafat A. Chowdhury	Managing Director	SA, MUA, MPG
16.9.92	DSC	Lt.Col. Jibon Kanai	Defense Secretary	AR
19.9.92	DCMU	Meeting of PP		
19.9.92	MOR	AZM Hossain Khan	Jt.Sec/PD	MPG
20.9.92	PATC	Q. Manzur-i-Mowla	Rector	AR, MPG
20.9.92	PACT	ARM Saidul Hug	Coordinator	MUA
20.9.92	DCMU	Dr. Keith Pitman	Chief of Party, ISPAN	SA, IS, MPG
21.9.92	BPATC	Q. Munzur-i-Mowla	Rector	AR
21.9.92	DCMU	Public Participation in FAP activities		SA, IS, MLAB, MPG
21.9.92	VHSS	Dr. Nasiruddin	Director	IS, MPG
21.9.92	Consulting Engineering Services of India	S.G.Paul	Team Leader	MLAB, MPG
22.9.92	LGED	Q. I. Siddique	Chief Engineer	MPG, MLAB
22.9.92	Navy	Lt.M. Belayet Hossain	Staff Officer	NA
23.9.92	MASSCOM	Fariduddin Ahmed	Director General	SA, MPG
23.9.92	BWDB	Superintending Engr.		MMR

