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

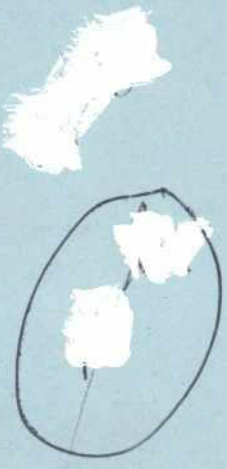
Assistance to Ministry of Relief in Coordination of Cyclone Rehabilitation (BGD/91/021)

Final Report

Volume III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

Part 1 : Planning and Institutional Arrangements
Part 2 : Management Information Systems
Part 3 : Public Sector Accounting



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December 1993

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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

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

FINAL REPORT

VOLUME III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

Part 1 : Planning and Institutional Arrangements

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LIST OF ANNEXES

LIST OF ABBREVIATIONS

ADAB	Association of Development Agencies in Bangladesh
BDRCS	Bangladesh Red Crescent Society
BMD	Bangladesh Meteorological Department
BWDB	Bangladesh Water Development Board
CPP	Cyclone Preparedness Programme (of BDRCS jointly with MoR)
DC	Deputy Commissioner
DOC	Disaster Operations Centre (Philippines)
DMB	Disaster Management Bureau (proposed)
DRR	Directorate of Relief and Rehabilitation
DRRO	District Relief and Rehabilitation Officer
EOC	Emergency Operations Centre
ERD	External Resources Division
FFW	Food-For-Work (food provided as remuneration for work in the context of public works programmes supported by WFP and other donors)
FPOCG	Focal Points Operational Co-ordination Group (proposed)
GR	Gratuitous Relief (free distributions under MoR/DRR auspices)
IDNDR	International Decade for Natural Disaster Reduction
IMDMCC	Inter-Ministerial Disaster Management Co-ordination Committee (proposed)
MDMR	Ministry of Disaster Management and Relief (proposed redesignation of MoR)
MoR	Ministry of Relief
NCCCE	National Co-ordination Committee for Cyclone Emergency (SOC, 1985)
NDMC	National Disaster Management Council (proposed)
NDMAC	National Disaster Management Advisory Council (proposed reconstituted version of the National Disaster Prevention Council)
NGO	Non-Governmental Organization
ODM	Office of Disaster Management (proposed in 1989/90)
OEP	Office of Emergency Preparedness (proposed in 1988/9)
PIO	Project Implementation Officer (thana-level officer of the DRR)
PM	Prime Minister
PSO	Principal Staff Officer to the Prime Minister
SOC	Standing Orders for Cyclone (MoR, 1985)
SOP	Standard Operating Procedures
TA	Technical Assistance
TNO	Thana Nirbahi Officer
TR	Test Relief (food distributed under MoR/DRR auspices as remuneration for casual work)
UN-DMT	United Nations Disaster Management Team (co-ordinating group of the representatives of the UN agencies in Bangladesh)
UP	Union Parishad
VGD	Vulnerable Groups Development (food provided to destitute women in the context of a programme supported by WFP and, at times, other donors)

FINAL REPORT

VOLUME III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

PART 1 : PLANNING AND INSTITUTIONAL ARRANGEMENTS

CHAPTER 1

CONCEPTS OF DISASTER MANAGEMENT

Part 1 of this **Volume** presents material on aspects relevant to the overall planning of, and organizational arrangements for, disaster management in Bangladesh. It provides a brief, summary overview of the disaster context of Bangladesh, defines the functions to be performed in disaster management, and presents proposals for organizational arrangements to improve disaster management.[1]

The specific proposals for high-level co-ordinating committees and a new specialist unit, the *Disaster Management Bureau,* have emerged from consultations with a considerable number of concerned bodies and individuals during the course of the project.

'Disaster Management' includes all activities related to 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 risks 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 to 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 (including repairs); and

iv) post-disaster reconstruction/long-term rehabilitation.

This broad concept 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

[1] Details concerning disaster risks and characteristics are presented in Volume II.

be concerned only with the response to disasters. The prevention/mitigation of and preparedness for disasters have been considered separately, if at all.

In the context of the present project (BGD/91/021) a list of basic concepts and definitions has been drawn up, including Bangla equivalents for the key words. This is reproduced in **Annex A**. The various component activities included in comprehensive disaster management are shown diagrammatically in **Figure 1.1**.

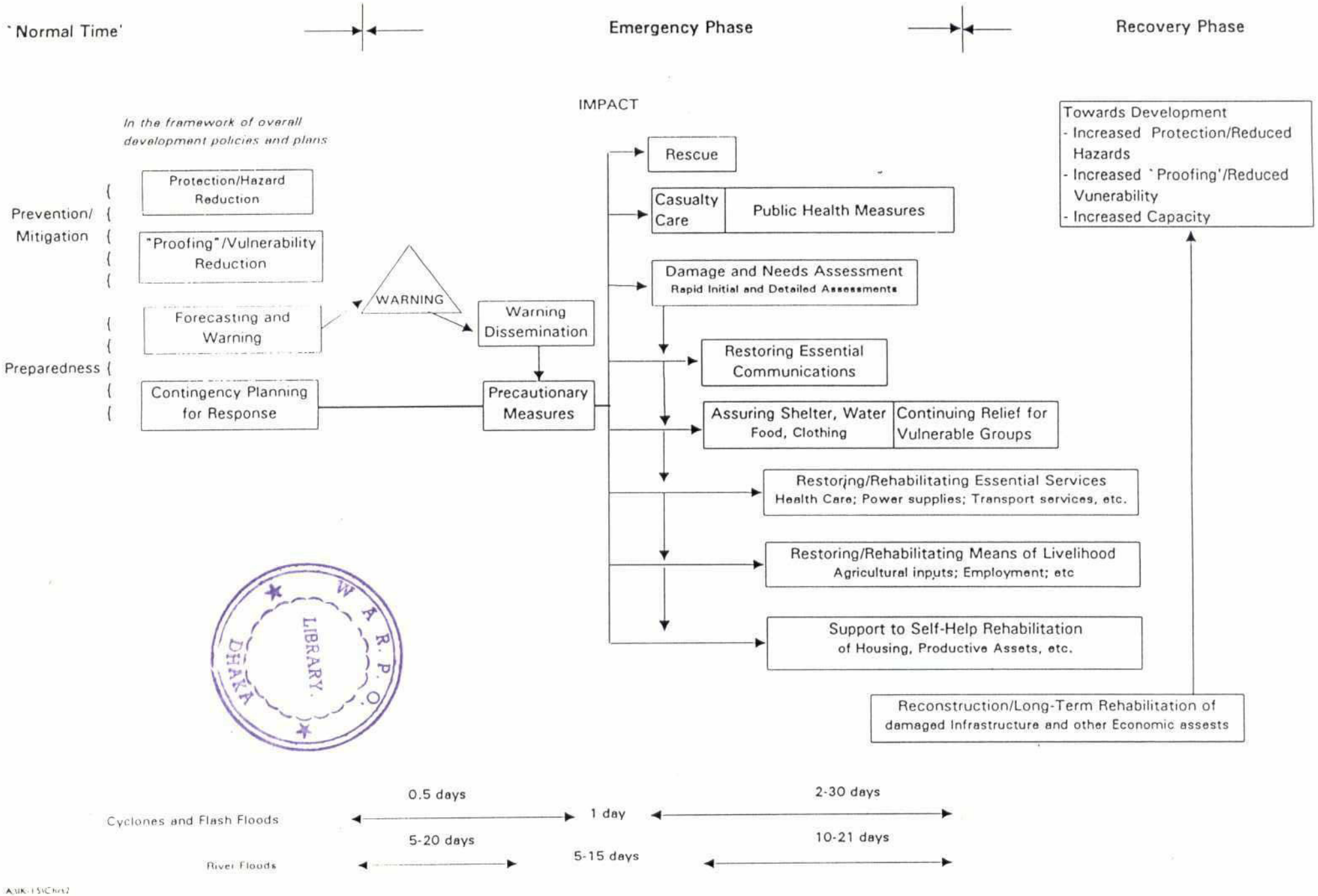

Figure 1.1 Main Phases and Activities in Disaster Management

CHAPTER 2

HAZARDS, VULNERABILITY, AND RISK FACTORS

2.1 Introduction

This chapter summarizes some of the principal features of the disaster proneness (the risk profile) of Bangladesh, and the implications for disaster management. Details concerning natural hazards are provided in **Volume II.** More work is required to prepare hazard maps for specific, local areas, and to analyse vulnerabilities. However, the material presented outline the main considerations and consequent priorities.

2.2 Demography and Land Use

Population density is increasing throughout country both in rural and urban area. It is in the urban areas where the density is increasing most rapidly. 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 'char' lands are immediately occupied for agricultural use and also that lands in the active flood plain and coastal areas which continually being eroded are also settled. Increasing numbers of poor people have no option but to live and work 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 'char' areas, often working on land that is owned or controlled 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. These people are not all indigenous to such hazardous areas and hence traditional coping mechanisms are not uniformly practised.

2.3 Incidence and Impact of Cyclones

Cyclonic storms are frequent in the Bay of Bengal, but major storms that result in large numbers of casualties and extensive damage are fortunately rare. However, in the last fifty years, such major cyclones (and the accompanying storm surges) have been responsible for the largest number of disaster-related deaths as well as considerable losses to agriculture, forests, and damage to infrastructure in the coastal areas.

Experience in 1991 (and before) has shown the effectiveness of coastal embankments and associated afforestation in reducing losses and damage, and the life-saving potential of shelters and any form of pucca building, *provided* they are sufficiently accessible and people understand the seriousness of the threat in time. Various studies have shown that 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.

Trends in the incidence of cyclones are difficult to detect, but some experts studying the effects of global warming predict increases in both the frequency and intensity of cyclones in the tropical areas.

2.4 Incidence and Impact of Floods

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. There is however, little evidence of any significant negative effects on aggregate annual agricultural production. In fact, major floods are typically followed by bumper harvests, due to increased water retention and the increased efforts of all concerned to increase production from the next crop. The costs involved are important, however, and there are also significant social costs. Floods indirectly contribute to the concentration of land ownership and wealth as small landowners, who lack resources to carry them over and who cannot obtain credit, are forced into 'distress selling'. Their land is bought up by rich landowners who then profit from the subsequent bumper crop.

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

BWDB data 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.[2] 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. Over the years, cropping patterns have been modified in areas benefiting from irrigation infrastructure and this has reduced reliance on aman and other crops vulnerable to monsoon flooding. Nevertheless, floods continue to constitute a significant disaster risk.

Experts studying the effects of 'global warming' predict increases in the frequency and intensity of severe floods in tropical areas.[3]

2.5 Other Natural Disasters

River bank erosion along many rivers, both major and minor, carries away land and destroys houses and other structures. It has been estimated that close to a million people are directly affected by erosion every year.[4]

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[2] See data presented in Volume II

[3] "In many instances it can be expected that changes in hydrological extremes in response to global warming will me more significant than changes in hydrological mean conditions. Thus, attention must be focused on changes in the frequency and magnitude of floods and droughts ..." [Intergovernmental Panel on Climate Change, *Climate Change: The IPCC Impacts Assessment*, WMO/UNEP, 1990, chapter 4, p 4-24]

[4] K M Elahi et al, Eds , *River Bank Erosion, Floods and Population Displacement in Bangladesh*

Historically, *drought-induced famines* were a major killer, but the effects of drought have been considerably reduced, for the time being, 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, and the situation may be aggravated as demand for, and reliance on, irrigation increases.

Tornadoes cause localized devastation in widely scattered areas, and demand an immediate response. A seismic zone extends across the country in a northwest/southeast direction covering much of Rajshahi and Dhaka divisions, and the old (greater) district of Comilla. In these areas, there is a real risk of an *earthquake* that could cause serious damage to infrastructure including embankments and other flood control structures. *Landslides* occur in hilly areas, triggered by heavy rains.

2.6 '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 current Rohingya refugee influx has 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.

In addition, human activities are increasing vulnerability to natural phenomena, and increasing the risks of 'natural' disasters. Examples include the closure of natural drainage channels by unplanned settlements, and the diversion, in India, of dry season flow of the Ganges which significantly reduces fresh water flows in the south west of Bangladesh.

2.7 Disasters and Development: Priorities for Action

The various disasters and disaster risks referred to above have caused, and/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. Development is retarded and poverty accentuated.

Attention to, and improved performance in, disaster management are essential for economic as well as humanitarian reasons. The various aspects of disaster management, including prevention/mitigation, preparedness, emergency response, and rehabilitation, 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.

Priority may initially be given to cyclones and floods, and river bank erosion, but all the disaster risks described above must be considered, and comprehensive arrangements should be developed as quickly as possible.

CHAPTER 3

BASIC PROPOSITIONS CONCERNING DISASTER MANAGEMENT

3.1 Introduction

This chapter presents some basic propositions concerning the general approach to and specific arrangements for disaster management in Bangladesh. They have been synthesized from the conclusions and recommendations of various existing reports and the discussions/workshops held under the auspices of the project during the period April 1992/February 1993.

3.2 Prevention/Mitigation Measures

The formulation of policies, and the planning and implementation of measures to prevent disasters, through hazard reduction, or mitigate their effects, through vulnerability reduction, are important aspects of integrated development planning for any disaster-prone area. They must be incorporated fully into the general development planning and management process at all levels, and be accorded due priority.

Inter-sectoral co-ordination committees and bodies are required at all levels focusing on disaster risks, and the possibilities to reduce risks through prevention/mitigation measures and preparedness. District- and local-level planning, with community participation, needs to be institutionalized. At the national level, disaster risks must be considered by the planning cells of individual ministries and the Planning Commission.

Awareness of the risks, and of the practical possibilities for reducing risks, is essential at all levels. Broad-based public education and community mobilization is needed in all disaster-prone areas to encourage local initiatives in 'proofing'. Orientation workshops for professionals and technicians, senior officers and planners in all sectors are needed to ensure that risk reduction considerations are included in the design and implementation of new works and projects, and in the rehabilitation of existing ones.

Specialist disaster management expertise, advice and guidance should be available to the sectoral and inter-sectoral planners at all levels. Performance in implementing established policies should be monitored, and the effectiveness of various measures evaluated.

Poverty alleviation is probably be most important mitigation measure in terms of decreasing people's vulnerability and increasing their capacity to cope with, and recover from, disasters of any kind. Measures to alleviate poverty deserve the highest priority.

3.3 Preparedness and Emergency Response

The establishment of effective preparedness measures and emergency response capability, and the management of the overall response to an actual emergency, or disaster, are complex inter-sectoral and inter-agency processes. By contrast, the provision of 'relief', food, shelter and clothing, is essentially a humanitarian welfare function, analogous to the delivery of other forms of service, albeit with greater urgency and often under difficult circumstances.

Rescue, the provision of medical and health care, and assuring the availability of potable water, are also required.

At community level, the resilience, initiative and efforts of the people themselves are probably the most important resources in coping with and recovering from disasters. Assistance from Government, NGOs, and other aid organizations, if well-conceived and well-directed, can be vital in supporting and enhancing local efforts, and in restoring local infrastructure and services.

During and immediately after a sudden disaster, rescue and survival depends largely on the coping strategies and capacities of the people themselves. Initial assistance to stricken communities then depends, during the first few days, on the mobilization of locally-available resources in all relevant sectors, from governmental and non-governmental agencies. Such relief operations typically involve telecommunications, water supply, medical care, public health, transport, and storage, in addition to the distribution of relief supplies. Preparedness, at local and national levels, must ensure effective, co-ordinated, inter-sectoral action.

At the local, community level, mechanisms are required to mobilize and involve local resources, officials, community leaders, and volunteers; to organize them effectively; to establish priorities and specify the additional resources that are essential but cannot be found within the community; to defend the interests of the least fortunate members; to co-operate with governmental and other assistance agencies/ personnel; and to arrange, and account for, the effective use of aid provided.

The community as a whole must be involved in arrangements for preparedness, and the organization of emergency response, including evacuation and subsequent relief operations. These vital functions should not be left to, or be controlled by, special groups with vested interests. Disaster preparedness and response should be the responsibility, at village/union level, of a committee comprising: all locally-posted government officers/extension workers; elected representatives; teachers; religious leaders; NGO representatives, including BDRCS and CPP in coastal areas; women's representatives; VDP. Enhanced public awareness is essential.

The composition and functioning of previously established Union Relief Committees may need to be reviewed, and equivalent committees formed at ward/village level. Guidelines must be provided and measures taken to ensure that the needs and interests of *all* members of the community are considered and protected. Special consideration must be given to the needs of women and children, who have been shown to be the most vulnerable and most likely to die during cyclones and floods. Special efforts must be made to increase women's participation in decision-making at the community level and above. Arrangements must be envisaged for children, women, old and disabled people who are left without families and family support.

At district and thana levels, the civil administration, the DCs and TNOs, are, and must be, responsible for ensuring preparedness and for the overall management (direction and co-ordination) of emergency response. This includes mobilizing locally-available resources and requesting specific expert advice or material assistance, including financial sanctions, if and when required. They must have delegated authority to take initial action. Existing

authorities for advance allocations need to be reviewed and, if necessary, increased. Corresponding policy and operational guidelines should be provided.

Any major disaster affecting a large area, large numbers of people, and/or vital national assets, constitutes a 'national' disaster, the response to which reflects on the Government as a whole. Such situations demand, and receive, the direct attention of the national authorities at the highest level. The chief executive necessarily takes overall charge.

The armed forces have particular capabilities in terms of communication and logistic equipment, and large numbers of trained and disciplined personnel who can be mobilized rapidly and operate effectively in difficult circumstances. These capabilities are particularly relevant and valuable in relation to large-scale search and rescue, initial reconnaissance, and initial relief operations, following a sudden disaster. The armed forces have always been involved in initial, post-disaster response. Standing arrangements must be refined and institutionalized to ensure that their capabilities are further developed and effectively used in support of the civil administration in the context of both preparedness and response.

Information that is reliable and appropriately analysed is essential for both preparedness planning and the management of emergency response. Mechanisms, (i.e. systems and trained personnel, are required to ensure that relevant information is rapidly gathered, reported, analysed, cross-checked, appropriately used, and shared, at all levels. During an emergency, there must be a recognized focal point, e.g. a control room, for up-to-date information at each level: national, district, and thana. Detailed maps must be readily available at all levels.

Relevant, task-oriented training must be made available for all personnel who would be expected to be involved in preparedness arrangements and in emergency response to any disaster or crisis. Appropriate disaster management modules should be included in the basic and refresher training of various categories of government personnel and others. Special disaster management workshops should be organized for key personnel, including people's representatives, especially at thana and district levels. Joint training of government, armed service, and NGO personnel, should be arranged, to the extent feasible. Exercises and drills should be organized at regular intervals.

Policies and guidelines, possibly standard protocols, should be established for the mobilization and use/operations of special foreign assistance teams, when required.

3.4 Rehabilitation and Reconstruction

Short-term rehabilitation focuses on restoring essential services as quickly as possible, to enable people to resume more-or-less normal lives and livelihoods. This includes immediate action to: restore tele-communications, road communications, water and power supplies, health care, education/schools, etc.; help farmers to replant, where necessary; help others to resume economic/income-earning activities; provide special, temporary employment opportunities, where required; avoid/control distress selling and forward-mortgaging of land and labour; avoid/control excessive increases in the price of essential items. This requires rapid technical assessments of damage and possibilities for repairs/rehabilitation; decisions

on priorities, within and between sectors, and on the allocation of available human, financial and material resources and action to mobilize additional resources, where needed.

Reconstruction, or 'long-term rehabilitation', involves 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 planned in the context of relevant long-term development plans, taking account of any changes in the environment, future disaster risks, and possibilities to reduce those risks by the incorporation of appropriate mitigation measures. This requires detailed technical assessments of damage and the new environment, and the careful preparation of projects for national and/or external funding.

Short-term rehabilitation therefore requires closely co-ordinated action within each sector by the relevant line agency and between sectors at local level. Inter-sectoral priorities and co-ordination should be established at district level, by the DC and the District Disaster Management Committee, which should include people's representatives, under the overall guidance of the national-level co-ordination committee and specialist unit. Reconstruction/long-term rehabilitation, on the other hand, should be planned and managed in a manner similar to that of regular development projects albeit using accelerated, 'fast-track' procedures. Special arrangements are needed, within the Planning Commission, to ensure overall co-ordination of the reconstruction efforts and to expedite action.

3.5 'Co-ordination'

Concerted action is essential in all aspects and phases of disaster management. It is important that action in all sectors and at all levels be in harmony, within the framework of agreed overall priorities, and that none are left unattended or lag behind. Clear, shared understanding of the competence and capacity of each body/agency involved is an essential prerequisite for effective co-ordination.

Co-ordination mechanisms must be designed and used to ensure that:

i) the efforts of all concerned agencies are harmonized and synchronized towards the achievement of agreed objectives;

ii) operational problems and bottlenecks affecting one or more agency are resolved so that each is able to fulfill its particular responsibilities; and

iii) the overall situation and needs, and progress towards meeting the agreed objectives, are jointly reviewed at regular intervals, and agreement reached on any corrective action required.[5]

Operations in each sector should remain the responsibility of the body responsible for such activities in normal times. The role of the overall disaster management authority, and any

[5] Attempts by a "co-ordinator" to take over the control and direction of activities that are normally the responsibility of other bodies/agencies are often less effective than expected. Only reluctant co-operation is received from those being "co-ordinated" (especially if the co-ordinator is perceived as being a peer rather than a respected higher authority) and the interventions may even inhibit the effectiveness of the operational agencies' own activities

co-ordinating body, should be to ensure that all concerned bodies are able to satisfactorily fulfill their assigned functions, not to take over. The role is to enable and ensure complementarity of action by the various operational agencies.

Reliable, up-to-date information on the situation and the progress of operations/activities in various sectors, and the capacity to analyze and synthesize that information, are prerequisites to effective co-ordination.

CHAPTER 4

ORGANIZATIONAL ARRANGEMENTS IN RESPONSE TO THE 1991 CYCLONE

4.1 Introduction

This chapter describes the main features of the arrangements made by the Government to manage (direct and co-ordinate) the response to the April 1991 cyclone. NGOs made a major contribution individually and collectively, but the discussion below refers only to the Government's organizational arrangements.[6]

4.2 Background

When the cyclone struck on 29/30 April 1991, the new democratically elected government had been in power for only five weeks.[7]

The armed forces, under the direct control of the President, had played the leading role in dealing with the most recent, major disasters (cyclone in 1985; floods in 1987 and 1988, pre-emptying the role of the civil administration as defined in the existing Standing Orders. The civil administration was active, but in a secondary role.

The relationship between the new administration and the armed forces was not clearly defined and was still being developed when the 1991 cyclone struck. Neither wished there to be any appearance of the armed forces resuming a predominant role. The armed forces participated in high-level meetings from the outset, but were less active than previously in the field during the immediate aftermath.

Memories of the major floods of 1988 were still fresh in the minds of many officials. This included the special, *ad hoc* arrangements made at that time, such as the assignment of ministers and senior officers to reinforce the management and co-ordination of relief operations at local level.

4.3 Prevention, Preparedness and Warning Activities in advance

Following the major cyclones of 1970 and 1985, there had been bursts of activity in relation to the warning system, mainly under the joint MoR/BDRCS Cyclone Preparedness Programme (CPP), and the construction of cyclone shelters, but interest and the availability of funds had declined as memories faded.

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[6] The information presented in this section is derived from four main sources:
- *Report of the GOB/UNDP Task Force*, 1991;
- *Report on Cyclone Disaster Response in Bangladesh*, G.P. Sevenhuysen 1991;
- *Operation SHEBA*, Mokammel Huque, Zonal Relief Co-ordinator, Chittagong, 1991;
- Personal recollections of Mohammad Siddiquer Rahman, the Cabinet Secretary at the time.

[7] The government of President Ershad had fallen on 8 Dec. 1990; elections organized by the Interim Government had been held on 27 Feb. 1991; the new Cabinet took oath of office in 20 March 1991.

The number of purpose-built shelters was far from sufficient for the population at risk, and problems of siting and inadequate maintenance were reported. The construction of coastal embankments had not kept peace with continuous process of land erosion and accretion, and there were no adequate arrangements for regular maintenance. There does not appear to have been any overall plan for the protection or development or the coastal areas. No up-to-date maps were readily available.[8]

The facilities of the BMD/Storm Warning Centre and SPARSSO, for analyzing satellite imagery, had been consolidated, and the CPP sustained, albeit on a limited/inadequate budget. Between them, warnings were issued, and disseminated, in April 1991 in line with the established procedures.

Apart from the CPP, there does not appear to have been any systematic preparedness planning at national, district, thana, or union levels in the cyclone-prone coastal belt, or within the line ministries. Any consideration of disaster preparedness had been almost entirely focused on flood risks since 1987. Some individual organizations had established their own, internal plans, but even where this had been done they were not always followed in April 1991.[9]

A meeting of the Implementation Board of the CPP was taking place when warnings of the April 1991 cyclone were issued. The Cabinet met and Parliament was adjourned and MPs were directed to return to their constituencies. A meeting of district officials was convened in Chittagong. Various measures were taken in the different threatened districts, but details of these measures and their effectiveness have not been compiled. The Air Force and Navy have been criticized for failing to protect their equipment.

4.4 Special Organizational Arrangements Established in April/May 1991

Special co-ordination arrangements were made by the Government including three *ad hoc* committees at national level, the appointment of special *Zonal Relief Co-ordinators* (ZRCs), and the deputation of ministers and a large number of senior officials to reinforce the local civil administrations. The co-ordination arrangements prescribed for the national level in the *Standing Orders for Cyclone* (MoR 1985) were not followed.

During the early stages, the Cabinet Secretary took the initiative and the overall set-up appears to have been as indicated in the **Figure 4.1**. Later, the MoR assumed more responsibility. The function of the various committees and other bodies were apparently as described below.

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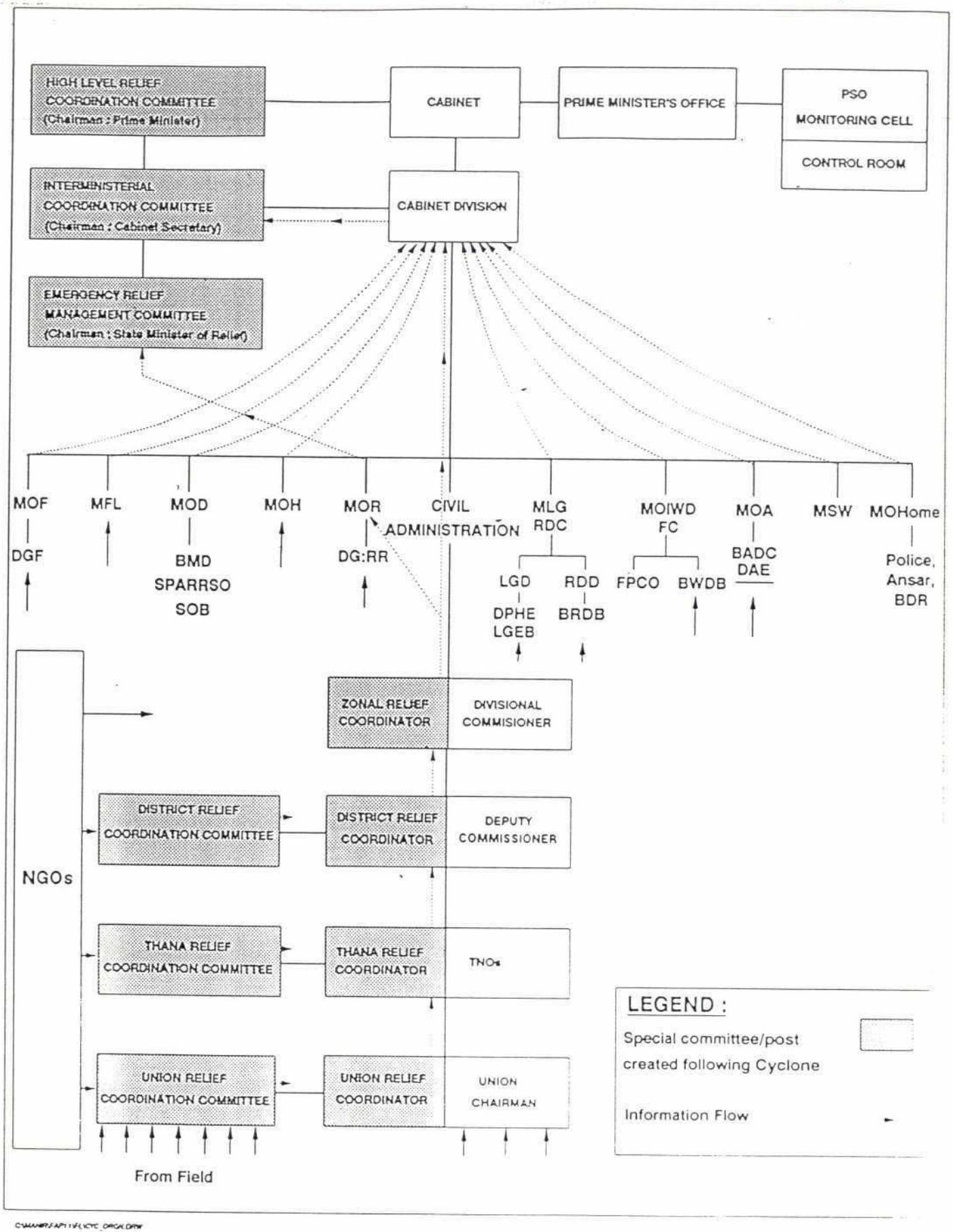
[8] The issue of cyclone shelters has been extensively investigated by the *Multi-Purpose Cyclone Shelter Project*. A Concept Plan for *Integrated Coastal Protection* is one of the outputs of the present project (BGD/91/021), and is presented in Volume VI. Neither topic is dealt with further in this chapter. The construction of coastal embankments started before the 1970 cyclone, but the design criteria did not, until 1992, include protection against storm surges associated with cyclones.

[9] For example: Chittagong Port Authority had a plan, but did not activate it. Eastern Refinery had a plan, and took measures accordingly. [Institute of Engineers in Bangladesh (IEB) Task Force Report, 1991]

Figure 4.1
Organisational Arrangement for Cyclone 1991



An ad hoc *High Level Relief Co-ordination Committee (HLRCC)* was established by the Government, chaired by the Prime Minister with the Cabinet Secretary as Member-Secretary. Its membership included several leading Ministers, the Secretaries of 5-6 key Ministries, and the Chief of the armed forces. The HLRCC met every evening in the immediate aftermath of the cyclone; and less frequently as time passed. The HLRCC was also convened to deal with the floods in North Bengal in October and November 1991. The role of this Committee was to:

- establish policy guidelines;
- issue directives to the Executive Committee (detailed below) and other bodies;
- review reports from the 'field'; and
- issue appeals for international assistance and make regular statements for the donors both in-country and overseas.

Being high level, relatively small, and operating with the authority of the Prime Minister, the HLRCC was able to take prompt decisions, including the deputation of officials and the allocation of funds.

An *Inter-Ministerial Co-ordination Committee (IMCC)*, comprising Secretary-level civil service officers, under the chairmanship of the Cabinet Secretary, initially met daily to manage all disaster-related activities, under the overall direction of the HLRCC. The duties of the IMCC included:

- arranging for the assignment of temporary Zonal Relief Co-ordinators in Chittagong and Khulna, together with supporting staff;
- arranging for posting of necessary officials to the affected areas through the Ministry of Establishments and the respective line agencies, including 'class I officers', medical teams, tubewell mechanics and pump operators;
- receiving and processing reports from ZRCs, Divisional Commissioners and DCs including damage assessments and lists of requirements that could not be met from their own resources;
- receiving and processing reports from line ministries and agencies giving damage and listing requirements which could not be met from their own resources;
- arranging the collection, procurement, storage and transport of required items, including food grains, dry food, medical supplies, clothing and utensils, though MoR and 'PSO' Monitoring Cell;
- liaising with the armed forces and the American Task Force though the Prime Ministers Office and the 'PSO' Monitoring Cell;
- passing information on relief requirements via ERD to the donor Relief Co-ordinator (UNDP);
- arranging with ERD to liaise with donors led by the World Bank regarding long-term assistance for infrastructure.

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The compilation and analysis (processing) of information and requests from the field was initially undertaken by the MoR, but the system proved to be unsatisfactory and, after a few days, this function was taken over by the Cabinet Division on behalf of the IMCC. The Cabinet Secretary:

- received information on needs, problems and bottlenecks from the District/Zonal Co-ordinators other Civil Administration officials, as well as from line ministries;
- discussed this information in the IMCC, and sought to resolve problems; and
- recommended and obtained orders/sanctions of funds and relief items from the Prime Minister, when needed.

These functions were taken up again by the MoR after the immediate crisis period was over. Information was disseminated to the press and news media through the Secretary, Information.

An *Executive Relief Management Committee (ERMC)*, chaired by the State Minister of Relief also met daily. Its membership included the PSO, and the Secretaries of Relief, Food, and Health. Its duties were:

- to allocate available relief resources on the basis of information and requests from the Civil Administration and line Ministries, processed through the IMCC;
- to issue administrative orders for the allocations;
- to arrange transport of resources to the field with assistance from the PSO Monitoring Cell.

4.5 Roles of Particular Bodies in April/May 1991

The *'PSO Monitoring Cell'*, the full title of which is the 'Disaster Management and Relief Activities Coordination and Monitoring Cell' which included representatives from the three services (Army, Navy and Air Force) was to support the civil power. In practise, this support involved:

- reconnaissance flights;
- assistance with bulk transport;
- air drops;
- receiving and storing relief materials coming from abroad by air;

- managing the President/Prime Minister's relief godowns and transporting the items as allocated by the ERMC, or on advice from the Cabinet Secretary under the authority of the PM;[10]
- assistance with security at airports and other places where 'relief' goods were held;
- assistance with crowd control at distribution points.

The Ministry of Relief (MoR) was responsible for the administration, at national level, of the available relief resources, under the direction of the HLRCC and ERMC. At district and thana levels, staff of the MoR supported the responsible civil officers the DCs and TNOs, acting as 'staff officers.' The relief resources concerned mainly cash, 'food grains, under GR and VGD schemes, and CI sheets.

Initially, MoR had responsibility, for consolidating and processing information on damage and requirements received from the Civil Administration. However, this function was soon taken over by the Cabinet Division, on behalf of IMCC, during the immediate crisis period.

The Economic Relations Division (ERD) of Ministry of Finance was to act as the Government spokesman and point of contact with the Dhaka-based donor community. For this purpose, a Foreign Assistance Coordination Cell (FACC) was created within ERD to:

- obtain lists of requirements from IMCC; and
- pass them on to the interested donors.

The first statement of consolidated requirements for relief and rehabilitation was prepared by the Cabinet Division in consultation and collaboration with line ministries. It was communicated to donors through ERD. Meanwhile, donors sought information through other channels, e.g. NGOs, and assessments by their own staff to determine what was needed. Certain line organizations approached their traditional donors directly, and the Cabinet Secretary also made direct approaches to international organizations for urgently needed items following discussion in the IMCC.

Diplomatic staff of the Ministry of Foreign Affairs were active in requesting assistance for Bangladesh through the High Commissions and Embassies overseas, but their information and requests were often at variance with those announced in Dhaka by ERD/FACC.

The line Ministries, departments and agencies, excluding MoR and DRR, were responsible for:

- preparation of sectoral damage assessments, and specification of immediate and longer-term rehabilitation requirements;

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[10] The President had given full authority to the PM for the sanction/allotment of relief goods in the President's Relief Stores.

- provision of assistance to affected populations, and/or arranging repairs and the restoration of services, within their areas of competence;
- submitting requests to the IMCC for supplies, services and/or funds, that could not be provided from their own resources.[11]

The Civil Administration at divisional, district and thana levels, supported for a few weeks by senior officers out-posted by the Government to assist with relief operations, were responsible for:

- compiling data on damage and forwarding related lists of requirements to Cabinet Division and MoR;
- managing and co-ordinating relief activities, including co-ordinating those of all essential services and NGOs, in their areas of jurisdiction; and
- supervising the allocation and distribution of government relief, GR food and cash, and other materials, the clearing of roads, sinking/repair of tubewells, etc..

ADAB helped to co-ordinate the efforts of *NGOs*, opened an office in Chittagong, and issued daily bulletins. Donors funding NGOs shared information with ADAB, and insisted that the NGOs they funded should co-ordinate with ADAB. Many NGOs issued their own bulletins. An NGO leader was given space on early army helicopter flights and relayed initial assessment information to ADAB. The Prime Minister invited NGOs and donors to an information meeting on day 3.

[11] It has been suggested that the priorities of line agency staff are: (i) staff survival; (ii) protection of agency resources; (iii) assisting others.

CHAPTER 5

INSTITUTIONAL ARRANGEMENTS, CONSTRAINTS, AND RECENT PROPOSALS

5.1 Introduction

This chapter provides a brief discussion of current institutional arrangements for disaster management the problems that have arisen, and the proposals made in recent years for improvements.

5.2 Evaluation of Past Experience

There have been few formal evaluations of the government's disaster management activities, but many review meetings and reports, by government and non-government personnel, have identified perceived weaknesses and made recommendations for improvements.

The Flood Policy Study, supported by UNDP and the subsequent Flood Action Plan, prepared by the World Bank, identified a number of both structural and non-structural measures, including disaster preparedness, that, subject to further analysis, should be envisaged to reduce losses due to floods. Under the UNDP-assisted Project BGD/91/021, a review has been made of a large number of available reports, and discussions have been held with knowledgable people from a wide variety of backgrounds both individually and in the context of small workshop sessions. This has led to a broad, if informal, consensus concerning the main weaknesses and the priority measures that need to be taken to improve disaster management in general in Bangladesh, with particular attention to risks associated with cyclones and floods.

Many practical measures have been suggested requiring action at various levels. The main, general lessons are:

- the need, at all levels from household to national for more adequate attention to be given to preparedness and to the possibilities for action to reduce risks and losses through 'proofing' and small-scale protection measures; and
- the need, at all administrative levels, for relevant training and better co-ordination of activities between line ministries/departments/agencies, and between the civil authorities, the armed forces, NGOs, voluntary organizations, and professional associations, in relation to preparedness, 'proofing', and disaster response.

In fact, Bangladesh has fairly well developed procedures for managing the consequences of natural disasters. The Government and other organizations have made considerable efforts and been fairly successful in organizing disaster relief operations but, until now, much has been done on an *ad hoc* basis rather than on the basis of advance planning, and few people have received any relevant training or practical guidelines.

5.3 Present Institutional Arrangements

Responsibilities in relation to disasters are currently (in February 1993) defined in the Standing Orders for Cyclone (SOC) issued in 1985 and the Emergency Standing Orders for Flood issued in 1984.[12] Although these Standing Orders list pre-disaster responsibilities for many ministries and agencies, and assign specific preparedness responsibilities to the Ministry of Relief (MoR), DCs, upazila- (now thana) and union-level authorities, no specific mechanisms or programmes have yet been established in this connection within the civil administration and line ministries/agencies.

The functions of the MoR and DRR, as defined in official Rules of Business, refer almost entirely to the provision of 'relief', with little reference to preparedness, although the Government, in 1991, designated the MoR as 'the focal point for the co-ordination of all disaster-related activities', particularly short-term repair and rehabilitation following the April 1991 cyclone.[13]

In practice, the MoR and DRR have until now been concerned almost exclusively with:

i) the administration of the regular GR and TR 'relief' programmes using Government resources, and the VGD and certain FFW programmes supported by WFP and other food aid donors;[14]

ii) the provision of emergency relief following disasters, including small-scale local events as well as the more publicized major floods and cyclones.

Presently, the MoR/DRR has responsibility as focal point in the Government for the management of assistance to the Rohingya refugees.

Responsibility for final distribution of relief has rested with the union-level relief committees under the Union Parishads (UPs), which have also been responsible for reporting their assessment of damage and needs to the thana and district administrations. They have been supported by civil administration officers as well as military personnel in extreme cases. Under the Standing Orders, the same UPs have been responsible for establishing local action plans, but have not until now been given any specific guidelines or help in this connection.

Between the national Government and the UPs, responsibility has rested with the district and thana administrations, in particular with the DCs and TNOs. Relief co-ordination committees have been constituted on an ad hoc basis at district and thana levels at times of major disaster, the composition being specified differently on different occasions. Similarly, at

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[12] A draft standing orders for drought were prepared for the MoR in 1988/9, but this was not followed up. The West Bengal Famine Code (1943?) remains the most recent official instructions in this connection, but copies are extremely difficult to find.

[13] Ref. project document BGD/91/021.

[14] The regular VGD programme provides some food (wheat) to specifically-selected destitute women. It is expanded to include more women at times of emergency by the issuing of "Special VGD" cards. The scale of the FFW programmes administered by MoR/DRR has recently been reduced, with important allocations being managed directly by BWDB and LGED for the more substantial construction works. Resources for Local Initiative Schemes are still managed by MoR/DRR

national level, various forms of ad hoc co-ordination committees have been established, superseding the standing committee arrangements foreseen in the Standing Orders.

The SOC provide for a National Co-ordination Committee for Cyclone Emergency (NCCCE), composition not specified but to be determined by the President, to 'meet as and when considered necessary by the Chairman' to 'review the overall preparedness measures and direct concerned authorities to take such steps as deemed necessary by the Committee.' Similarly, the MoR is charged with the responsibility to 'issue necessary orders ..... for effective co-ordination of preparedness ..' and to 'review the state of disaster preparedness of various Ministries, Divisions, Departments and Agencies.'[15]

However, no specific mechanisms or programmes were established to promote preparedness activities and, although the need for a high-level inter-sectoral co-ordination committee was recognized in the SOC, the NCCCE has apparently not met in this connection. In practice, little has been done to realize the objective of improved disaster preparedness.