24.9.92 SCF John H. Morris Director IS, MPG

24.9.92 SCF John Morris Director IS, MPG

24.9.92 LGEB Shahidul Hasan MPG

24.9.92 Army Brig. Khalid A Karim Director Lt.Col. MR

26.9.92 MOR AZM Hossain Khan Jt. Secretary/PD SA, MPG

26.9.92 OXFAM Mr. G. Nayeem Project Director AR

26.9.92 BAF Grp. Capt. Mahboob Director Lt.Col. MR

27.9.92 BIWTA Md. Taslim Uddin Khan Chief Engineer MLAB, MR

27.9.92 LGED Monowar Hossain Supdt. Engineer MPG, MLAB

27.9.92 BIWTA Member Engineering MR

28.9.92 BIWTA M T Uddin Khan Chief Engineer MLAB, MR

28.9.92 Army Lt.Col. Shajahan GSO-1 AR

28.9.92 EIP Lutfur Rahman Supdt. Engineer MLAB, MR

28.9.92 Army Lt.Col. Shahjahan GSO-1 AR

28.9.92 SRP Jan Bron MLAB, MR

29.9.92 BWDB Engr. SAMR Supdt. Engr (Plann) MR

29.9.92 Communica Mr. Anish Barua Chief Executive AR

29.9.92 WHO WHO Technical Session - Disaster Preparedness and Response RO, MPG

30.9.92 FPCO FAP T/L Monthly Meeting

30.9.92 UNDP Kh. A. Hafiz ARR RO, MPG

03.10.92 FPCO N. Huda Chairman SA, RO, MPG

03.10.92 PATC Quazi Md Munsur-i-Mowla Rector TJ, SA, AR, RO
Mosharraf Hossain Director

04.10.92 DCMU Professional Panel Meeting

05.10.92 DCMU 2nd Informal Meeting on DMT

05.10.92 NILG Aftabuddin Khan Director TJ, AR, RO

05.10.92 Workshop on Compartmentalization Pilot Project Motior Rahman

05.10.92 BIWTA M. Shamser Ali Sr. DD (Plan) NA

07.10.92 UNDP K.A. Hafiz ARR TJ, MSR, SA, RO, MPG

07.10.92 SADMC Prof.Dr.M.Alimliah Miyan AR

07.10.92 US:AID Rosalie Fanale Director TJ, MPG

07.10.92 BIWTC Towfiq Ahmed Rahman Naval Architect NA

10.10.92 ODA J.M. Pearch Director MUA, MPG

10.10.92 ODA J. M. Pearch et al Director, UK-NAO MUA, MPG

11.10.92 BWDB Superintending Engr. MMR

11.10.92 Bangladesh Bank Mr. Akhtar-uz-Zaman Joint Director MUA

11.10.92 NGO Affairs Bureau Mr. Kamal Ahmed, Programmer MUA

11.10.92 PMUK Mr. Kazi Farroque Ahmed Executive Director AR, Mrs.15

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12.10.92	MOR	A.Z.M. Hossain Khan	Jt.Sec/PD	SA, MPG
12.10.92	UNDP	T. Kayano	Programme Officer	LQ, MPG
12.10.92	WFP	Gaston Eyben	Director	RO
13.10.92	CARITAS	Mr. Ruben Gomes	Welfare Director	MUA
13.10.92	Pathfinder	M. Enamul Aziz	Administrative Officer	MUA
13.10.92	BWDB	Superintending Engr.		MMR
14.10.92	Osmani Hall - IDNDR Day	Bangladesh President		All DCMU Consultants
14.10.92	Enfants du Monde	Mr. A.H.M. Mainuddin	DRPC	MUA
17.10.92	EPI	Dr. Verma	Consultant	AR
18.10.92	ERD	Mr. Azizur Rahman	Deputy Chief	MAU
18.10.92	DCMU	DCMU staff		
18.10.92	BRAC	M. Golam Samdani Fakir	Prog Co-ordinator	AR
18.10.92	Swiss Disaster Relief	Rene Grossmann	Cosnultant	MPG
19.10.92	Cyclone Preparedness Programme	Mr. Emdad Hossain	Director	AR
19.10.92	6th PP Meeting attended by Professional Panel Chairman, Members and DCMU Consultants			
20.10.92	Norwegian Assistance to Disaster Preparedness and Response Activities	Arild Isaksen Bjarne Solhaug Lief Liby		MPG
20.10.92	Bangladesh Rifles	Col Kazi Haider Ali Col M. Shamsujahan Choudhury Lt Col Yunus KKhan Lt Col Nazmul Haq Major Nisar	Director Comm.	DCMU Military Adviser
21.10.92	World Bank	Ross Wallace	FAP Coordinator	MPG
21.10.92	Concern	Mohammad Mobin	Emergency Coordinator	AR
23.10.92	ADPC	Terry Jeggle Brian Ward	Director Ex-Director	RO
25.10.92	IVS	Abdul Motin	Programme Director	AR
26.10.92	FPCO	Nurul Huda Masud Ahmed Syed Waliullah Mustafa Kamal Afzalur Rahman	Chairman, POE Institutions Adviser Sociologist Environmentalist	RO, MPG
27.10.92	BDRCS	Syed S H Jamal Maj (Rtd) Quereshi Emdad Hossain	Chairman Secretary General Director CPP	MPG, SA, RO
27.10.92	7th PP Meeting attended by Professional Panel Chairman, Members and DCMU Consultants			
27.10.92	PDB	Aminul Islam	Executive Engineer	MR
1.11.92	ISPAN	Tim Martin Mike Pooley	Team Leader GIS Specialist	RO, PR, MPG
1.11.92	FPCO	Nurul Huda	Chairman, POE	MPG
2.11.92	Hellen Keller Int.	Martin W Bloem	Country Director	MPG
2.11.92	BPHC	Dr Enamul Kabir	APO	AR
3.11.92	MOR	A Z M Hossain Khan	Jt.Secretary/PD	MPG