National-level forecasting arrangements exist for cyclones and floods, managed by the BMD and BWDB respectively.[16] The main 'preparedness' programme is that of the CPP, established by the Red Cross, following the 1970 cyclone, and now administered jointly by the MoR and the BDRCS. This has established a mechanism for the dissemination of warnings with a view to ensuring timely evacuation of people from threatened coastal areas in the face of an imminent cyclone threat. Apart from this, little has yet been achieved by way of helping local communities or the civil administration to prepare for and cope with cyclones, floods, or other potentially disastrous events.

Apart from the armed forces, which have Standard Operating Procedures (SOPs), only the Ministry of Agriculture/Department of Agricultural Extension has issued departmental instructions, in the form of flood and drought codes prepared by an FAO expert, Hugh Brammer. The Ministry of Health is now in the process of developing an emergency preparedness and response programme, with WHO assistance.

5.4 Recent Proposals

Following the unprecedented floods of 1987 and 1988, a project for *Comprehensive Disaster Preparedness* was envisaged as part of the Flood Action Plan. A main objective and output of the project was to be the establishment of a special unit, initially called an *Office of Emergency Preparedness*, later an *Office of Disaster Management*, to plan and co-ordinate disaster-related activities.

In early 1989 it was proposed, and agreed by the Government, UNDP, and other potential donors, that the OEP/ODM would be established in the President's Secretariat. Later, it was

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[15] The preparedness responsibilities of the DRR, as defined in the SOC, relate to the training of its own staff, "mobilizing available relief stock"(?), and the construction and maintenance of killas (under FFW).

[16] BMD operates the Storm Warning Centre, and BWBD the Flood Forecasting and Warning Centre / Information Centre.

indicated by the Government that the Office should be in the Ministry of Relief (MoR). The precise functions to be fulfilled by this Office were not specified.

The essential inter-sectoral co-ordination, planning and monitoring functions, and the vital collaboration between the civil authorities and the Armed Forces, must necessarily be assured by a high-level, inter-ministerial entity. The overall direction and co-ordination of operations during the 1987/88 floods were assumed by the President's Office. Following the 1991 cyclone, these functions were performed by the Prime Minister and the Cabinet Division. These *ad hoc* arrangements substituted for those envisaged in the Standing Orders.

The need for new arrangements to give proper attention to disaster management has been widely recognized, and was specifically referred to by the President in his address on the occasion of IDNDR Day, 14 October 1992, when he spoke of the need for 'A separate organization' to take care of these important tasks.

In fact, disaster management involves a wide variety of tasks, only a small proportion of which concern the management of relief supplies. The complexity and inter-sectoral nature of the issues involved are clearly shown in the preceding sections and in **Annex A**.

The distinction between the management of 'relief' and 'disaster management' as a whole, may not yet have been fully understood by all of the officials and others involved in discussions, or otherwise expressing views, concerning institutional arrangements. It is important to recognize that:

- disaster prevention, or mitigation, is an integral part of long-term development planning.
- disaster preparedness and response to major disasters are complex inter-sectoral operations requiring effective inter-ministerial co-operation and collaboration between the civil authorities, the armed forces, and NGOs; and
- a major, inter-sectoral training programme, and the development of local-level capabilities and plans, will be an essential component of any serious effort to improve disaster management in Bangladesh.

Arrangements are therefore required by which the services of a specialized staff unit are available to the entity (focal point) responsible for promoting mitigation and preparedness measures, and for supporting the co-ordination and direction of emergency response and rehabilitation following any major disaster. The unit must have appropriate communications facilities, management information systems, internal operating procedures, and clearly understood relationships and communications channels with all relevant government bodies and other concerned agencies. It should, whenever necessary, be strengthened by the secondment of additional personnel from relevant line agencies and/or the armed forces.

The unit must be similarly capable of being an effective catalyst for planning and self-help arrangements at local level, for arranging public education campaigns working with and through other agencies, and for organizing the systematic training of large numbers of government officers and other personnel from national level down to the union/community level.

Prerequisites for an effective disaster management unit are:

i) a respected leader and the right staff: energetic, motivated individuals with broad knowledge and practical experience in relevant specializations, e.g. disaster preparedness, emergency management, logistics, communications, field surveys and assessment, data analysis, monitoring and evaluation, training, public information/education;

ii) sustained high-level direction and support, enabling the unit to:

- perform an effective co-ordination role in the name of a high-level inter-sectoral/inter-ministerial authority; and
- assure effective collaboration between the civil and military authorities, ensuring appropriate support from the armed forces to the civil power;

iii) strong administrative, as well as political, backing to ensure the allocation of needed resources the assignment of appropriate staff, by a combination of direct recruitment and secondments from other ministries, agencies, or the armed forces, and to take care of associated administrative aspects;

iv) the right location: suitable premises which are readily accessible to all concerned and interested parties, including personnel from ministries, line agencies, the Armed Forces, technical institutions, NGOs, and donors;

v) the necessary facilities: good telecommunications, computers, stand-by generators, a suitable operations/conference room, up-to-date large-scale maps, adequate parking for officials and other important contact persons visiting during an emergency.

NGOs and voluntary organizations have, in recent years, mobilized and delivered large amounts of assistance for relief and local-level post-disaster rehabilitation. Several are already well-advanced in the development of training materials and in organizing disaster preparedness training for NGO personnel and local communities. They are making, and will continue to make, an important contribution to the overall process of improving disaster management in terms of local-level preparedness and response in particular.

Overall arrangements must explicitly provide for co-operation and co-ordination between government, local authorities, NGOs, and voluntary organizations. The specialist unit/organization must be constituted and must operate to facilitate that essential co-operation and co-ordination.

CHAPTER 6

MODELS FROM OTHER COUNTRIES

While institutional arrangements must be tailored to the particular needs, characteristics, and traditions, of each country, it is sensible to try to learn as much as possible from experience elsewhere. Material reproduced in **Annexes C, D and E** provides some valuable indications. It is worth noting that in all the country examples quoted, Jamaica, Mexico, and Philippines, institutional arrangements have evolved over time and have changed significantly, on the basis of experience.

Responsibility for managing emergency situations, and for preparedness, is usually vested either in a ministry having relevant normal responsibilities and an extensive, well-established structure at all levels of administration, e.g. Home or Public Works, or in the office of the Chief Executive. Within the Indian sub-continent, relief has traditionally been the responsibility of the Revenue Department. In many large countries, it is a provincial, or state, responsibility. Bangladesh, with a unitary system of government, may be unique in having a Ministry of 'Relief', as such, at national level.

In **Annex C**, Cuny argues the advantages of placing the disaster management unit in a strong line ministry, rather than in the office of the Chief Executive. The examples described also underline the importance of having:

- the right kind of individual as head of the unit;
- a high-level inter-ministerial co-ordinating committee chaired by the President or Prime Minister, and with the head of the disaster management unit as secretary; and
- a small core of permanent staff, and senior personnel from relevant line ministries on fixed term secondments, thereby involving other ministries directly in the work of the unit.

Annex D indicates the rethinking that has been found necessary in the Philippines following the major disasters of the last few years. There, the need has been identified for an executive organization to provide a focal point for disaster management-related activities. The existing Disaster Co-ordinating Councils at national and local levels are to be replaced by:

- an *Inter-Agency Policy-Making Board* at national level;
- a *Disaster Operations Center (DOC)* to prepare and administer disaster operation plans and programmes at national level; and
- an *Operations Network*, a kind of task force, at national level and each local level to 'operate in concert to meet as effectively and economically as possible the demands of disaster prevention, control and relief operations'.

The Board at national level and the 'operations networks' at all levels are to include representatives of relevant government departments and selected non-government organizations. The Board will also include representatives of the private sector.

Annex E reproduces some extracts from general guidelines compiled by Nick Carter for the Asian Development Bank and the Asian Disaster Preparedness Centre. These guidelines attempt to synthesize broad experience of disaster management in Asia. They suggest the need for:

- a National Disaster Committee;
- a Minister responsible to the Cabinet to ensure that adequate disaster prevention/mitigation and preparedness measures and capability exist at all times; and
- a National Disaster Management Office (or Operations Centre) either directly under the national committee or under a ministry responsible, *inter alia*, for disaster affairs;
- special taskforces under the national committee or the national disaster management office to review, make recommendations, or take decisions on specific issues.

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CHAPTER 7

PROPOSED ARRANGEMENTS FOR OVERALL DISASTER MANAGEMENT

7.1 Introduction

This chapter presents specific proposals for new institutional arrangements for improved disaster management in Bangladesh. They have evolved through a process of consultation with various informed and concerned bodies and experienced individuals, and represent an attempt to reconcile and synthesize different perspectives and ideas.

7.2 Summary Assessment of Needs

The studies made during the course of the project have confirmed the findings and recommendations of previous studies and reports, notably the need for improved institutional arrangements and enhanced management and operational capacity. A range of tasks/activities have been identified that need to be accomplished. They relate to:

i) establishing national-level policies, plans and guidelines; improving inter-sectoral (inter-ministerial/agency) co-ordination; arranging training; and providing specialist disaster management services (advice and practical support) to all concerned agencies and, most importantly, to the field: to the civil administration and the disaster management committees at district level and below;

ii) strengthening existing institutions and co-ordination mechanisms in the field, at district, thana and union levels, and placing emphasis on preparedness and 'proofing'; providing guidelines, training, and back-stopping support;

iii) organizing extensive public education and community mobilization activities at community (village) to promote greater awareness of what can be done at that level, in relation to preparedness, 'proofing' and response;

iv) promoting a number of specific, practical measures to develop and test 'proofing' techniques; improve warning systems; establish mechanisms to mobilize resources, both human and material, to support preparedness, 'proofing' and response operations.

Related functions that are vital but have not been undertaken by, or even been the formal responsibility of, any existing government entity including:

i) systematically promoting and developing preparedness at all levels of government and at local community level, including a massive effort at public education and training;

ii) establishing improved arrangements for the assessment of damage and needs following a disaster, including formats, methodologies, and related training, and arrangements for rapid reconnaissance by experienced personnel;

iii) developing specific expertise and management systems for the overall management and co-ordination of emergency response operations, and providing expert staff support to the high-level decision-making bodies;

iv) integrating the capabilities of the civil administration, the armed forces, the NGOs, professional and other organizations, in relation to all disaster-related activities; and

v) promoting wider knowledge of disaster risks and possibilities to mitigate those risks, and the systematic inclusion of disaster risk considerations into all development planning.

There is need for high-level co-ordination to ensure inter-sectoral co-ordination and direction of disaster mitigation and preparedness activities, and post-disaster rehabilitation, not just to immediate relief as has been the case until now. There is also a need for a professional disaster management unit to perform these specialist functions, working in close collaboration with the district- and thana-level authorities, and the concerned line ministries, under the overall authority of a high-level inter-ministerial body/committee.

7.3 Arrangements at National Level

Figure 7.1 shows the arrangements proposed at national level. It provides a schematic indication of the standing (permanent) co-ordinating arrangements envisaged and of the relationships of the proposed new **Disaster Management Bureau (DMB)**. The DMB should be located administratively within the government structure such that its proper functioning, including staffing, can be satisfactorily assured and sustained on a year-round basis, and where the Bureau itself be most effective.

Actual arrangements must be in keeping with the current general system and philosophy of government and administration in the country. Three basic models have been suggested by different interested parties:

i) a small unit in the Ministry of Relief, supervised by and servicing a high-level inter-ministerial committee;

ii) a small unit in the Prime Minister's Office (or Cabinet Division); and

iii) a new Directorate under the Ministry of Relief.

Following extensive consultations, option (i) is felt to be the most appropriate for Bangladesh today, for reasons are given below.

The model adopted in a number of other countries, of placing the Disaster (or Emergency) Office in the Ministry of Home Affairs, or Public Works, is not considered by any of the national experts consulted to be appropriate for Bangladesh, in view of the existence of the Ministry of Relief. At the same time, almost all those consulted consider that the DRR is fully occupied with its current responsibilities, and may itself benefit from some assistance to upgrade its existing operations, and express the view that a new unit is needed to

spearhead new initiatives in overall, inter-sectoral disaster management planning and co-ordination.

Figure 7.2 shows the proposed overall arrangement at national level in detail. This attempts to reconcile diverse ideas and represents a compromise that should be effective, provided the right kind of staff are appointed in the key positions, and enjoy broad support. The proposed arrangement:

- meets the requirement for overall direction from a high-level inter-ministerial body the NDMC chaired by the Prime Minister;
- provides for effective inter-ministerial co-operation and co-ordination at the national level, through the IMDMCC;
- recognizes and capitalizes on the key role of the Cabinet Secretary in inter-ministerial co-ordination, as chairman of the Secretaries Committee and in supervising the district administrations;[17]
- incorporates the role of the MoR to be renamed Ministry of Disaster Management and Relief, MDMR as the responsible line ministry;
- provides for the integration of the PSO and the capabilities of the armed forces into the overall arrangements; and
- reflects the crucial role of the DCs/district administrations, which necessarily have prime responsibility for co-ordinating all aspects of disaster management at the field level.

The Disaster Management Bureau (DMB) would be a part of the MoR/MDMR, but be supervised by and service the IMDMCC, of which the Minister MoR/MDMR is Chairman and the Secretary its Member-Secretary.

The Cabinet Secretary has a key role as Vice-Chairman of the IMDMCC, supporting the Minister in the day-to-day management of the committee and in the direction of the work of the DMB. This will ensure proper inter-ministerial participation and effective co-ordination at the national level and reinforce the link to the field through the DCs.[18]

The option of placing the Bureau directly in the PM's office has been favoured by some who suggest that the unit would then receive more attention, be assured of obtaining the necessary resources, and attract better staff. However, there are good arguments against placing the unit in the PM's office. In addition to those of Cuny (ref. **Annex C**) they include:

- the lack of back-up from an established ministry.
- the absence of a field level structure, District Administrations are supervised by and report to the Cabinet Secretary; and

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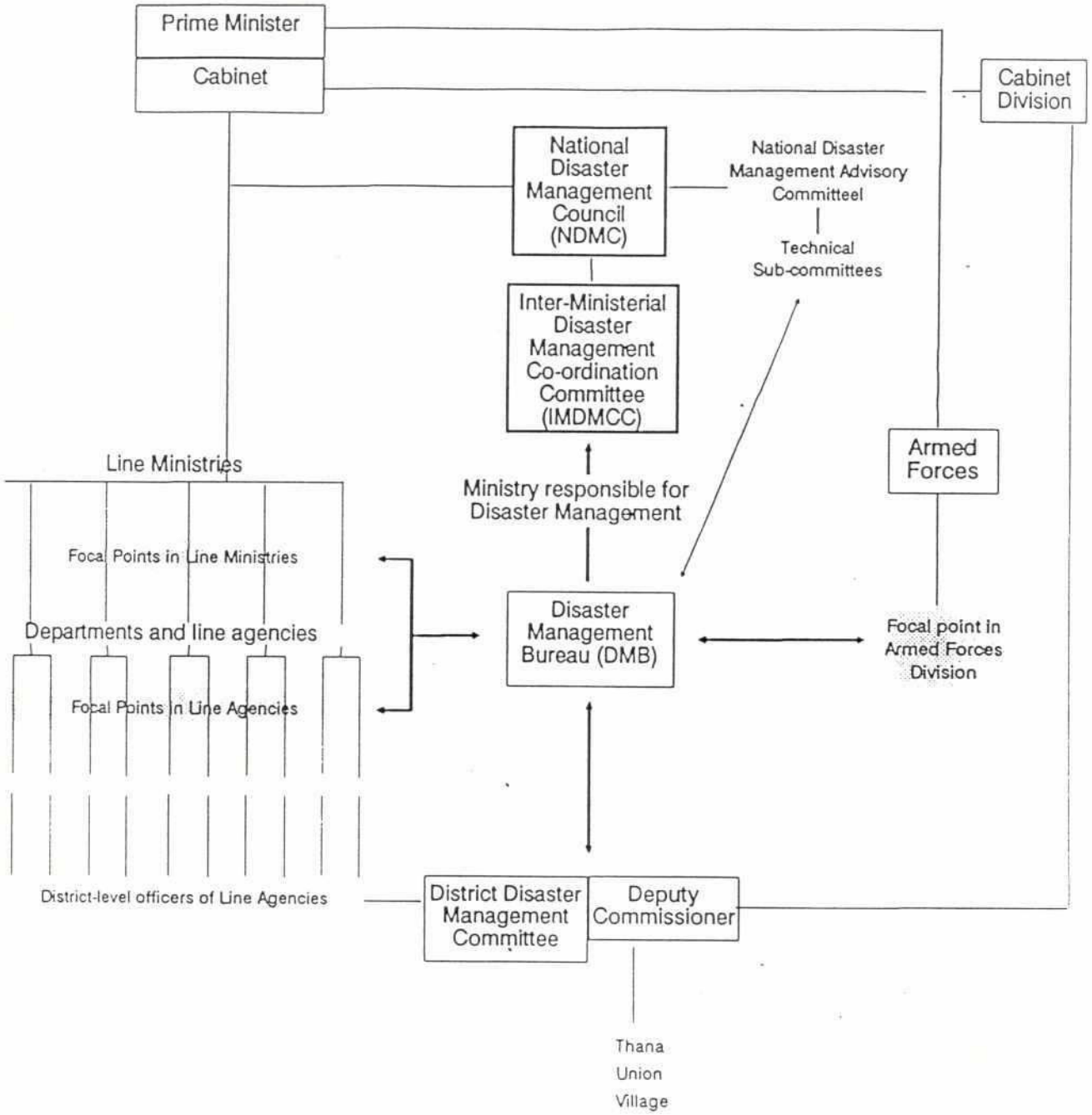
[17] The Cabinet Secretary is also able, in the name of the PM and the Cabinet, to ensure the essential co-operation between the civilian and military authorities.

[18] The management of a major, inter-sectoral IFAD project by an inter-ministerial committee headed by the Cabinet Secretary is also referred to an example of the latter's role as a high-level inter-ministerial co-ordinator.

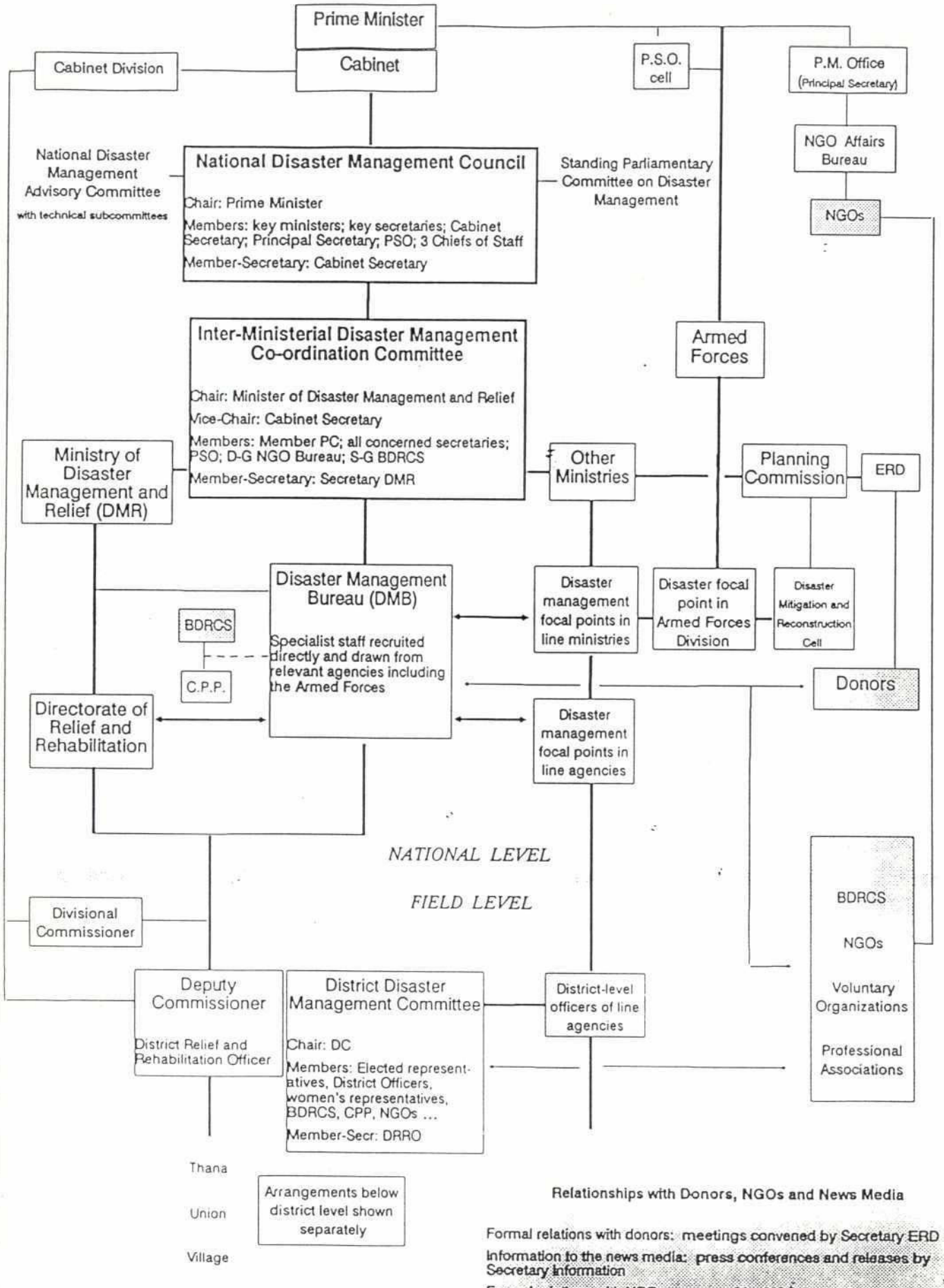
Figure 7.1

Schematic representation showing the functional role and relationships of the specialist Disaster Management Bureau



[Revised version: 01 Mar 93]

Figure 7.2
Proposed Institutional Arrangement for Disaster Management in Bangladesh



[Revised version: 01 Mar 1993]

- the undermining of the principle of parliamentary democracy by concentrating too much responsibility in the Office of the PM.

In fact, both the Prime Minister and the Cabinet Secretary must be involved in ensuring that adequate attention is given by all concerned to disaster prevention/mitigation and preparedness measures during normal times, as well as in ensuring the overall co-ordination and direction of emergency response, relief and rehabilitation in case of a major disaster. Both must therefore be involved in the essential high-level disaster management committee which will be serviced by, and therefore give overall supervision and direction to, the Bureau.

A further alternative that has been suggested is that of appointing a senior minister with responsibility for environment and disaster management. It is suggested that this will be necessary in the long term in view of the close relationship between environment and disasters, and the importance of both.

The National Disaster Prevention Council, established in 1988, has ceased to function and is generally felt to have been to unwieldy to be functional. It is proposed that it be reconstituted as a National Disaster Management Advisory Committee (NDMAC), with a maximum of 60 members, and that it establishes technical sub-committees on specific topics, as necessary.

The proposed Parliamentary Committee on Disaster Management would replace the present Committee on Relief, corresponding to the redesignation of the Ministry.

Based on the experience of May 1991, it is further proposed that an executive Emergency Relief Management Committee be established as a sub-committee of the IMDMCC. Chaired by the Minister of Relief, it would include the PSO and the Secretaries of MDMR, Health, and Local Government, as members, and it would agree overall allocations of relief resources.

Table 7.1 provides a brief summary of the functions of some of the key bodies. Details of the duties/ functions of the NDMC, NDMAC and IMDMCC are provided in **Annex F**, which is intended to provide a basis for further discussion and refinement.

The arrangements at national level, are designed to :

- institutionalize the high-level direction and inter-ministerial co-ordination that are essential, and have been effected on an *ad hoc* basis in recent years, in relation to response to major national disasters, and to broaden the remit and focus of these bodies to include preparedness and prevention/mitigation measures;

Table 7.1

Summary of the Main Disaster Management Functions of Key Bodies

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National Disaster Management Council (NDMC)

- Establishing policies and providing overall direction for all aspects of disaster management. Defining priorities and criteria for the allocation of resources.

National Disaster Management Advisory Committee (NDMAC)

- Providing advice to the NDMC, and directly to MDMR and DMB, on specific technical, management and socio-economic aspects of disaster management, including vulnerability analysis and disaster-development links.

Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)

- Implementation of NDMC policies and decisions on an inter-ministerial basis.
- Co-ordination of action by all government agencies and overall direction of the activities of the DMB.
- Responsibility for major operational decisions during an emergency.
- Decisions on allocations of relief resources through its sub-committee, the Executive Emergency Relief Management Committee.

Ministry of Disaster Management and Relief (MDMR)

- Ministerial responsibility for disaster management, including the convening of the IMDMCC.
- Assuring the establishment, resourcing (budget), and satisfactory functioning of the DMB.
- Supervision of the DRR.

Disaster Management Bureau (DMB) -- a part of MDMR

- Provision of expert staff services to the NDMC and IMDMCC.
- Promotion of disaster prevention/mitigation and preparedness within all agencies and levels of government.
- Providing guidelines, organizing training, and promoting the preparation of disaster plans.
- Operation of the national Emergency Operations Centre (control room) at time of disaster.

Directorate-General of Relief and Rehabilitation (DRR)

- As at present with respect to: VGD; FFW; GR and TR; the management and delivery of relief supplies, and the provision of related services.

DRROs and PIOs

- As at present under the general direction of DRR and the operational supervision of DC and TNO. Increased attention by DRROs in particular to disaster preparedness under the guidance of the DMB (this compensating for some reduction in FFW workload).

- provide mechanisms to bring together, and integrate, relevant expertise and resources within the country, and include people's representatives through the Parliamentary Committee[19] and in the Advisory Committee;

- provide specialist support to the national co-ordination committees, and concerned line ministries/department/agencies; and

- provide specialist support to, and training for, district and local-level authorities, and to other, non-government bodies, in relation to disaster management activities, with particular emphasis on preparedness and local risks reduction measures.

The DMB itself would be a small, highly skilled, unit at national level, within the MoR/MDMR, and work as a team. Each staff member would have specific functional responsibilities during normal times and during an emergency. The suggestion that a new Directorate of Disaster Management should be formed with its own field staff at least to district level is not considered to be appropriate, at least for the time being. During an initial 3-year period, the Bureau would benefit from technical assistance that would include a small number of field-based specialists to work with the DCs and DRROs. Details of the proposed status, composition, staffing, and functioning, of the Bureau are discussed in **Chapter 8.**

7.4 Responsibilities and Institutional Arrangements at Field Level

Figure 7.3 shows the overall framework for arrangements proposed at and below district level. Executive disaster management committees should be formed as standing bodies at district, thana and union levels (replacing the earlier relief committees). These would be chaired by the DCs, TNOs and union chairmen respectively with, as members, some elected (parishad) members, all relevant government officers, and representatives of NGOs, women groups, and voluntary organizations (e.g. the teachers' associations) which are, or should be, actively involved in disaster management activities in the locality.

More specifically, it is envisaged that:

(a) **At the district and thana levels:**

- The overall co-ordination and management of *preparedness* and disaster *response* activities is, and should remain, the responsibility of the civil administration, supported by all line agencies and other operational organizations in the district/thana (governmental and non-government/voluntary), and monitored by representative local bodies.

- Standing *Disaster Management Committees* should be established, replacing the earlier Relief Co-ordination Committees. These committees, chaired by the DC/TNO would include the local officers of line agencies, representatives

[19] The proposed Parliamentary Committee for Disaster Management is the existing Parliamentary Committee for Relief renamed and with an expanded mandate corresponding to the proposed new name and expanded mandate of the Ministry

of BDRCS, CPP, NGOs, voluntary organizations, professional associations, women's representatives, and representatives of the union parishads.[20] These committees would:

(i) ensure the co-ordination of all *preparedness* and *response* activities, including training and the preparation of local hazard and vulnerability maps (in conjunction with LGED and the thana Plan Books), and Disaster Action Plans; and

(ii) promote public awareness and community mobilization for disaster management, and the planning and implementation of local-level measures to reduce risks through *'proofing'* or small-scale *protection* measures.

(b) **At union level:**

- The management of disaster *response* has been and will remain the responsibility of *Union Disaster Management Committees* under the chairmanship of the Union Chairman. These committees should be consolidated with broad-based membership including teachers' representatives, extension and other government workers, BDRCS, CPP, NGOs, voluntary organizations, women's representatives, and ward members.

- Union Councils have, under the Standing Orders for Flood and for Cyclone, been responsible to take preparedness measures also, although no training or support has been provided in this connection. The mandates of the Union Disaster Management Committees should explicitly include equivalent responsibilities to those listed as (i) and (ii) above for the district and thana committees. Guidelines, training and some practical support should be provided to them in this connection.

(c) **At community (village/neighbourhood) level:**

- Through public awareness/education programmes focusing specifically on the local situation, information on actions that can be taken to reduce risks and losses must be made available to people living in disaster-prone areas. These programmes must be developed on a participatory basis, including local research and consultations, and should encourage communities to take appropriate measures at the level of individual households and also collectively, on a neighbourhood or village basis.

- These community-level groups should then be encouraged to organize local-level activities and to interact with the Union Disaster Management Committees in relation to risk reduction and preparedness measures, and response, when needed.

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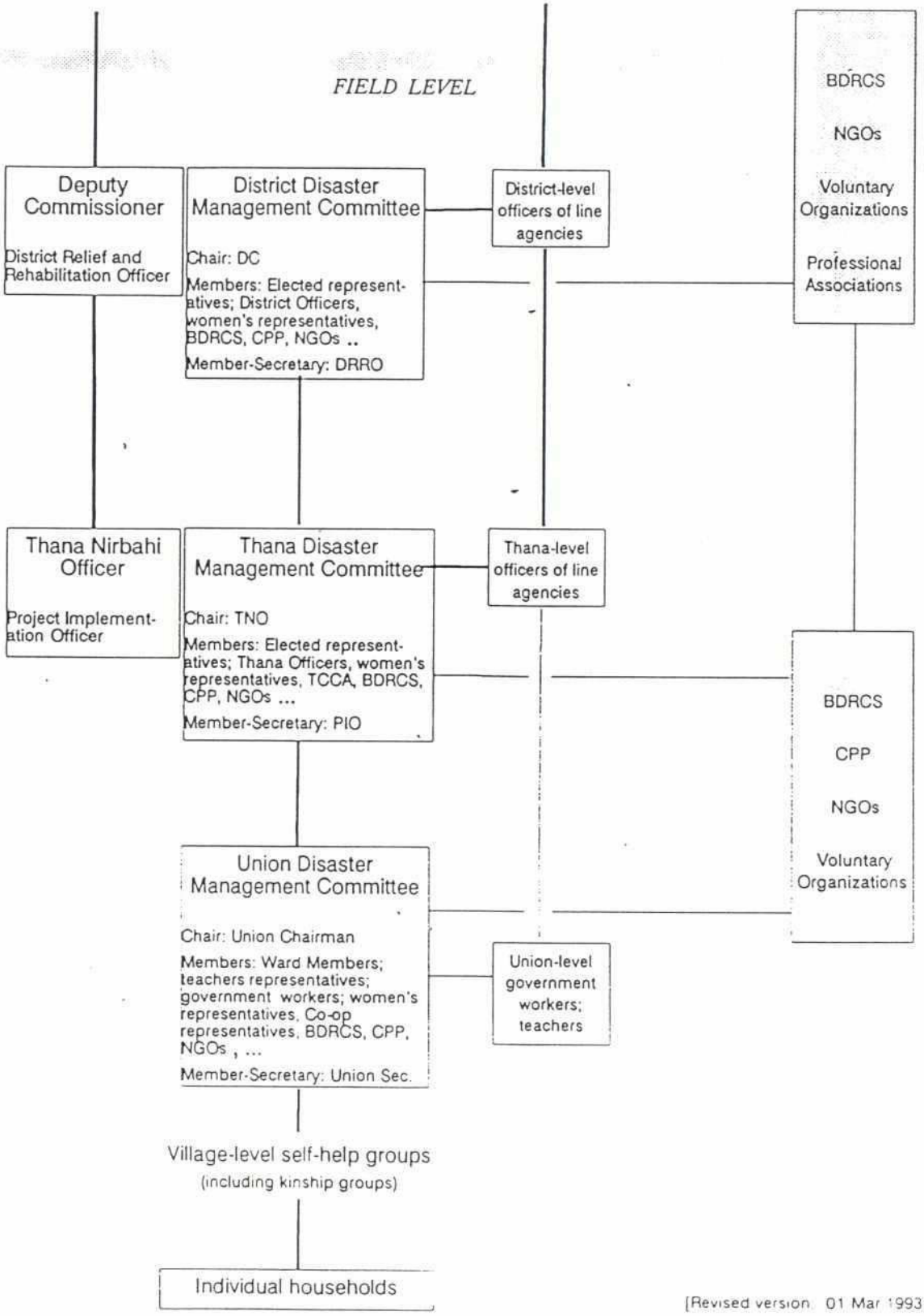
[20] At times of major disaster, when the armed forces are mobilized in support of the civil power, the commanders of the military units assigned to particular districts and thanas would also be included as members of the relevant disaster management committees.

Figure 7.3
Institutional Arrangement for Disaster Management at Field Level (at district level and below)



[Revised version 01 Mar 1993]

The findings and recommendations of the FAP:14 study, which are supported by the field work undertaken by the project emphasize the importance of building up neighbourhood-level capacity. They highlight a desire among people in flood- and cyclone-prone areas for support from the union level and above in relation to warnings, shelter sites, improved roads, security of property, and rehabilitation assistance, rather than relief. There is also a desire for improved techniques for protecting (saving) food stocks, drinking water supplies, and other valuable property, during storm surges and floods. These priorities and felt needs, subject to local confirmation, should form the basis of approaches to disaster management at local level.

The Disaster Management Bureau (DMB) should provide guidelines, including model plans, for use by these local committees, and arrange training for committee members, the elected members, district and thana officers, and others. Staff of the DMB should be available to advise and assist these local committees, through the DCs and TNOs, in preparing and testing their own local plans and, later, in reviewing them and ensuring that they are kept up-to-date.

CHAPTER 8

Functions and Organization of the Disaster Management Bureau (DMB)

8.1 Introduction

This **chapter** provides details concerning the specific functions, organization and staffing of the proposed Disaster Management Bureau.

8.2 Role and Functions of the DMB

The new, specialist unit for disaster management (the DMB) is required to:

i) strengthen the capacities of households and village communities in the highly disaster-prone areas to cope, individually and collectively, with both the risks and the effects of cyclones, floods, and river bank erosion - to cope before, during, and after, the impact of such events.

ii) enhance the capacity of the Government and local-level authorities to:

- warn people of imminent threats of cyclones or floods;
- organize evacuations and other precautionary measures when necessary and possible;
- assess damage and needs in the immediate aftermath of a sudden disaster, and during an extensive flood;
- organize rescue, relief and short-term rehabilitation activities effectively and efficiently, when needed, and to co-ordinate the activities of all involved; and
- plan integrated post-disaster reconstruction programmes.

iii) ensure that natural hazards and other risks are properly considered during the formulation and implementation of development programmes and projects. To ensure that measures to reduce risks are implemented whenever possible, and that development projects in all sectors are neither unduly vulnerable to known hazards nor increase the vulnerability of people in the areas concerned.

Specific tasks include:

i) During normal times:

- developing a National Disaster Plan, and associated practical guidelines for those responsible for its implementation, this would include developing refined and up-dated definitions of responsibilities, specification of lines of communication, and the like;

- proposing drafts for national policy statements and related legislation;
- working with line ministries and agencies to ensure the establishment of suitable contingency plans within those agencies;
- working with BMD, BWDB, CPP and others to refine and enhance warning systems;
- preparing guidelines (including model action plans) for district, thana and union authorities, and helping those authorities to develop and test their own disaster action plans;
- working with local authorities, BDRCS/CPP, NGOs 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 NGOs 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 NGOs, in planning and organizing training for a wide variety of government personnel, elected officials and others;
- establishing and maintaining 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;
- 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.

ii) 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 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 NGOs 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.

iii) 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;

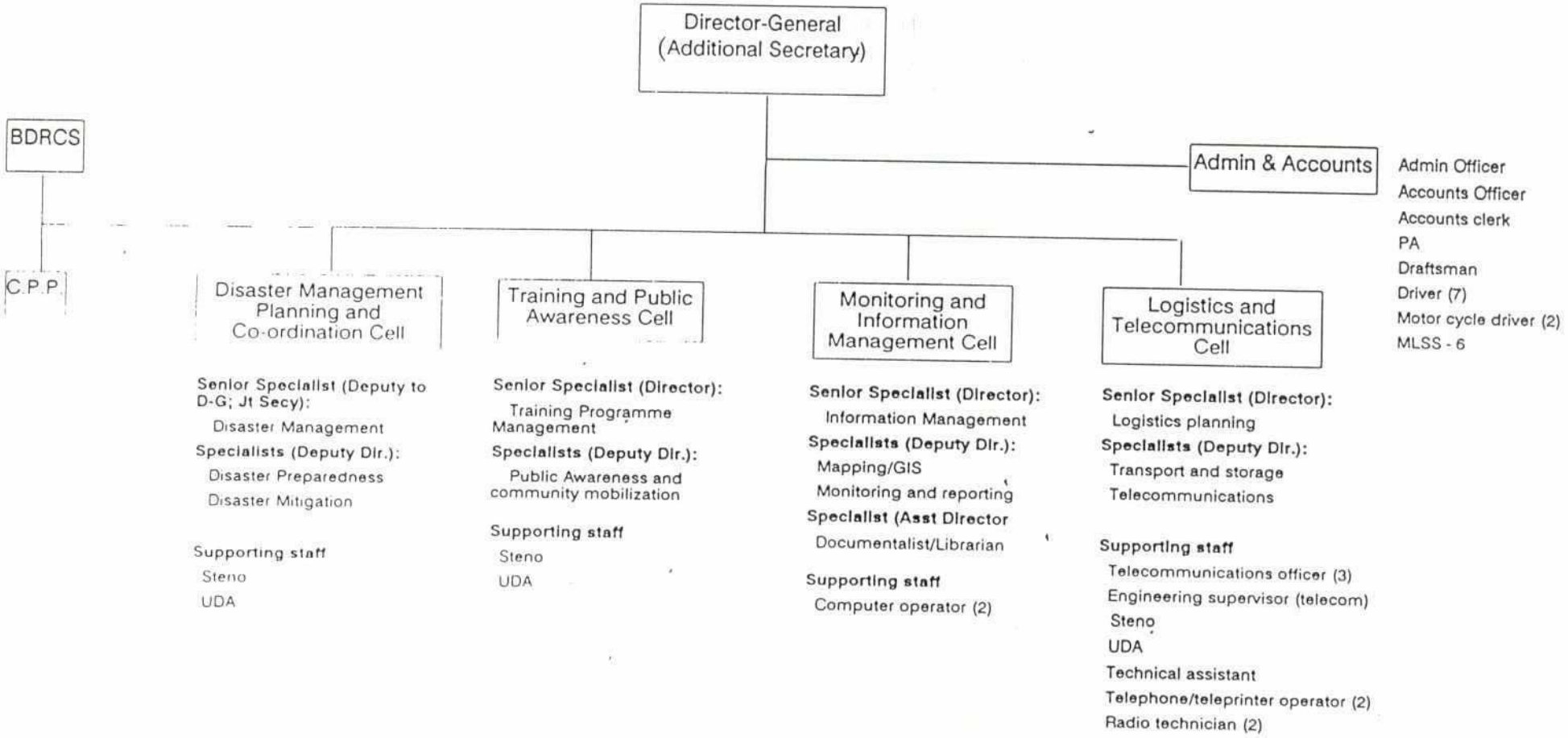
- ensuring that risk reduction measures are built into all reconstruction programmes as much as possible;

- 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.

These tasks are significantly different from those of a normal government department or line agency. They require extensive collaboration with a number of existing ministries and line agencies, and with a variety of training institutions, professional bodies, NGOs and voluntary organizations at all levels. A non-bureaucratic approach is essential. Particularly in respect of the tasks at union and village levels, the need is to facilitate and act as a catalyst, helping diverse groups to work together, within a mutually agreed framework.

8.3 Organizational Structure and Staffing of the DMB

The new DMB must be a dynamic, professional unit to fulfill these specialist functions, working in close collaboration with the district- and thana-level authorities, and the concerned line ministries, under the overall authority of a high-level inter-ministerial committee the IMDMCC. It should be a small, highly skilled. unit at national level within the MoR/MDMR and work as a team. Each staff member would have specific functional responsibilities during normal times and during an emergency. The proposed structure and core staffing of the DMB is shown in **Figure 8.1**.



[Revised version 01 Mar 93]

Figure 8.1
Core Structure for the Disaster Management Bureau
(operational structure during normal times)

The job descriptions for the senior staff of the Bureau are included in **Annex F**. These specify, in each case, the individual's normal functional responsibilities and those that he/she will perform during an emergency (including warning and initial response periods) and during the initial recovery stage following a major disaster. During an emergency, the core staff would re-group to function as the national Emergency Operations Centre (EOC), as shown in **Figure 8.2.**

In relation to preparedness and the promotion of preventive/'proofing' measures, the DMB will catalyse and support existing structures and government agencies. It will not have its own field structure but work with and through the DCs and DRROs at district level, and the TNOs and PIOs at thana level, in training and supporting the disaster management teams at those levels. The DMB, with TA support, would arrange training for large numbers of government officers and others, including DCs and ADCs, in addition to DRROs and PIOs.

Technical assistance should be provided to the DMB during the first three years, and this should include a small number (six) Zonal Disaster Preparedness Specialists to reinforce the outreach work of the DMB during the initial period when intensive support will be needed to develop activities in the field. These field-based national specialists should work directly with the DCs, DRROs, TNOs and PIOs. The appropriateness of the staffing structure of the DMB, and any requirement for additional regular staff, may be reviewed after the first 18-24 months of operations.