3.11.92	NAEM	Abdul Gani Sarder	Registrar	AR
3.11.92	UNDP	K A Hafiz	ARR, UNDP	SA, MPG
4.11.92	UNDP	Winston Temple K A Hafiz J Dent 2 Officials of WMO	DRR ARR CTA	RO, MPG B*
4.11.92	Planning Commission	M A Bashar Rezaul Karim Amjad Hussain	Director, IMED Asst. Director Dy. Director	MR
5.11.92	FPCO	Jim Dempster Hugh Brammer George Richie		MPG, BW
6.11.92	HM Regional Office	George Richie Brian Ward		RO, MPG
9.11.92	SPATC	Mosharruf Hossain	Director	MPG
9.11.92	BRC	Col. Graham Longdon		MPG
9-10.11.92	FAP	FAP:14 and FAP:23 Seminar		MPG
11.11.92	PO	Mr. H.A. Bateen	Principal Incharge	SA, AR
11.11.92	PO	A Z M Hossain Khan	Jt Sec/PD	MPG
11.11.92	ACTI	Satta Ranjan Nath	Principal Incharge	SA, AR
12.11.92	RDA	Mr. Amjad Hossain	Principal	SA, AR
12.11.92	Police Academy	Mr. Mahmud Al Farid	Principal	SA, AR
12.11.92	FPCO Conference Room - Meeting on FAP Guidelines for People's Participation			MPG
12.11.92	DCMU Conference Room - Brainstorming on Public Awareness/Community Mobilisation			
12.11.92	FAP:19 Seminar : Geographic Information System and the Flood Action Plan			AR, PR
14.11.92	MOR	Meeting on the Project 650/91/021 'Assistance to Ministry of Relief' and FAP:11 Comprehensive Disaster Management		MPG SR, SA RO, SR
15.11.92	DCMU	Azizul Haq		MPG, SA, AR
16.11.92	DCMU	J.P. Bruce	Canadian Climate Prog	AZMKK, SA, RO, MPG
16.11.92	Planning Commission	M. Mokammel Haque Nazmul Ahsan		MPG, RO
16.11.92	UNDP	Shophie de Caen T. Kayano	ARR PD	MPG RO
16.11.92	UNDP	K. A. Hafiz T. Kayano	ARR PD	RO, MPG
17.11.92	Min. of Education	Zahidur Rahman Mozammel Hussain	XEN SAE	MR
17.11.92	BIWTC	Tawfiq Ahmed Rahman Md. Ali	Architect AE	MR
18.11.92	FPCO	A Z M Hossain Khan Nurul Huda Ross Wallace JIM Dempster Ed Clay Hugh Brammer Dr. Sarker Masud Ahmed	Jt Sec/PD Chairman, POE	MPG, SA, IS

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		Afzalur Rahman		
18.11.92	Motorola	John Conrad	District Manager	MPG RO
19.11.92	DMT	Mr. Kazi Raquibuddin	Secretary, P&ME	SA, AR
21.11.92	MOR	A Z M Hossain Khan	Jt Sec/PD	MPG, Sujan, AR
22.11.92	DCMU	Dr. G. S. Mandal	DG-Met. India	MPG
24.11.92	UNDP	K A Hafiz T Kayana	ARR PO	SA, MPG
28.11.92	REB	Khalilur Rahman	Director, Finance	MR
30.11.92	Railway Dept.	Dy. Chief Planning Officer Sr. Planning Officer		MR
05.12.92	NCTB	Mr. Abdus Sobhan	Chairman	SA
10.12.92	Steering Committee			
12.12.92	Professional Panel			
13.12.92	UNDP	T.Kayano	Programme Officer	SA, MPG
14.12.92	Ministry	A.Z.M. Hossain Khan	Jt. Secretary	SA, MPG
17.12.92	Steering Committee			
21.12.92	FPCO	Mr. Nurul Huda Mr. Afzal Hossain Mr. Masud Ahmed	Chairman SE Consultant FPCO	SA
21.12.92	MoR	Mr. M A Hakim	Secretary	SA
01.01.93	CampSax	Bjarne Mathiesen	Team Leader	MR
07.01.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
07.01.93	ISPAN	Chapal Chowdhury		PR, AR
10.01.93	LGED	Per Bertilsson	CTA	AR
12.01.93	UNDP	K.A. Hafiz	ARR	SA, MPG
13.1.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
13.1.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
16.01.93	PACT	Richard Holloway	Director	MPG, PR, AR
17.01.93	Health Services	Dr. Aftabuddin Khan	Director General	PR, AR
17.01.93	ISPAN	Mike Pooley		PR
20.01.93	ICDDR.B	Dr. Bilqis Amin Haque		MPG
20.01.93	PP	PP Members		
24.01.93	DCMU	Azizul Haque	Training Adviser	MPG
25.01.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
26.01.93	ISPAN	Mike Pooley		MPG, RO, PR
27.01.93	UNICEF	Mary Roodkowsky	Chief, Field Operation	AH, SA, RO, MPG
27.01.93	FPCO	Nurul Huda	Chairman	RO, SA, MPG
27.01.93	UNDP	Kh. A. Hafiz	ARR	RO, SA, MPG
28.01.93	Planning Commission	M. Mokammel Haque	Secretary	MPG, SA