The success of the Bureau, and of the proposed UNDP supported Programme Intervention, will depend largely on the individuals appointed to the DMB. The posts of Director General, the Senior Specialists/Directors, and Specialists/Deputy Directors, may be filled either by serving Government Officers or by individuals recruited from outside on Contract Service. The posts should be advertised and applications invited from both serving Officers and others. The best available candidates should be appointed, following interview by a specially constituted selection panel, regardless of service status. An eminently capable and suitable individual from Government Service would be appointed either at his/her own pay scale or on contract basis, if he/she so chooses. An individual selected from outside Government Service would be contracted at a rate appropriate to his/her experience. Appointments should be for a period of 3-5 years.

Additional personnel should be seconded to the Bureau for short periods as and when required, particularly during an emergency, from line ministries, line agencies, or the armed forces. In some cases, personnel may be seconded from professional associations, NGOs, or aid organizations. Secondments may be requested/arranged by the Director General directly with the other bodies concerned. Secondments may also be agreed and co-ordinated by the IMDMCC. In such cases, the Bureau would bear all travel and other expenses directly related to work on behalf of the Bureau. Salaries and basic allowances would continue to be paid by the regular employer.

Recognizing that the emphasis must be on strengthening local coping capacities, and encouraging local bodies to take responsibility for disaster management at the local level, the role of the Bureau in relation to the *field* level includes:

- helping to organize training at district and thana levels for elected representatives, officers, and others;
- helping the authorities at district and thana levels to prepare, review and update, district and thana disaster plans;
- collaborating with the local authorities, and other concerned agencies and organizations, to promote public awareness and the development of union and village/community-level disaster plans;
- ensuring the co-ordination and integration of government and non-government capabilities at all local levels; and
- advising local disaster management committees on all aspects/phases of disaster management, and monitoring their activities.

Various organizational arrangements have been suggested to support the required field operations:

i) establish DMB as a full-fledged Directorate of Disaster Management, under MoR, with its own field staff at district level (in parallel with the DRR);

ii) rely on the existing DRROs (and PIOs) for routine follow-up of preparedness matters in addition to their responsibilities in relation to VGD, FFW, etc. (as at present), but provide technical support in the form of regular visits from staff of the specialist unit and technical assistance (TA) personnel assigned at national level.

iii) provide for a small number of field-based Zonal Disaster Management Co-ordinators, probably at Specialist/Deputy Director level, to supervise groups of districts, working with the DCs and DRROs, with additional support from national-level specialists and TA personnel. This would be a compromise between the 'extremes' of (i) and (ii). The zonal co-ordinators might be appointed either as regular staff of DMB or as TA project personnel for a defined period.

It is the view of the project that a version of (iii) would be the best arrangement for the immediate future (the next few years). This is considered to be more appropriate than envisaging a new directorate for a number of reasons:

i) there is a clear need for a specialist unit to spearhead initiatives in disaster management at all levels and in all sectors, but the need is to advise, mobilize (galvanize) and assist the line agencies, district administrations and others to fulfill their responsibilities, not to take over those responsibilities.

ii) committees and officials at district and thana levels, and communities themselves, need to be mobilized to take disaster prevention/mitigation and preparedness seriously, and to develop their own plans. The creation of a Directorate of Disaster Management, with its own field staff, could be interpreted as an indication that disaster management is the responsibility of that new directorate and that neither the people themselves not other lines

Disaster Management Bureau organized as National Emergency Operations Centre (EOC)

(operational structure during an emergency or post-disaster relief/rehabilitation operation)

[Revised version 1 Feb 1993]

agencies have responsibility. It would risk further bureaucratizing the process.

iii) there is the possibility to provide an initial impetus to field activities through project personnel. The possible need to establish field posts can be reviewed in the light of experience towards the end of the initial project period.

Establishment of the Bureau as a part of the Ministry, with a Director-General of Additional Secretary level, rather than as a subordinate body should:

- give the unit a higher status and profile that would facilitate contacts and collaboration with other line ministries and agencies, and with the armed forces;
- minimize the number of additional posts and the extent of bureaucratic processes required by avoiding duplication between the ministry and a dependent agency; and
- facilitate co-operation with the DRROs and PIOs, who are administratively under the DRR.

8.4 DMB Location and Facilities

The DMB should be established in a location that is suitable for both its routine functions and when it is called on to serve as the national Emergency Operations Centre (EOC) during an emergency. One suggestion that has been made, and has considerable merit, is to locate the DMB in the present MoR supplies facility at the old airport or elsewhere in the old airport site. This site would be readily accessible to all concerned, including government and non-government personnel, and parking should not be a problem. Its proximity to the Prime Minister's Office and the Cantonment would facilitate high-level co-ordination, particularly during an emergency. Good telecommunications should be easy to assure, and the unit would be well-placed to co-ordinate, and benefit from, helicopter and other air services during an emergency.

The DBM must have appropriate communications facilities, management information systems, internal operating procedures, and clearly understood relationships and communication channels with all relevant government bodies and other concerned agencies. It should, whenever necessary, be strengthened by the secondment of additional personnel from relevant line agencies, the armed forces and NGOs. The DMB will be a catalyst for planning and self-help arrangements at local level, for arranging public education campaigns, working through other agencies, and for organizing the systematic training of large numbers of government officers and other personnel from national level down to the union/community level. At times of emergency, the DMB will serve as the national Emergency Operations Centre.

8.5 Co-ordination and Collaboration between the DMB and other Bodies

To ensure full inter-sectoral co-ordination and collaboration in all disaster-related activities, including but not limited to those envisaged under the proposed UNDP support Programme

Intervention, a *Focal Points Operational Co-ordination Group* (FPOCG) should be convened by the Director General. This would include:

- the disaster management focal points of all concerned line ministries, line agencies, and the Planning Commission;
- D-G, R&R (and 4 Directors)
- D-G, NGO Affairs Bureau
- S-G, BDRCS (and Directors CPP, DPP)
- Senior Specialists/Directors of the DMB (4)
- representatives of ADAB and the UN-DMT

During normal times, the Group should meet every two months, with additional *ad hoc* meetings if and when required for specific purposes. During an emergency, the Group should meet once or twice each week.

To deal with specific issues of concern to more than one body or sector, taskforces should be constituted at the initiative of the Director General or agreement within the FPOCG. Taskforces will normally include the focal points or other representatives, of the concerned line agencies and other bodies, as well as relevant staff of the DMB. They should have specific terms of reference and normally be established with the aim of completing the specified tasks within a predetermined period, which should normally not exceed three months. The DMB would provide secretariat services for taskforces unless it is specifically agreed that another member agency should do so in a particular case.

During response to a major disaster, the EOC would work closely with the special, cell established within the armed forces Division to co-ordinate and direct the operational support provided by the Armed Forces. In recent emergencies, a cell, termed the Disaster Management and Relief Activities Co-ordination and Monitoring Cell (DMRACMC), has functioned. This cell has been popularly referred to as the 'PSO Cell'.

Major, long-term mitigation and post-disaster reconstruction need to be planned in the context of up-dated development plans and programmes. The DMB should collaborate closely with the Disaster Mitigation and Reconstruction Cell which is to be established within the Planning Commission (in the Programming or SEI Division) to coordinate these efforts, and directly with the planning cells and disaster focal points in the line ministries most directly concerned.

CHAPTER 9

Scope and Key Activities of the DMB

9.1 Introduction

This chapter describes the types of disaster situation on which the DMB should focus, and provides some suggestions concerning the nature of the various plans and guidelines that should be prepared by, or under the guidance of, the DMB.

9.2 Types of Disasters to be focused on by the DMB

The DMB should focus on preventive and preparedness measures in relation to natural disasters.

The *Disaster Action Plans* to be prepared at district and thana levels, with guidance and assistance from the DMB, and associated technical assistance personnel and collaborating NGOs, will cover general arrangements for responding, at those levels, to *any* major emergency, whatever the cause. They should include specific sub-components referring to additional actions to be taken in relation to particular types of emergency, e.g. dissemination of, and response to, cyclone warnings.

These plans will be developed and refined progressively at all levels. The initial focus should be on the general arrangements for all emergencies and the specific, additional sub-components relating to cyclones and associated storm surges and floods, including both river and flash floods. Specific sub-components relating to other forms of disaster would be developed and incorporated subsequently, as needed.[21]

In connection with 'proofing' and small-scale protection measures, including related training and public awareness/education activities, the initial focus, at national and local levels, would also be on cyclones and floods. At national level within the DMB, this should fairly quickly be extended to include concerns relating to river bank erosion, earthquakes, and landslides. If the need is identified to undertake detailed work on any of these aspects e.g. to develop seismic monitoring capacity or building codes, complementary projects would be proposed.

River bank erosion is recognized to be a major problem in some areas. Efforts to reduce erosion, where feasible, are linked to, and must be considered in the context of, overall flood control measures. There is little that can be done by way of 'proofing' at local level. In terms of response, initial relief is provided to victims, where necessary, through MoR/DRR, but there may be a need to define clear policies in relation to the provision by the government of assistance in terms of relief, resettlement, or other compensation to victims of erosion.

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[21] This could, if found necessary, specifically include tornadoes, although it may be found that there is little to be added to the general arrangements.

In the event of a major disaster, the DMB would function as a national Emergency Operations Centre (EOC). Technical assistance personnel working with the DMB would also assist in the work of the EOC and this will be included in their individual job description.

Responsibility for the overall management of response to any emergency, including a major accident, will continue to rest with the Civil Administration, supported by the Police, the emergency services under the Ministry of Home Affairs, and all other line agencies, as required. The DRR assures the provision and distribution of relief, where needed, as the MoH assures, medical and health care. In extreme cases, specific operational assistance from the armed forces may be required.[22]

9.3 Plans and Guidelines

A number of different types of plans and related guidelines are required. The principal ones are:

(a) National Disaster Plan

This would, *inter alia* define:

- the specific roles and responsibilities of, and lines of communication between, all concerned bodies including: national committees; the DMB/EOC; ministries; the armed forces; line agencies; the civil administration and disaster management committees in the field; BDRCS; CPP; NGOs; and others;
- the warning systems for different kinds of predictable events notably cyclones and floods;
- the overall process of response to warnings and disasters, including the specific steps involved and the responsibilities of concerned bodies in relation to each step;[23]
- arrangements for logistics support and telecommunications;
- model Disaster Action Plans for district, thana and union-levels.

(b) National Disaster Management Handbook

This would, *inter alia* incorporate:

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[22] There has been a suggestion that the DMB might also, at some stage, take responsibility for all "disasters" including major accidents, and that the Civil Defence and Fire Service might, eventually, be transferred to the MoR/MDMR. It is considered that the DMB should focus on natural disasters, at least initially, and that the emergency services should remain under the Ministry of Home Affairs.

[23] In developing the National Disaster Plan, the models that are provided in existing handbooks and examples available from other countries should be studied. Sources include: *Disaster Management: A Disaster Manager's Handbook*, N Carter, ADB 1991; plans from Hong Kong, and India (AP and Orissa).

- details of the responsibilities under the National Disaster Plan;
- model Disaster Action Plans and related guidelines for districts, thanas and unions;
- improved procedures, practical guidelines and criteria for early assessments of damage, needs, and resources available, following a disaster;
- guidelines on possible assistance needs and standards of provision;
- guidelines and decision aids (e.g. work sheets) for resource allocations, and refined distress/deprivation indicators;[24]
- guidelines on reporting and accountability.

(c) **District, thana and union-level hazard maps and disaster profiles**

- Maps prepared at district, thana and union levels, prepared in conjunction with the LGED Plan Books, showing the precise areas subject to particular intensities of flood damage, storm surge, or other hazard.
- Disaster profiles prepared at each level on an inter-sectoral basis would include: basic data on the area, the infrastructure and services available; an analysis of the vulnerability to particular hazard of people, infrastructure, and other economic assets; the specific arrangements and resources both human and material) available to support 'proofing', preparedness and disaster response (relief and rehabilitation), when needed.

(d) **District, thana and union-level Disaster Action Plans**

Based on the local hazard maps and disaster profiles, and the general guidelines provided by the DMB, Disaster Action Plans would define the specific responsibilities and tasks of the various civil officers, police, line agency personnel, and other organizations represented in the local disaster management committees (and any armed forces operational support unit deployed during an emergency). These local plans cover aspects similar to those indicated above for the National Disaster Plan.[25]

(e) **Contingency (Disaster Action) Plans of Line Ministries/Agencies**

Internal plans detailing action within individual line ministries and line agencies to ensure their ability to satisfactorily fulfill their responsibilities as defined in the National Disaster Plan. These plans would include:

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[24] "Distress factors", developed in 1985, have been used in the allocation of VGD resources, including post-disaster special VGD cards. A review of these factors was undertaken by WFP in 1991 but a decision made to await the publication of the new census data before making any changes to the present system.

[25] Model plans for district, thana and union levels must be developed through a process of actual planning in one or two districts, thanas and unions, taking account of the examples that are available from other countries, e.g. the *Community Emergency Planning Guide, Australian Emergency Manual*, National Disaster Organization, Australia.

- the specific roles and responsibilities of, and lines of communication between, all concerned sections and field units/ personnel of the ministry/line agency, and their relationships with other bodies;

- the overall process of response to warnings and disasters, including the specific steps involved and the responsibilities of concerned sections/units in relation to each step.

ANNEX A

DISASTER MANAGEMENT : BASIC CONCEPTS AND DEFINITIONS

ANNEX A

Disaster Management: Basic Concepts and Definitions

A.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 internationally. The definitions presented here represent a compromise taking account of the present usage of terms in Bangladesh and the definitions proposed by UNDRO and other international authorities. They are presented in a logical, more-or-less chronological sequence, not in alphabetical order. They are intended as a basis for further review and refinement of the bilingual English/Bangla glossary.

A.2 Overall Framework: Phases and Related Activities

Many people in Bangladesh and elsewhere 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 when a warning has been given and a number of emergency measures may have to be taken, possibly including evacuations. 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 times

2 Emergency phase

- i) Warning/Alert (including precautionary response)
- ii) Impact/During Disaster
- iii) Immediate post-impact Relief (rescue and basic needs)

3 Recovery phase (rehabilitation and reconstruction).

In practice, the transitions from one phase to the next are 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 rehabilitation recovery activities build up. Similarly, the recovery phase gradually merges into normal, ongoing development, as illustrated in **Figure A.1**.

However, the main focus of activities is significantly different during each of the phases listed above, and they are therefore useful for conceptualizing the process, and for defining who does what, when.

Figure A.2 provides a schematic outline of the phases and associated major activities as defined and described in this Annex.

A.2 Disasters and Disaster Management

A.2.1 Disaster

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.

A.2.2 Disaster Management

'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.

A.3 Normal Time Activities

A.3.1 'Normal Time'

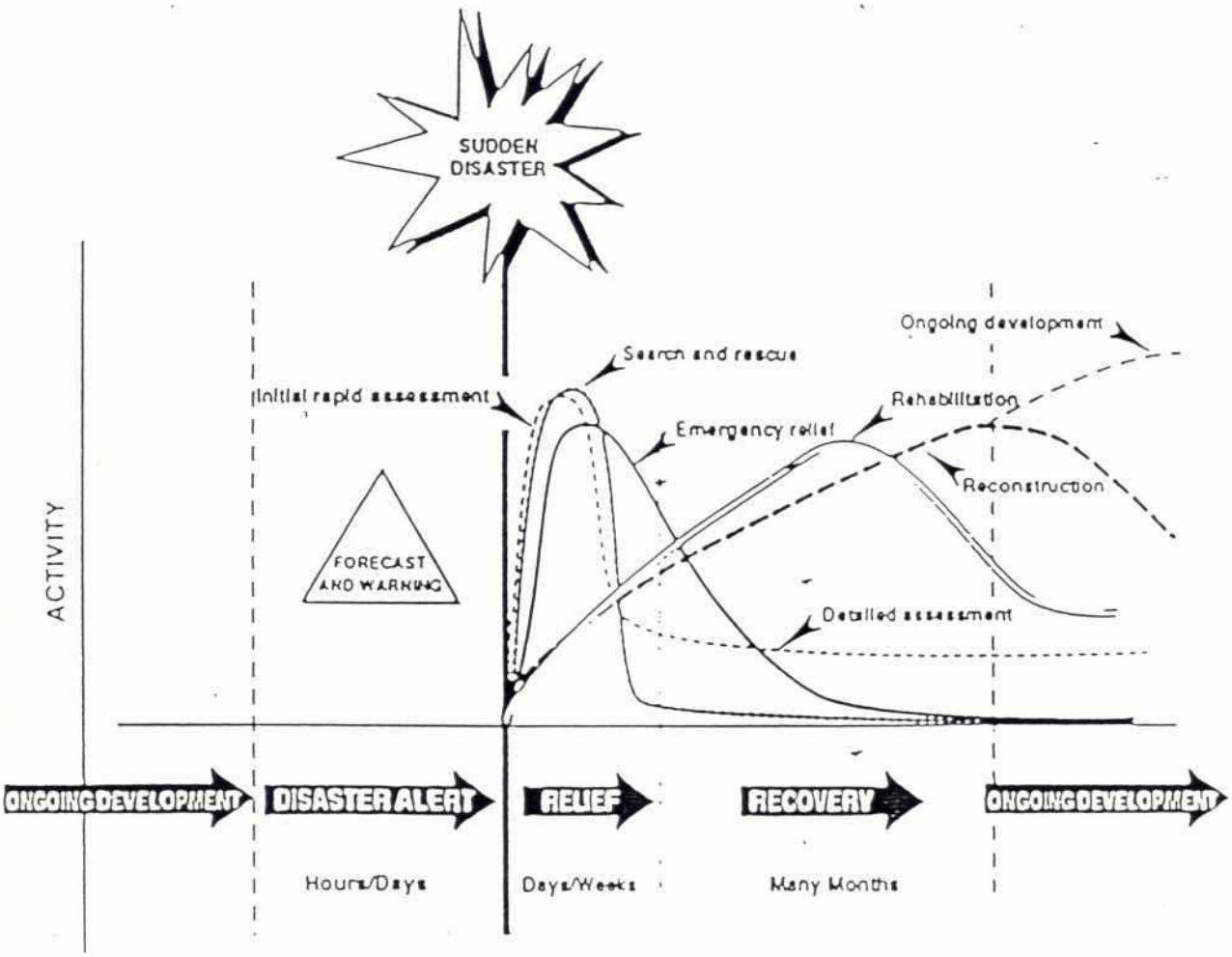
This refers to a period when there is no current emergency, nor any immediate threat of a disaster, but long-term measures are taken in anticipation of the impact, at some unknown time in the future, of known hazards.

The measures to be taken during normal times 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 action plans and capacity for emergency response, when required.

Figure A.1
Disaster Activities



[Reproduced from UNDP/UNDRO Disaster Management Manual]

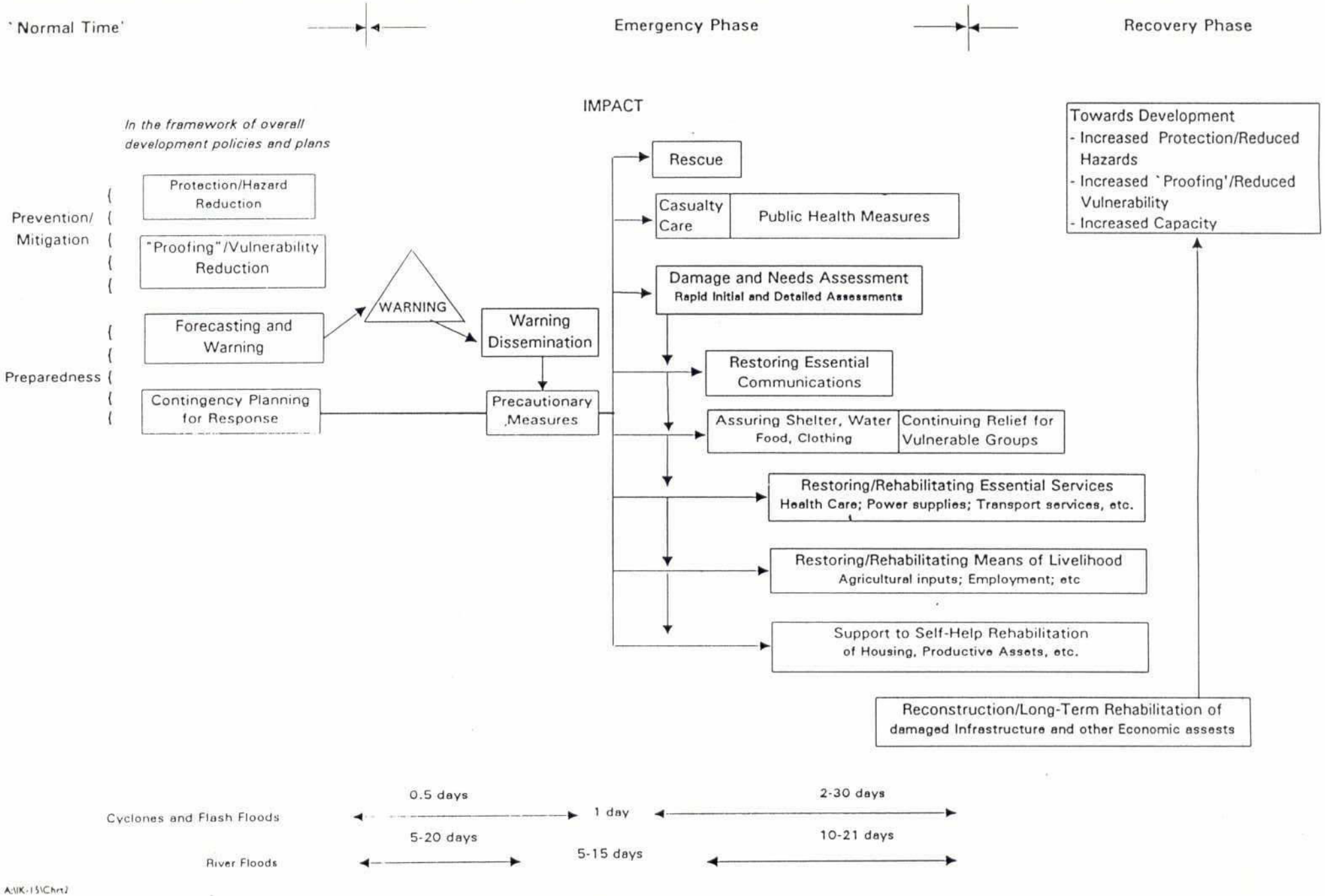


Figure A.2 Main Phases and Activities in Disaster Management

A.3.2 Disaster Prevention/Mitigation

Measures 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.

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*. This can be attempted through regulations or incentives.

- Improvements in designs and construction standards for 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*. This 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, e.g. through improved storage arrangements. This can be encouraged through public education and community mobilization.

A.3.3 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.

A.3.4 Warning Systems

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.

A.3.5 Vulnerability; Vulnerability Analysis

Vulnerability 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 phenonmena 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, the extent to which essential services and local coping mechanisms will be able to continue functioning, and the capacity of the local society to cope with and recover from disasters.

A.4 Alert (or Warning) Phase and Activities)

A.4.1 Alert (or Warning) Phase

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.

A.4.2 Precautionary (Emergency Risk Reduction) Measures

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.

A.4.3 Emergency Phase

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.

An emergency phase begins once a warning is issued which require immediate action to be taken to protect lives and property, it extends through the actual impact/occurrence of a disaster and the period immediately following when special measures are required to ensure the survival and meet the basic needs of the victims.

A.5 Impact and Immediate Post-Impact Phase and Activities

A.5.1 Emergency relief

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.

A.5.2 Post-impact Damage and Needs Assessment

The process of determining the effective of the impact of a disaster on a society; the need 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. Account must also be taken of any changes in socio-economic relations that may result from the disaster and the response to it.

A.5.3 Damage assessment

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.

A.6 Recovery Phase and Activities

A.6.1 Recovery Phase

The period which follow 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.

A.6.2 Short-term rehabilitation and repairs

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, both families and local communities, to resume their more-or-less normal, pre-disaster, patterns of life, and must be planned and organized with the collaboration of the local population taking full account of their priorities and capacities.

A.6.3 Reconstruction / Long-term rehabilitation

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.

A.7 Bangla Equivalents

Bangla equivalents for the key terms listed and used above are shown in **Table A.1**. The Bangla equivalents shown have been proposed by present project (BGD/91/021). They have been circulated to a wider audience of Bangladeshis informed about and involved in disaster management issues. The list may be refined on the basis of feedback from that group. The next step will be the preparation or a bilingual glossary, which should then also be circulated and refined in order to achieve the maximum possible consensus and, therefore, consistency in the use of terms within Bangladesh.

Table A.1

Bangla Equivalents for Key Disaster Management Terms

ANNEX B

SUMMARY OF PRINCIPAL TASKS TO BE PERFORMED IN DISASTER MANAGEMENT

ANNEX B

Summary of Principal Tasks to be Performed in Disaster Management

B.1 Introduction

Based on the discussion in **Chapter 3, 4 and 5,** this Annex provides an initial summary listing of some of the principal disaster management functions, or tasks, to be performed. It focuses on general planning and management functions, not the specific, sectoral tasks that are required of individual, technical, line agencies.

B.2 Tasks in relation to Disaster Prevention/Mitigation

a) National Level

i) Promote awareness of disaster risks and the possibilities for reducing risks (mitigation), as well as preparedness arrangements, amongst the population of disaster-prone areas and all government staff assigned in such areas, through mass campaigns, an annual disaster day, school books/curricula, and the like (see below);

ii) Define policies and priorities for the consideration of disaster risks and the incorporation of disaster prevention/mitigation measures in general development planning. Provide corresponding guidelines to sectoral planners and local-level officials;

iii) Establish procedures and criteria for the appraisal of development projects in terms of

- the vulnerability of the project and its outputs to known risks; and
- the likely effects of the project on the vulnerability of the people and other assets in the locality (on the risks to which they are exposed).

iv) Undertake risk assessments, and promote specific disaster prevention/ mitigation projects and other measures, including legislation, as required. Mobilize/allocate the necessary resources. Ensure necessary technical supervision and the long-term maintenance of structures and other measures;

v) Provide advice, and arrange for relevant expertise and up-to-date knowledge of disaster risks and mitigation possibilities to be available to sectoral planners, local-level officials, and others, including NGOs and other aid agencies. Ensure that relevant aspects are included in the training provided for technical and professional personnel. Promote additional research, where required;

vi) Monitor and report to the Government on the implementation of national policies and priorities in relation to disaster risks and mitigation; and

vii) Evaluate or arrange the independent evaluation of the effectiveness of specific disaster prevention/mitigation measures.

B.3 Tasks in relation to Disaster Prevention/Mitigation

(a) Local Level (district and below)

i) Undertake local risk assessments periodically, prepare 'disaster profiles' of the locality, and incorporate relevant prevention/mitigation measures in local development plans, within the framework of national policies and priorities. Request advice and guidance, and training, from the DMB at national level, as required;

ii) Organize and ensure the effective functioning of Disaster Management Committees at all levels of planning and administration within the district, including the village;

iii) Organize relevant public awareness education at village level, and the orientation training at local level of officers, extension workers, local leaders, and volunteers. Use the materials and guidelines prepared by the DMB; adapt them, where necessary;

iv) Organize the implementation of prevention/mitigation projects and measures, both structural and non-structural, and ensure necessary maintenance, with a maximum of community participation; and

v) Report to the relevant national authorities on measures taken and their perceived effects.

B.3 Tasks in relation to Preparedness

(a) National Level

i) Maintain and refine national forecasting and warning systems to provide relevant and timely information to officials and the general public;

ii) Define responsibilities for the dissemination of warnings and the planning and organization of other preparedness measures. Develop a National Disaster Plan incorporating updated emergency *Standing Orders*; review it on a regular basis and after every major disaster; when necessary, revise and reissue the Plan in close consultation with all concerned ministries and agencies. Propose and prepare relevant legislation, where necessary;

iii) Ensure the maintenance of up-to-date emergency procedures (Contingency Plans) within all concerned line ministries and agencies. Ensure the

complementarity of the arrangements and procedures within different agencies, and the adequacy of arrangements for co-operation between the civil administration, armed forces, and NGOs;

iv) Monitor, and report to the Government, on the overall state of emergency preparedness;

v) Provide or arrange the provision of guidelines, equipment, and training, in support of local-level warning dissemination systems;

vi) Prepare and distribute practical guidelines, for use at district, thana, and union levels, on 'how to be prepared' for cyclones and floods and 'how to minimize damage and losses.' Guidelines to be compiled on the basis of proven experience and in consultation and collaboration with other interested bodies, including experienced research organizations and NGOs;[1]

vii) Establish general policies and standards for the provision of relief following disasters, and prepare and distribute practical guidelines for use at various levels on the organization of rescue and relief assistance operations.

viii) Promote broad-based public education concerning preparedness for and response to cyclones and floods, and the related training of extension workers, teachers, local leaders, women's groups, and others. Produce or arrange the production of relevant educational and training materials, and provide support in the initial planning and organization of training activities and exercises at local level. Supervise and evaluate these activities on an ongoing basis. Incorporate relevant disaster preparedness components in the school syllabus

ix) Organize training in disaster preparedness and emergency response for government officers and others, notably personnel of the armed forces and NGOs) in collaboration with institutions offering basic and refresher training for such personnel;

x) Establish procedures, facilities, communications and management information systems, for an operations co-ordination unit at national level, a core staff to be supplemented, when necessary immediately a disaster threatens or occurs, by personnel seconded from key sectoral agencies, the Armed Forces, and, possibly, NGOs and international aid agencies. Organize exercises at least once a year to include personnel from line agencies;

xi) Establish arrangements to rapidly deploy additional radio communications equipment and operators areas where normal telecommunications are disrupted; and establish arrangements whereby operational agencies can establish/operate/have access to radio networks under proper authority;

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[1] Guidelines may initially focus on cyclones and floods. Later, they should be expanded to cover other hazards

xii) Establish and maintain a roster of individuals experienced in the management of emergency operations, and relevant technical specialists (government personnel and others), who would be available, at short notice, to:

- undertake preliminary reconnaissance and assessment missions following a disaster; and

- help to direct and co-ordinate operations at national, zonal, or district levels during the initial emergency relief phase. Arrange periodic group training for those on the roster.

xiii) Establish and maintain arrangements by which trained and experienced senior civil service officers can be promptly sent on temporary assignments to reinforce the district, thana, and union-level administrations in disaster-affected areas. Ensure these officers have up-to-date guidelines; and

xiv) Keep an up-to-date roster of NGOs having relevant experience and capabilities.

B.5 Tasks in relation to Preparedness

a) Local Level (district and below)

i) Establish and maintain warning dissemination systems at local level. These should be linked to the national forecasting and warning systems, but tailored to the local situation and with the maximum involvement of the Disaster Management Committees at local level. Messages to be simple and explicit;

ii) Establish, regularly review and up-date, emergency preparedness action plans for the district and lower-level administrative units, following the national guidelines but adapting to local circumstances. Ensure adequate arrangements for concerted action by all relevant line agencies, and co-ordination between NGOs and the local administrations. Request advice and assistance from the relevant specialist unit at national level, as required;

iii) Organize relevant public education at village level, and the local-level training of all personnel expected to perform specific roles in preparedness and emergency response. Use, distribute, where appropriate adapt, the training materials and practical guidelines prepared by the DMB;

iv) Promote the establishment of broad-based village/union-level Disaster Management Committees (see above), and assist local village communities in disaster-prone areas to become as self-sufficient as possible in preparing for and organizing the initial response to disasters; and

v) Establish and maintain a roster of experienced personnel within the district who would be available at short notice to undertake preliminary assessment

visits to the affected areas following a disaster, and help to direct and co-ordinate local-level operations during the initial relief phase.

B.6 Tasks in relation to Emergency Response

a) National Level

In the event of a warning (an imminent disaster threat)

i) Ensure that warning information is passed to all concerned officers, agencies, and public dissemination channels;

ii) Activate the central Emergency Operation Centre (EOC) and similar units/'control rooms' in line agencies;

iii) Convene the IMDMCC to review the overall state of preparedness and decide on any additional measures to be taken; issue relevant instructions to agencies and personnel in the threatened areas;

In the event of a disaster:

iv) Undertake immediate reconnaissance and initiate action on the basis of these observations and past experience;

v) compile and analyse information on damage and needs from DCs, TNOs, line agencies, and other sources; identify and seek to fill gaps in information; present information and recommendations for action to decision authorities;

vi) Arrange inter-sectoral assessment missions, where needed;

vii) Assign additional civil service officers to support the responsible authorities in the affected areas;

viii) Mobilize or ensure the mobilization of personnel, equipment and materials available to the various line agencies to restore communications and essential services;

ix) Mobilize and assign armed forces units and personnel for specified operational support functions;

x) Make allocations of available relief materials, funds, and transport units to district authorities or, occasionally, direct to thana level;

xi) Release funds from national resources for specified purposes, and authorize special, emergency procedures where appropriate; delegate authority to the operational level, if not already adequately provided for in the Standing Orders;

xii) Issue specific requests to donors/the international community for additional aid, if needed, for rescue, relief and short-term rehabilitation; provide regular up-dates on unmet needs, and items not, or no longer, needed;

xiii) Ensure the maximum sharing of information between all concerned bodies, and the co-ordination of the activities of all operational agencies, both governmental and NGO;

xiv) Arrange the delivery, including procurement, temporary storage, and transportation, of needed supplies to the affected areas.

xv) Monitor the progress of operations in all areas; identify particular problems or bottlenecks and take action to resolve them; ensure that operations are being effectively carried out within the general framework of established policies and guidelines;

xvi) Provide advice and generally 'back-stop' the authorities, officials, and operational agencies in the field; arrange special missions to check information and solve problems on-the-spot, when necessary;

xvii) Organize regular (weekly?) sessions/workshops with all concerned to review progress and lessons learned, and to establish and agree priorities and directions for continuing/new activities;

xviii) Co-ordinate the preparation of detailed damage assessments and proposals/ projects for reconstruction/long-term rehabilitation of the affected areas.

xix) Report to the Government and donors on the progress of operations and the use of resources; and

xx) Arrange a final evaluation, or at least a 'post mortem,' of the emergency response, including warning, relief and short-term rehabilitation operations, to draw lessons for the future. Involve impartial observers/evaluators, and publish the report.

B.7 Tasks in relation to Emergency Response

a) Local Level (district and below)

In the event of a warning (an imminent disaster threat)

i) Ensure that warning information is passed to all concerned officers, agencies, and public dissemination channels, within the district;

ii) Activate the district and thana-level disaster operations centres/control rooms.

iii) Convene the district and thana-level Disaster Management Committee to review the overall state of preparedness and decide on any additional measures

to be taken; issue relevant instructions to agencies and personnel in the threatened localities;

iv) Redeploy experienced personnel within the district to the threatened areas to assist in organizing local preparedness and damage containment measures, and be available to help direct and co-ordinate post-disaster operations at the local level;

v) Report to the central EOC on measures taken.

In the event of a disaster:

vi) Establish contact between union, thana, and district-level authorities; identify where vital telecommunications and physical communications links have been cut, and take action to restore communications; inform and, if necessary, request assistance from, divisional or national authorities;

vii) Organize rescue and medical relief assistance, if needed.

viii) At district and thana levels, compile and analyse information on damage and needs from lower-level authorities, line agency personnel, and other sources; identify and seek to fill gaps in information; present information and recommendations for action to higher-level authorities. Report to national authorities at least daily during the initial stages;

ix) Send staff on fact-finding and initial, inter-sectoral, assessment visits to the affected areas to verify reports and determine relative priorities. Provide them with radio communications wherever possible, if normal telecommunications are disrupted or non-existent;

x) Re-deploy civil service officers and other government staff within the district to support the thana and union-level authorities in the worst-affected areas;

xi) Mobilize the personnel, equipment and materials available locally to the various line agencies to restore communications and essential services;

xii) Agree on the deployment and functional responsibilities of any armed forces units and personnel mobilized to support the rescue and relief operations; establish arrangements for day-to-day co-operation between them and the civil administration within the framework of established national policies and procedures;

xiii) Allocate and arrange the distribution of available relief materials, funds, and transport units within the district, according to needs;

xiv) Use the discretionary authority available to DCs and TNOs to release foodgrains or funds, if required;

xv) Inform the national authorities of specific requirements for additional aid, if needed, for rescue, relief and short-term rehabilitation; provide regular up-dates on unmet needs, and items not, or no longer, needed;

xvi) Ensure the maximum sharing of information between all concerned bodies, and the co-ordination of the activities of all operational agencies, both governmental and NGO, within the district;

xvii) Arrange the delivery, including procurement, temporary storage, and transportation, of needed supplies within the district, to the affected communities;

xviii) Monitor the progress of operations within the district; identify particular problems or bottlenecks and act to resolve them;

xix) Provide advice and guidance to the lower-level authorities, officials, and operational agencies in the field; send staff to check information and solve problems on-the-spot, when necessary. Request help from national authorities, as needed;

xx) Organize regular (weekly?) sessions/workshops with all concerned, at district level, to review progress and lessons learned, and to establish (agree) priorities and directions for continuing/new activities, including the transition from relief to rehabilitation;

xxi) Co-ordinate the preparation at district level of detailed damage assessments and proposals for reconstruction/long-term rehabilitation;

xxii) Report to the national authorities on the progress of operations and the use of resources;

xxiii) Judge when special 'emergency' operations and assistance should be phased out, and inform the national authority and all concerned locally; and

xxiv) Co-operate with the national authorities in undertaking a final evaluation, or 'post mortem,' of the emergency response, including warning, relief and short-term rehabilitation operations; to draw lessons for the future.

B.8 Tasks in relation to Rehabilitation and Reconstruction

a) National Level

i) Arrange for the detailed assessment of damage to major infrastructure, economic assets, and public service facilities/utilities, and the consolidation of data from district-level authorities concerning other damage. Co-operate with potential donors in preparing agreed assessments;

ii) Prepare projects for the reconstruction/long-term rehabilitation of infrastructure, etc. Define priorities and process the proposals using accelerated, 'fast-track' procedures. Ensure the incorporation of relevant disaster prevention/mitigation measures, wherever appropriate;

iii) Allocate available national resources, and request/negotiate with international donors for additional resources, as required;

iv) Arrange the implementation, with necessary supervision, of approved projects, and assure the ongoing maintenance of the structures and related programmes;

v) Hold regular sessions/workshops with all concerned to review progress, resolve problems, and adjust priorities if/when needed; and

vi) Report to the Government and international donors on the progress of reconstruction/rehabilitation operations, and on the use of resources.

B.9 Tasks in relation to Rehabilitation and Reconstruction

a) Local Level (district and below)

i) Co-operate with the competent national authorities/agencies, or their designated consultants, in the detailed assessment of damage to major infrastructure, economic assets, and public service facilities/utilities;

ii) Undertake assessments of damage to local infrastructure, economic assets, and public service facilities. Estimate requirements, define priorities, and propose specific projects for the reconstruction/long-term rehabilitation of such infrastructure, etc. Incorporate relevant disaster prevention/mitigation measures in all projects;

iii) Implement any priority projects that can be undertaken using locally-available resources, and submit proposals and recommendations to the relevant national authorities for other priority projects;

vi) Arrange the implementation, with necessary supervision, of approved projects, and assure the ongoing maintenance of the structures and related programmes within the district;

vii) Hold regular sessions/workshops with all concerned to review progress, resolve problems, and adjust priorities if/when needed; and

viii) Report to the relevant national authorities on the progress of reconstruction/rehabilitation operations, and on the use of resources.

ANNEX C

ESTABLISHING A FOCAL POINT FOR FLOOD PREPAREDNESS

ANNEX C

ESTABLISHING A FOCAL POINT FOR FLOOD PREPAREDNESS

(F C Cuny, INTERTECT -- Paper prepared for Flood Policy Study, 1988)

C.1 INTRODUCTION

The establishment of a permanent focal point for flood preparedness and emergency response requires careful consideration. Planners must first define the elements of the total response and the systems necessary to implement the various preparedness plans before selecting the ministry or office where the focal point will be established. It is also important to consider the implications of locating the management function in various offices.

C.2 CONSIDERATIONS

It should be recognized that no single ministry or agency can effectively implement all the elements of a complete disaster preparedness program. It should also be recognized that in the course of preparing for and responding to a flood emergency, the type of inputs required change substantially. As the emergency evolves through its phases, the needs and types of inputs change as follows:

The Pre-Disaster (Preparedness) Phase:

Planning: Initially, flood preparedness is a planning function. The preparedness agency carries out a wide variety of studies, develops implementing arrangements, and focuses on overall management concerns.

Technical inputs: As soon as the overall plans have been defined, there will be a flurry of technical inputs centered around the flood warning system. These will include flood warning, computerization of critical data, and development of a geographic information system (GIS) based emergency information system.

The Emergency Phase:

Operational inputs: During an actual emergency, operational considerations become predominant. Flood fighting, evacuation, search and rescue, support of evacuees and isolated populations require management by an agency with established internal communications, strong logistics capabilities, and the ability to mobilize and support a wide range of heavy equipment simultaneously throughout the affected areas.

Relief inputs: During and immediately after the emergency, the inputs change to social and humanitarian. The survivors require a wide range of temporary support ranging from food and shelter to short term economic assistance. The agency in charge at this point will need to coordinate and work through a variety of social service organizations, both government and non-governmental.

The Post-Disaster Phase:

Reconstruction: During the reconstruction period, economic assistance takes precedence. Programmes must be developed to provide a wide range of loans and grants to the affected populations in all major sectors such as housing, agriculture, small enterprises, medium and large enterprises, etc. Coordination with lending institutions and the sectoral ministries is a prime requirement and the authority in charge must have strong capabilities to undertake a variety of economic analyses.