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28.01.93	Tripartite Review Meeting			
31.01.93	MoR	A Z M Hossain Khan	Joint Secretary	RO
03.02.93	UNDP	C. Larsimont	Resident Representative	BW, RO, MPG
04.02.93	MoR	A Z M Hossain	Joint Secretary	MPG
04.02.93	ISPAN	Keith Pitman		BW, RO, PR, MPG
09.02.93	MoR	A Z M Hossain Khan	Joint Secretary	SA, MPG
09.02.93	UNCRD	Prof. Hidihiro Sazanami	Director	SA, MPG
13.02.93	MoR	A Z M Hossain Khan	Jont Secretary	SA, MPG
14.02.93	FPCO	M H Siddiqui	Chief Engineer	SR, SA, MPG
15.02.93	MoR	A Z M Hossain Khan	Joint Secretary	SA, MPG
22.02.93	UNDP	K. A. Hafiz	ARR	SA, MPG
23.02.93	RSMAS	J. R. Clark	Sr. Research Associate	SA, MPG
15.03.93	UNDP	K. A. Hafiz	ARR	MPG
16.03.93	MoR	A Z M Hossain Khan	Jont Secretary	SA, MPG
21.03.93	MoR	A Z M Hossain Khan	Jont Secretary	SA, MPG
30.03.93	PACT			MNA, AR
11.04.93	UNICEF	Mary Roodkowsky	Chief, Field Operations	SA, MPG
13.04.93	USAID	Rosalie Finale	Director	SA, MPG
13.03.93	MoR	M A Hakim	Secretary	SA, MPG
13.04.93	US Military	Scott York	Civil Affairs Officer	SA, MPG
21.04.93	UNDP	K. A. Hafiz	ARR	SA, MPG
26.04.93	UNICEF	Mary Roodkowsky	Chief, Field Operations	SA, MPG
08.05.93	MoR	A Z M Hossain Khan	Joint Secretary	SA, RO, MPG
12.05.93	MoR	A Z M Hossain Khan	Joint Secretary	SA, MPG
15.05.93	MoR	A Z M Hossain Khan	Joint Secretary	SA, RO, MPG
17.05.93	MoR	M A Hakim	Secretary	SA, RO, MPG
17.05.93	BPACT	Mr. Arabinda Kar	Director	SA, RO
18.05.93	BHC/AMO	Eamon Taylor	1st Secretary	RO, MPG
31.05.93	UNDP	K.A. Hafiz	ARR	MPG
06.06.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
08.06.93	IUBAT	Mr. Najmul Huda	Minister for information	SA, MPG
09.06.93	MoFCWDI	Secretary	Secretary	MPG
13.06.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
14.06.93	Open University	Mr. Zillur Rahman	Lecturer	SA, MPG
15.06.93	IFPRI	Steven Haggblade	Chief of Party	MPG
17.06.93	UNDMT	All team member		SA, MPG
21.06.93	CDPC	Col. George Ritchie	CDPC Consultant	SA, MPG

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21.06.93	CARE	Iqbal		SA, MPG
22.06.73	CDPC	Col. George Ritchie	Consultant	MPG
26.06.93	ISPAN	Ian Tod	Consultant	MPG
28.06.93	UNDMT	All team member		MPG
30.06.93	UNDP	K A Hafiz	ARR	SA, MPG
07.07.93	MoR	AZM Hossain Khan	Joint Secretary	SA, MPG
08.07.93	IFRCS	A.F. Barnaby	Officer Operation	SA, MPG
25.07.93	Graphosman	Mosharraf Hossain		SA, Ron
12.07.93	UNDP	K. A. Hafiz	ARR	SA, MPG
19.08.93	UNDP	K.A. Hafiz	ARR	SA, MPG
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