From the above, it should be apparent that it would be very difficult to create one ministry with comprehensive emergency management functions; that emergency preparedness is a function of many ministries, departments, and agencies. It can also be seen that the overriding need is for a focal point to coordinate the full range of preparedness and response activities and integrate them into plans for each phase of an emergency.

C.3 OPTIONS

The following ministries or offices are usually considered for locating the central emergency preparedness and management authority:

- President or Prime Minister's office;
- Vice President's office;
- Ministry OF Public Works
- Ministry of Irrigation or Water Resources
- Ministry of Interior
- Ministry of Local Government and Regional Development
- Ministry of defence
- Ministry of Housing and Urban Development

In some countries, the government may have a special relief ministry or commission which may also be considered. If flooding is regionalized or if a decentralized plan is being developed, provincial, district, or subdistrict governmental units may be considered.

C.4 DISCUSSION

As a general principle, emergency management should remain in the hands of civilian authorities. This is not to say that the military does not have an important role to play, but the limitations of the military in meeting civil needs is important to recognize. The fact that the military becomes involved so often is because during an emergency their communications and logistics capabilities are often invaluable. The objective therefore should be to develop an effective role for the military based on these capabilities without surrendering total authority or control over to the Ministry of Defense.

The fact that so many ministries and government agencies will need to be involved argues for the coordinating function to be placed at a fairly high level in government. Some argue that the function should be established in the Office of the Chief Executive. The rationale is that since ministries and therefore ministers need to be coordinated and given directions, the authority to do so must be placed near the seat of power. As a result of bureaucratic realities, however, there are strong arguments against this choice. The head of the

Preparedness Office is rarely as senior or as powerful as the ministers he must coordinate and eventually, the ministers and the secretaries of their ministries will come to resent the Preparedness Office's closeness to the chief executive and even create obstacles and obstruction to their work. (See **Case Study 1 - Jamica)**

Locating the Preparedness Office in a strong line ministry is generally considered the best choice. Not only does the office and its functions become less threatening to other powerful ministers and secretaries, the office has a strong official to defend it, to propose and support its budget, and to protect it from bureaucratic infighting. Bureaucratically, this arrangement puts preparedness at a level just below that of Ministry Secretary, high enough where coordination is meaningful, but low enough to remove it from most, but never all, political infighting.

Some countries, recognizing the difficulty of putting all emergency functions under one office split the functions among two or three agencies, usually according to pre- and post-disaster phases. For example, under such an arrangement the Ministry of Water and Irrigation might be in charge of flood forecasting and warning, an office in the Public Works Ministry might be in control of evacuation, search and rescue, and post disaster assessment; while the Ministry of Local Government would be in charge of reconstruction planning and relief.

A final model that some countries have adopted, though usually as an interim solution, is to form a National Flood Committee made up of ministers and/or secretaries of the major ministries involved in flood preparedness and response and to provide the committee with a full-time, professional secretariat. The secretariat staff may be professionals specifically hired as emergency management staff or more commonly, a small permanent staff is hired and other personnel are seconded from the line ministries. (See **Case Study 2 - Mexico**).

Case Study 1 ADAPTING TO BUREAUCRATIC REALITIES:
JAMAICA'S OFFICE OF DISASTER PREPAREDNESS

After a series of devastating floods in western Jamaica in 1979, and recognizing the threat to the country from hurricanes, the government decided to form an Office of Disaster Preparedness and Emergency Relief Coordination (ODP). Acting on advice from several major donors, ODP was placed in the Prime Minister's office. The reasoning was that coordination of ministries would require the coordinator to be at a level in government. Since the only office higher than Minister was Prime Minister, it did not seem unreasonable that his office would be the best place. A very capable technical person was selected to head the ODP and the staff were soon housed in a building immediately adjacent to the Prime Minister's offices.

It first become apparent that there was a problem when it came time to submit ODP's budget. The Prime Minister, who remained distant from the normal day-to-day work of the office, was not in a position to defend the amounts requested and ODP's budget was severely reduced.

The ODP staff began to encounter difficulties with the ministries they were to coordinate. In some cases ministry staff objected to extra demands from an outside agency, but worse, some ministers resented what they perceived as "junior staff issuing instructions in the name of the PM". The ODP staff were seen as upstarts -- people who had obtained power without the requisite seniority. As time went on, the ministries were not only generally uncooperative, in some cases they went out of their way to create obstacles.

Luckily, the Director of ODP saw what was happening. He approached the Secretary of the Ministry of Housing and Public Works and suggested that ODP be moved into the PWD. Public Works was a powerful ministry; it controlled resources invaluable in an emergency, such as trucks and heavy equipment. It had boats, and most important, its own internal communications system. As part of the housing ministry, it worked closely with provincial and local governments and urban and rural housing agencies. There were also some administrative advantages -- rather than fight for clerical support, vehicles and other equipment, ODP's requests were lumped into the overall PWD budget and were passed without much debate. And having one of the most powerful permanent secretaries, not to mention a very influential minister, didn't hurt.

Bureaucratically, the transfer removed some of the obstacles to effective day-to-day coordination. Relations with other ministries were carried out on a "horizontal" not "vertical" basis, i.e., by staff of equal rank. While some territorial issues occasionally arose, for the most part they were easy to overcome.

To enhance ODP's emergency management function, a National Disaster Committee was formed. The ministers on the committee made policy while their permanent secretaries coordinated operations. The prime minister chaired the committee while the ODP director served as secretary and chief of the emergency staff.

In 1988 Hurricane Gilbert struck Jamaica. Despite extensive damage, all agreed that ODP had prepared the country well and had done an excellent job in coordinating emergency operations.

Case Study 2 MEXICO'S OFFICE OF EMERGENCY RESPONSE: THE CORE STAFF APPROACH

In 1976, Mexico formed the Office of Emergency Response. The new director's instructions were to minimize the hiring of new staff and to maximize coordination and participation of all the ministries. The way in which he went about creating the office is considered an imaginative approach to establishing a disaster preparedness agency.

First, to provide policy guidance in an emergency, a national emergency committee was formed of the senior ministers and the chiefs of staff of the army and air force (the two services most needed in a major emergency). Several seats were left vacant so the president could appoint his personal representatives. The president presided; in his absence, the Secretary of Public Works chaired the meetings. The disaster management office was designated as the secretariat of the committee. During normal periods, it was to be housed in the public works ministry.

The most innovative feature of the office was the way in which it was staffed. The director chose what he called a "core staff" approach. In other words, only the director and a few administrative staff were hired as permanent staff, all other personnel were seconded on one or two year assignments. The deputies were senior personnel from the line ministries. Technical staff were generally given longer assignments than administrative staff.

This arrangement had several major advantages. First, all ministries had significant inputs to the formulation of disaster plans. While on secondment, personnel learned about the plans and how they worked, and could often make suggestions that improved coordination with their ministries. They were able to form integrated work teams that formed the basis for expanded task forces during emergencies.

When the personnel went back to their ministries at the conclusion of their assignment, they became the links between their ministry and the disaster office. Therefore, coordination was made even more effective.

Getting staff seconded to the agency proved to be easier than had been expected: for some it was a chance to try something different while for others it was seen as a chance to demonstrate an ability to work at an interministerial level -- and thereby enhance one's promotional chances. This latter motive was so strong that eventually, the office was able to insist that only high level administrative staff be seconded, ones who where on a career track that would eventually make them eligible for consideration as the senior civil servant in their ministry.

Finally, the core staff approach had one other advantage: it was a relatively cheap way to staff the agency. In a country faced with a need for austerity, this administrative arrangement is worth considering.

ANNEX D

Extract from

Position Paper to Progress Disaster Management or
Counter-Disaster Strategies
as part of National Development Plan, Philippines, 1992

ANNEX D

Extract from

Position paper to push Disaster Management or Counter-Disaster Strategies as part of National Development Plan, Philippines, 1992

Disasters clearly have far-reaching repercussions and impose serious restrictions on a nation's development. Hence, the need for a prudent connection between development and disaster management policy. However, this connection does not usually exist.

Presidential Decree Nr. 1566, which is on 'Strengthening the Philippine Disaster Control Capability and Establishing the National Program on Community Disaster Preparedness' is the legal basis for the country's disaster preparedness program. It created the National Disaster Coordinating Council whose membership includes all line agencies of the government and whose task is to advise the President of the Philippines on the status of preparedness programs, disaster operations, and rehabilitation efforts undertaken by government and private sectors. The Decree also calls for the creation of Disaster Coordinating Councils (DCCs) at the Regional, Provincial/City, Municipal, and Barangay levels.

The Calamities and Disaster Management Plan operationalizes PD Nr. 1566 and stipulates the composition and responsibilities of organizations which are members of DCCs from the National to the Barangay levels. The Plan provides a sound basis for preparedness and response but does not address disaster prevention or mitigation as well as recovery and reconstruction to any significant degree. Also, the effectiveness of the Plan has been greatly reduced owing to the insufficient provision of financial and human resources. Moreover, after a disaster, limited action is taken to draw lessons from the problems that arose and ensue that they are not repeated (Brown et al, 1991).

The importance of disaster prevention and mitigation as part of the disaster management cycle and as a contributory factor to a country's development cannot just be ignored. Disaster prevention and mitigation is aimed at reducing the effects of a threatening hazard to man and his environment by taking certain actions such as reducing vulnerability of the physical settlements and houses, reducing vulnerability of the economy, and strengthening of the social structures of a community so that coping mechanisms can help absorb the shock of a disaster and promote rapid recovery and reconstruction. Coupled with disaster preparedness and response, are measures that enable governments; organizations; communities; and individuals to respond rapidly and effectively to disaster related situations, disaster prevention and mitigation can make the difference in a country's quest for development.

Hence, it is important that we have a clear and comprehensive national disaster policy which addresses all aspects of disaster management and which ensures that mitigation and preparedness are given proper consideration and priority if we are to establish and maintain adequate arrangements to deal with all aspects of disaster threats. This same policy must be integrated into the country's development policy. At the moment, thee is no coherent, cross-

sectoral disaster mitigation policy or practice by which disaster mitigation is integrated into development planning at the national, regional, municipal, and barangay levels. in other words, the national disaster plan incorporating all aspects of disaster management, should be part of the five-year national development plan.

Specifically, the following should be considered:

a) Creation of a Permanent Disaster Management Center/Office

The National Disaster Coordinating Council (NDCC) is primarily an advisory body. What is needed is an executive organization to provide a focal point for all disaster management-related activities.

NDCC member agencies, based on their mandate, are concerned with different aspects of disaster management. However, individual efforts of these agencies do not usually create the expected impact partly due to non coordinated efforts: The proposed Disaster Management Center/Office can therefore coordinate and oversee these efforts and provide the necessary leadership.

The Office should take charge of disaster management on a permanent, continuing, and full-time basis. As such, it will prepare and administer disaster management plans and programs and act as Secretariat to the NDCC.

To respond to the changing patterns of hazards, vulnerabilities, and resources, there is a need to constantly monitor and review disaster management efforts especially prevention, mitigation and preparedness/response standards. Also, post-disaster reviews to draw lessons from the experience and ensue that mistakes are not repeated next time are a must. These tasks may then be expected from the Disaster Management Center/Office.

Other tasks may include liaison, especially with international donors, research/information gathering, communications, technical exchanges, pooling of resources both physical and human, etc.

b) Focus on Disaster Management Training and Education

The proposed Disaster Management Center/Office may have the conduct of disaster management trainings as one of its functions or a permanent disaster management training institution may be created.

Aside from the inadequate training of government officials in disaster management, what compounds the problem is the frequent turn-over of elected or politically appointed officials with disaster management responsibilities. Hence, the effectiveness of the disaster management training conducted is seriously weakened.

It is recommended that disaster management be included in the training program of all government institutions in order to equip officials in fulfilling their disaster-related roles. Moreover, disaster management subjects should be included in all curricular offered in schools at all levels.

c) Conduct of Research Along Disaster Management

In order to accurately identify and define the mitigation and preparedness measures to be undertaken, there is a need to adequately assess and monitor hazards and vulnerabilities. However, hazard mapping and vulnerability analysis can not be done if there is absence/shortage of data and scientific information. In cases where data are available, these are not shared to those who can benefit from it. Also, these data are usually dispersed, i.e., these are found in individual agencies doing disaster management-related activities.

It is recommended that a systematic approach toward collecting, analyzing, and dissemination of data be developed and a centralized disaster management data bank which would be accessible to policy-makers, planners, practitioners be established, perhaps as a function of the proposed Disaster Management Center/Office.

ANNEX E

Extracts from

Disaster Management - A Disaster Manager's Handbook

(W Nick Carter, Asian Development Bank, 1992)

ANNEX E

Extracts from

Disaster Management -- A Disaster Manager's Handbook

(W Nick Carter, Asian Development Bank, 1992)

5. *Possible Linking Arrangements*

In most countries, the Ministerial portfolios involving national development and disaster management are those covering:

- National development
- The economy
- Finance
- The environment

] sometimes combined

- Disaster management (which, in practice, may be included in portfolios such as Police and Emergency Services, Home Affairs, Community Services, Defence Force, etc.)

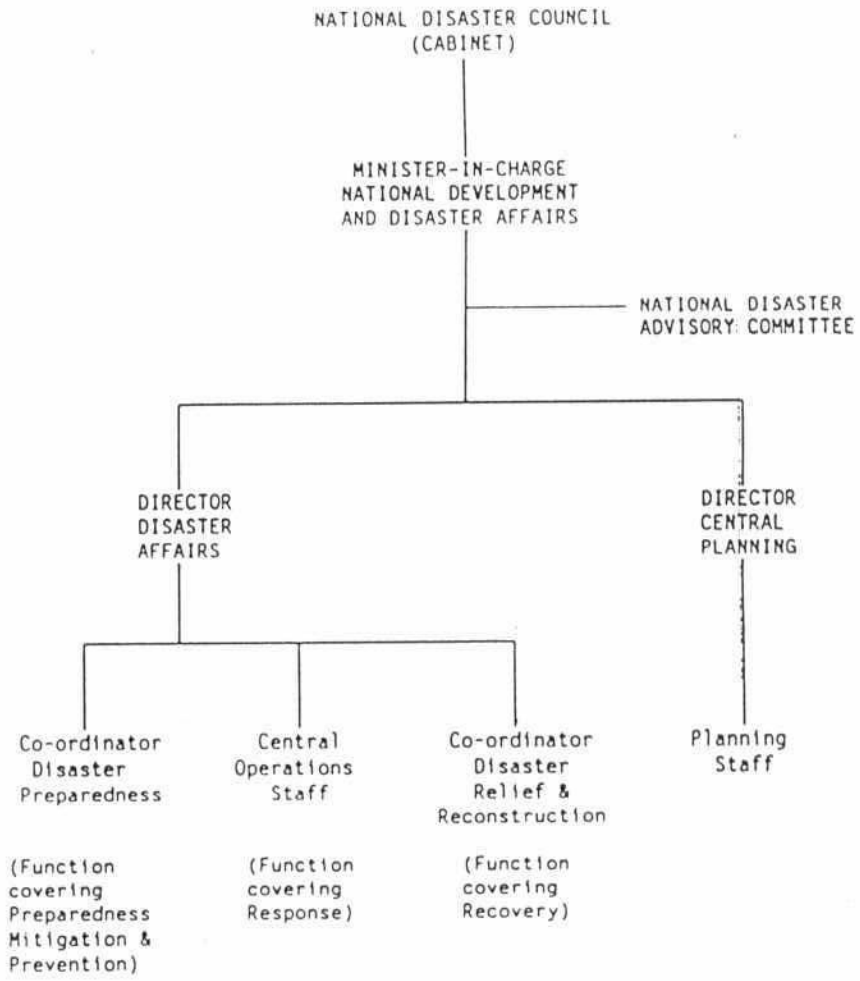
Given that the appropriate portfolios are identified and earmarked, the choice of a linking system or arrangement becomes one of national option. One choice considered by a small nation is shown as Option A.

In Option A, action at Provincial Government level is processed through the Governor and his staff, as for other affairs of government.

A second option, shown as Option B, is schematic, based on the structure used in a developing country which is geographically much larger than the example used in Option A.

16. The organisational options shown are, of course, for illustrative purposes only. In individual countries many different factors bear on the relationship between national development and disaster management policy. These factors need to be taken into account when organisational arrangements are made.

Option A



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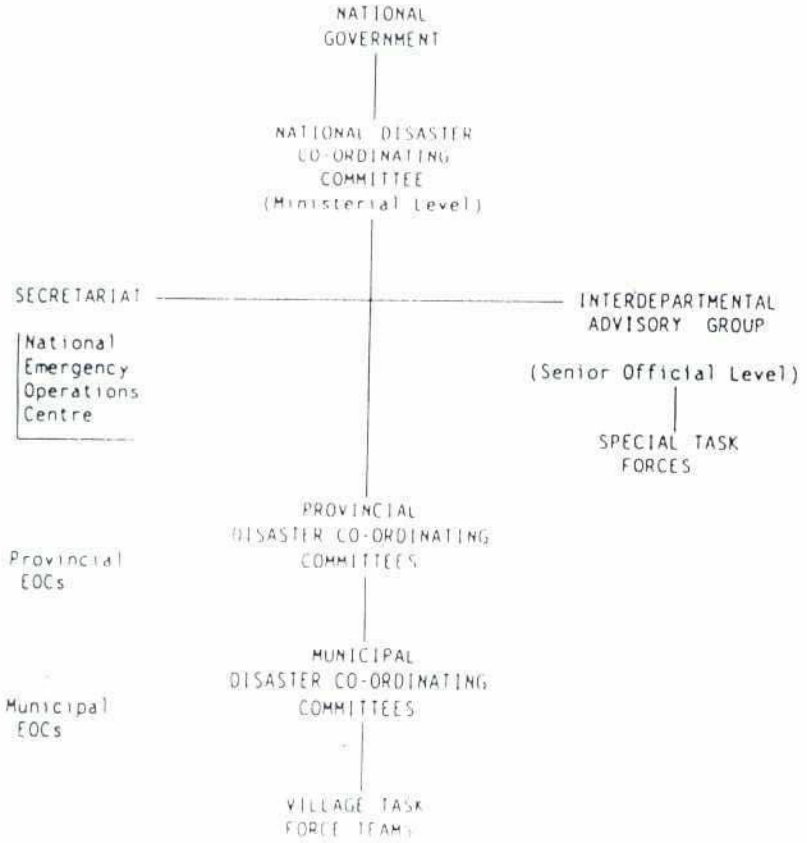

Explanatory Notes on Option B

1. This disaster management structure is directly related to and functions in line with the ongoing Five Year National Development Plan.

2. The National Disaster Co-ordinating Committee consists of Senior Ministers, all of whom have direct disaster management responsibilities. The Committee is empowered to co-opt other Ministers as required, to deal with special issues.

3. The Interdepartmental Advisory Group, consisting of Senior Government Officials, is required to monitor and advise on all disaster related matters, including those which affect the relationship between disaster and national development. The Group is empowered to set up Special Task Forces as required.

4. Provincial Disaster Co-ordinating Committees and Municipal Disaster Co-ordinating Committees have membership which is functionally in line with the National Disaster Co-ordinating Committee.

5. An important factor is that the Governor of the Province is Chairman of the Provincial Disaster Co-ordinating Committee and he has a wide range of responsibilities at his level, including Development.

5. This Act does not cover circumstances arising from combat against an enemy, unless specifically authorised by the Council of Ministers.

[*Handbook Note* Governments are usually careful about separating disaster circumstances from such matters as strike-breaking and war operations.]

PART 2 - ORGANISATION

Minister Responsible

6 The Council of Ministers shall appoint a Minister responsible to the Council for all disaster-related matters applicable to this Act. In particular, the Minister responsible is:

(a) to ensure that adequate measures are taken by government agencies to mitigate, prepare for and respond to disasters and to assist in the recovery from the effects of a disaster by persons or communities;
(b) to co-ordinate the activities of government agencies carrying out their statutory functions, powers, duties and responsibilities in taking such measures; and
(c) to foster and facilitate the participation of non-government agencies in measures taken by the government for disaster mitigation, preparedness, response and recovery.

National Disaster Council

7. There is hereby established under this Act a body to be called the National Disaster Council to advise the Minister responsible on all matters, including the co-ordination of activities of government and non-government agencies, relating to disaster mitigation, preparedness, response and recovery.

8 The Council is to consist of:

(a) a Chairman nominated by the Minister responsible, from within the Minister's department;
(b) a representative from each of those agencies which the Minister responsible considers should be so represented, to be nominated:

(i) In the case of a government agency, by the appropriate Minister; and
(ii) In the case of a non-government agency, by the agency.

[*Handbook Note*: Some countries prefer to nominate the holders of specific appointments as members of the National Disaster Council. However, the method shown above allows for considerable flexibility. Therefore, if changes to the Council become necessary, there is no need to alter the Act].

9. The National Disaster Council is to establish a Central Operations Group to assist it during emergency operations carried out in response to a disaster event. The role of this Group is to ensure on behalf of the Council that resources are allocated to operational tasks in the most effective way and in the correct priorities.

10. The procedures of the National Disaster Council are to be as determined by the Chairman.

National Disaster Management Office

11. There is also established under this Act a National Disaster Management Office to carry out disaster management and other responsibilities as determined by the Minister responsible and/or the National Disaster Council; to advise the Minister and the Council, and to deal with routine disaster-related affairs at national level.

Local Government Disaster Committees

12. Under this Act, each Local Government Council is required to establish a Disaster Committee.

Area Disaster Committees

13. Each Area Council is also required to establish a Disaster Committee. These Area Disaster Committees are responsible for co-ordinating disaster-related measures in their own areas with those of Local Government Disaster Committees and the National Disaster Council.

Committees Established by the Minister Responsible

14. In addition to the organisational arrangements outlined in paragraphs 7-13, the Minister responsible may establish such additional committees as are necessary to ensure comprehensive and integrated disaster management.

[*Handbook Note*: The amount of organisational detail to be included in legislation is a matter of individual country choice. In the example above, only the bare outline has been included, on the assumption that additional details can be given in the National Disaster Plan and associated plans.]

PART 3 - PLANS AND PROCEDURES

National Disaster Plan

15. There shall be a National Disaster Plan, approved by the Council of Ministers. The plan is to define the action to be taken to deal with disasters in Exland, covering all national land and sea areas. The plan is to cover requirements for disaster mitigation, preparedness, response and recovery.

16. The Chairman of the National Disaster Council is to be responsible for ensuring that the plan is periodically reviewed and updated as necessary.

17. Government agencies and non-government agencies which are formally allocated roles under this plan are responsible for making their own plans and other arrangements necessary to fulfil such roles.

- *Ministerial authority*
  Ministerial authority is vested in the Minister [for Home Affairs] who is directly responsible to Cabinet for ensuring that adequate disaster management measures exist at all times.
  In some cases this Ministerial authority is vested in a small Ministerial Committee of, say, three members.

- *National Disaster Council (NDC)*
  Responsible to the Minister (or Ministerial Committee) for the co-ordination and direction of all disaster-related matters which are concerned with planning, organisation, prevention, mitigation, preparedness, response, recovery, training, public awareness and other appropriate aspects. (The precise responsibilities can vary with circumstances; for instance, the NDC may have limited responsibilities for recovery, which may be dealt with by a separate committee).
  The Council usually consists of a number of heads of departments (e.g. those departments most directly concerned with dealing with disaster, such as Public Works, Police, Transport, Communications, Medical and Health, Foreign Affairs), with wide power to co-opt other members as necessary.
  The NDC can also appoint special bodies, such as Task Forces. Whilst it is desirable, especially in the interests of timely decision making, that the Council should be kept small, it is usually found that in the initial stages of a disaster, it is necessary to call upon co-opted members from a fairly wide range of departments and agencies.

Operations Control Group (or Central Control Group)
Responsible to the NDC for co-ordination and direction of response operations, including the tasking of resource organisations. The Group usually consists of three or four members, for instance:
- Assistant Commissioner of Police (Operations),
- Chief Marine Officer,
- Controller of Civil Aviation

Apart from their Group responsibilities, these officials carry out the duties of Controller, National Emergency Operations Center.

- *National Disaster Management Office (NDMO)*
  Responsible to the NDC for carrying out day-to-day disaster management responsibilities, as directed by the Chairman of the NDC

The NDMO is usually required to undertake a wide range of responsibilities and it is convenient to include these in an annexure to the National Disaster Plan, so that they are available for reference by all concerned.

- *Provincial Disaster Committee*
  Usually, these Committees will mirror the NDC in both membership and role. However, where the province constitutes the key government level the Committee would probably be under the chairmanship of the Governor or Chief Minister of the province.

- *Government Departments*
  Government departments and agencies play key roles in coping with disaster. Therefore, it is important that their responsibilities are clearly laid down. This is best done in Department Operations Procedures.

GOVERNMENT DEPARTMENTS, SECTIONS AND AGENCIES

Ministry Responsible for Disaster Affairs

- Responsible for overall planning, organisation, training, public awareness and administration in relation to disaster affairs.
- Provides Permanent Secretary as Chairman of National Disaster Council (NDC).
- Administers National Disaster Management Office.
- Maintains liaison with provincial authorities on day-to-day disaster management matters.
- Provides administrative services necessary for functioning of NDC.

The Permanent Secretary:

- Responsible to Minister for all disaster-related matters.
- Acts as Chairman of NDC.
- Directs activities of National Disaster Management Office.

ANNEX F

Functions of Key Co-ordinating Bodies in Disaster Management

National Disaster Management Council (NDMC)

Chair: Prime Minister
Members: 5-6 key ministers: Relief, Finance, Local Government, Home, Roads, Communications, Shipping, Food, Health ....?
5-6 key secretaries: as above ....?
Principal Secretary;
PSO; 3 Chiefs of Staff.
Member-Secretary: Cabinet Secretary
Frequency of meetings: Twice a year to review prevention/mitigation and preparedness aspects.
As required during an emergency: probably daily during first few days, weekly later.

Functions: (a) general

1a.1 Establishing policies and providing overall direction for all aspects of disaster management, including defining priorities and criteria for the allocation of resources.

1a.2 Reviewing and initiating follow up action, as and when required, on recommendations of the National Disaster Management Advisory Committee (NDMAC), and on reports of the Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC) concerning the implementation of policies and programmes in relation to prevention/mitigation, preparedness, emergency response, rehabilitation and reconstruction.

Functions: (b) in relation to disaster prevention/mitigation

1b.1 Establish overall policies and priorities for the consideration of disaster risks and the incorporation of disaster prevention/mitigation measures in general development planning. Review reports on the implementation of policies, and any related recommendations submitted by the IMDMCC, and initiate follow-up action as required.

Functions: (c) in relation to disaster preparedness

1c.1 Establish national policies in respect of disaster preparedness, and promote appropriate action by all sections of society. Review reports on the implementation of policies, and any related recommendations submitted by the IMDMCC, and initiate follow-up action as required.

1c.2 Approve and endorse up-dated Emergency Standing Orders and a National Disaster Plan, when formulated, including general policies and standards for the provision of relief following disasters.

1c.3 Ensure the integration of all relevant national capabilities in an overall National Disaster Plan, and monitor the overall state of preparedness and that of individual departments, agencies, and services. Ensure the complementarity and the adequacy of arrangements within and between the civil administration, Armed Forces, and NGOs.

1c.4 Ensure collaboration between the civil authorities and the Armed Forces in training for disaster preparedness and emergency response.

1c.5 Consider the need for legislation in relation to disaster prevention/mitigation and preparedness.

1c.6 Report to Parliament on the overall state of emergency preparedness.

Functions: (d) in relation to emergency response

1d.1 *In the event of a warning (an imminent disaster threat)*: Review the overall state of preparedness and decide on any additional measures to be taken.

In the event of a disaster:

1d.2 Review/establish priorities and criteria for the allocation of available relief materials, funds, and transport units. Ensure that these are observed in actual allocations.

1d.3 Release funds from national resources for specified purposes, and authorize special, emergency procedures where appropriate.

1d.4 Monitor the progress of relief and rehabilitation operations, and the planning for reconstruction, and take action whenever necessary to ensure efficient and effective operations within the framework of defined policies and priorities.

1d.5 Review the findings of the final evaluation, or "post mortem," of the emergency response, and take action on the associated recommendations of the IMDMCC.

Functions: (e) in relation to rehabilitation and reconstruction

1e.1 Monitor the process of damage assessment, review the consolidated reports and proposals for reconstruction, and approve the overall reconstruction programme with specified priorities.

National Disaster Management Advisory Committee (NDMAC)

(This Committee replaces the National Disaster Prevention Council, established in 1988, and serves as the National IDNDR Committee)

Chair: An eminent person with relevant experience to be nominated by the President/Prime Minister.

Members: Representatives of the Parliamentary Committee on Disaster Management (maximum 8)?
Eminent professionals from government service, universities, other institutions, NGOs, and aid organizations, nominated by ..... having recognized experience in specific technical and/or management aspects relating to disaster prevention/mitigation, preparedness, or response -- including experts in water resources, meteorology, earthquake engineering, physical planning, social anthropology, education, etc. (maximum 30)?
Chairman, BDRCS
President, Federation of Chambers of Commerce and Industries
President, Institution of Engineers
Chairmen: Insurance Companies' Association; Krishi Bank: Grameen Bank
.....

Member-Secretary: Secretary MDMR / Additional Secretary DMB

Frequency of meetings: Twice a year, with *ad hoc* meetings when considered necssary by the Chairman.

Sub-Committees: The Committee may form such technical sub-committees as it finds appropriate, and designate the Chairmen for such committees. Additional specialists may be co-opted to those sub-committees at the discretion of the chairmen. [Sub-Committees may be formed in relation to: cyclone warnings; flood forecasting; earthquake risks; social aspects and people's participation; etc..]

Functions: (a) general

2a.1 Provide advice to the NDMC, and directly to MDMR and DMB, on specific technical, management, and socio-economic aspects relating to disaster prevention/mitigation, preparedness, emergency response, rehabilitation and reconstruction.

2a.2 Promote awareness of disaster risks and mitigation possibilities among all professional and other groups represented in the Committee, and encourage such groups to arrange workshops, training, and research, as appropriate, by and among their constituent members.

2a.3 Provide a forum for inter-disciplinary exchanges of ideas and experience relating to disaster risks, and promote inter-disciplinary collaboration in addressing the issues involved.

Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC)

Chair: Minister of Disaster Management and Relief (DMR)
Vice-Chair: Cabinet Secretary
Members: Member Programming/SEI, Planning Commission
All concerned secretaries: .....
PSO;
D-G NGO Affairs Bureau
S-G BDRCS
Member-Secretary: Secretary DMR

Frequency of meetings: Twice a year to review prevention/mitigation and preparedness aspects (prior to NDMC meetings).
During an emergency: daily during the initial stages; twice weekly later
(An Executive Relief Management Sub-committee may be formed.)

Functions: (a) general

3a.1 Implementation of NDMC policies and decisions on an inter-ministerial basis. Monitoring and reporting to the NDMC the status of activities in relation to disaster prevention/mitigation, preparedness, emergency response, rehabilitation and reconstruction.

3a.2 Co-ordination of action by all government agencies, and overall direction of the activities of the DMB.

Functions: (b) in relation to disaster prevention/mitigation

3b.1 Make recommendations to the NDMC concerning policies and priorities for the incorporation of disaster prevention/mitigation measures in general development planning. Ensure and co-ordinate the provision of corresponding guidelines to sectoral planners and local-level officials.
Review the effectiveness of policies and priorities, and report to NMDC with recommendations for any modifications considered necessary.
Review the adequacy of guidelines, and arrange for improved guidelines to be prepared and issued, when necessary.

3b.2 Establish procedures and criteria for the appraisal of development projects in terms of (i) the vulnerability of the project and its outputs to known risks, and (ii) the likely effects of the project on the vulnerability of the people and other assets in the locality.
Review the effectiveness of arrangements (the adequacy and application of procedures and criteria) for the appraisal of development projects, and make any needed improvements.

3b.3 Co-ordinate the preparation, and monitor the implementation, of specific disaster prevention/mitigation projects, relevant regulations, and other risk reduction measures. Establish priorities and co-ordinate the mobilization/allocation of the necessary resources. Ensure the necessary technical supervision, and arrangements for the long-term maintenance of structures and other measures.

3b.4 Monitor arrangements to increase national expertise and up-to-date knowledge of disaster risks and mitigation possibilities among sectoral planners, local-level officials, and others including NGOs and other aid agencies. In liaison with the NDMAC and its technical sub-committees, promote the inclusion of relevant material in the training provided for technical and professional personnel, and co-ordinate inter-sectoral research, where required.

3b.5 Monitor and report to the NDMC on the implementation of national policies and priorities in relation to disaster risks and mitigation.

Functions: (c) in relation to preparedness

3c.1 Review the efficiency of national forecasting and warning systems, and ensure effective co-ordination between the various bodies involved.

3c.2 Approve refined/up-dated Emergency Standing Orders and the National Disaster Plan, including general policies and standards for the provision of assistance following disasters.

3c.3 Make recommendations to the NDMC for legislation in relation to disaster prevention/mitigation and preparedness.

3c.4 Ensure the preparation of action plans by all relevant agencies, in conformity with the agreed responsibilities of each agency. Ensure that all plans and guidelines are properly co-ordinated with each other, and lines of communication between agencies at all levels are appropriately defined.

3c.5 Monitor, and report annually to the NDMC on the overall state of emergency preparedness.

3c.6 Review and co-ordinate the provision of guidelines and practical support to local-level warning dissemination systems.

3c.7 Ensure co-ordination between all agencies involved in public information and awarenessss activities in relation to disasters.

3c.8 Ensure co-ordination between all concerned government agencies, and with NGOs, in the organization of training in disaster preparedness and emergency response.

3c.9 Ensure the establishment of facilities for a national Emergency Operations Centre (central control room) in an appropriate location, and the provision of neccessary equipment for use during an emergency. Ensure arrangements for specified personnel from concerned line agencies, the Armed Forces, and any other appropriate bodies, to be assigned temporarily, at short notice, to reinforce the core staff at times of emergency.

3c.10 Ensure adequate arrangements to deploy additional radio communications equipment (and operators) rapidly into areas where normal telecommunications are disrupted; and establish arrangements whereby operational agencies (governmental and NGOs) can establish/operate/have access to radio networks, where needed, under proper authority.

3c.11 Establish arrangements by which trained and experienced senior civil service officers can be promptly sent on temporary assignments to reinforce the district, thana, and union-level administrations in disaster-affected areas, and other experienced personnel be mobilized through professional associations, etc.

3c.12 Ensure the establishment of arrangements for rapid but thorough (independent) technical assessments of physical damage and specification of reconstruction requirements. (This to be done in consultation with the major donors in order to ensure their acceptance of and prompt response to the findings.)

Functions: (d) in relation to emergency response

3d.1 *In the event of a warning (an imminent disaster threat)*: Ensure that warning information is passed to all concerned officers, agencies, and public dissemination channels, and that all concerned bodies are on stand-by.

In the event of a disaster:

3d.2 Arrange the assignment of additional civil service officers to support the responsible authorities in the affected areas, if required.

3d.3 Co-ordinate action by various line agencies to restore communications and essential services, and the mobilization and assignment of Armed Forces units and personnel for specified operational support functions.

3d.4 Review/establish priorities and criteria for the allocation of available relief materials, funds, and transport units. Review actual allocations.

3d.5 Recommend releases of funds for specified purposes. Authorize special, emergency procedures, where appropriate, including delegating additional authority to the operational level (if not already adequately provided for in the Standing Orders).

3d.6 Co-ordinate the issuing of information (to donors, NGOs and the news media) and requests to donors/the international community for additional aid, if needed.

3d.7 Ensure the maximum sharing of information between all concerned bodies, and the co-ordination of the activities of all operational agencies (governmental and NGO).

3d.8 Monitor the progress of operations in all areas; take action to resolve problems notified by the DMB or other agencies; ensure that operations are being effectively carried out within the general framework of established policies and guidelines.

3d.9 Co-ordinate the preparation of detailed damage assessments and proposals/projects for reconstruction/long-term rehabilitation of the affected areas.

3d.10 Report to the NDMC and, through ERD, to donors on the progress of operations and the use of resources. Provide information to the news media through the Ministry of Information.

3d.11 Review the findings of the final evaluation, or "post mortem," of the emergency response arranged by the DMB, and approve publication. Submit the report to the NDMC with recommendations for action.

Functions: (e) in relation to rehabilitation and reconstruction

3e.1 Co-ordinate the detailed assessment of damage to major infrastructure, economic assets, and public service facilities/utilities, and the consolidation of data from district-level authorities concerning other damage. Ensure the rapid but thorough (independent) specification of requirements for reconstruction in consultation with potential donors, including arranging joint assessments, where required.

ANNEX G

Job Description for senior staff of the Disaster Management Bureau

Duties 1:

Director General, DMB (Additional Secretary)

(a) General

1a.1 Responsible to the Inter-Ministerial Disaster Management Co-ordination Committee (IMDMCC), through the Secretary, Ministry of Disaster Management and Relief (MDMR), for:

(i) Advising the Government on all matters relating to disaster management;

(ii) Administering the Disaster Management Bureau; directing and supervising the work of the staff of the Bureau;

(iii) Liaising with all concerned government bodies, aid agencies, NGOs, and voluntary organizations, and ensuring maximum co operation and co-ordination in relation to all aspects of disaster management;

(iv) Fulfilling the specific duties listed below, and performing other related tasks as and when requested by the Secretary MDMR

(b) In 'Normal Time': in relation to disaster prevention/mitigation and preparedness

1b.1 Promoting awareness of disaster risks, and the practical possibilities for reducing risks (vulnerability), among the populations of disaster-prone areas, all government staff assigned in such areas, and relevant professional groups.

1b.2 Liaising with the technical sub-committees of the National Disaster Advisory Committee.

1b.3 Promoting community level initiatives and action to reduce disaster risks and increase local coping capacities.

1b.4 Proposing policies for disaster mitigation (risk reduction), and collaborating with the Planning Commission, concerned line agencies and other bodies to establish relevant guidelines and procedures to ensure that measures to reduce risks are implemented wherever possible.

1b.5 Developing, in consultation with all concerned bodies, a National Disaster Plan, incorporating Standing Orders, and associated practical guidelines. Arranging widespread dissemination, regular reviews and up dating of the Plan.

1b.6 Proposing legislation and regulations that may be required in relation to disaster prevention/mitigation and preparedness.

1b.7 Providing guidelines and practical assistance to other ministries and line agencies, and to district, thana and union authorities, for establishing contingency/action plans for their own organizations/areas and in organizing regular exercises to test the refine those plans.

1b.8 Arranging, in collaboration with line agencies, local authorities, existing training institutes, and relevant NGOs, for training in disaster management to be organized for a wide variety of government personnel, elected representatives, and others.

1b.9 Establishing and maintaining facilities, information systems, operating procedures, and telecommunications systems, for a national emergency operations centre (EOC/control room), for immediate use when an emergency arises.

1b.10 Establishing and maintaining arrangements for the mobilization of additional personnel for the EOC and to assist local authorities in the field, when required, including skilled volunteers from professional associations.

1b.11 Providing a documentation and information service on all aspects of disaster management for line agencies and others.

1b.12 Monitoring and reporting to the Secretary MDMR and the NDMC on the 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.

1b.13 Preparation of overall plans and budgets for the various activities to be supported by the DMB.

(c) During an Emergency: in relation to emergency response

1c.1 In the event of a warning (an imminent disaster threat):

-- Ensuring that warning information is passed to all concerned officers, agencies, and public dissemination channels.
-- Advising MDMR concerning instructions to be issued to agencies and personnel in the threatened areas
-- Activating the EOC, and liaising with concerned line agencies to ensure that they too activate their contingency plans.

In the event of a disaster:

1c.2 Ensuring the efficient, continuous functioning of the EOC.

1c.3 Arranging rapid reconnaissance and inter-sectoral assessment missions, where needed.

1c.4 Providing advice and guidance to local authorities in relation to damage and needs assessment, and relief and rehabilitation assistance operations; etc.

1c.5 Providing secretariat services and expert advice to the IMDMCC, and helping to ensure co-ordination between line agencies and between Government and NGOs in relation to relief and short-term rehabilitation activities.

1c.6 Advising the MDMR and IMDMCC of any specific requirements for additional personnel to be deputed to support the responsible authorities in the affected areas, and for any specific operational support required from the Armed Forces.

1c.7 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.

1c.8 Making recommendations to MDMR and IMDMCC for allocations of available relief materials, funds, and transport units to district authorities (or, occasionally, direct to thana level).

1c.9 Making recommendations to MDMR and IMDMCC concerning the institution of special emergency procedures or delegations of authority, if judged necessary.

1c.10 Providing information to ERD concerning requirements for international assistance, and to MoInfo concerning the overall operational situation.

1c.11 Promoting the maximum sharing of information between all concerned bodies, and the co-ordination of the activities of all operational agencies (governmental and NGO). Liaising donors, UN agencies, NGOs and professional associations directly involved in relief and rehabilitation activities, and assisting MDMR in organizing informal information exchange meetings ("Disaster Forums") between Government and representatives of those bodies.

1c.12 Organizing regular (weekly?) sessions/workshops with all concerned to review progress and lessons learned, and to agree priorities and directions for continuing/new activities.

1c.13 Submitting reports to the IMDMCC on the progress of operations and the use of resources.

(d) Post-disaster: in relation to rehabilitation and reconstruction

1d.1 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.

1d.2 Ensuring that risk reduction measures are built into all reconstruction programmes as much as possible.

1d.3 Undertaking a final evaluation, or at least a "post mortem", on the emergency response (including warning, relief and short-term rehabilitation operations), drawing lessons and preparing a report to the IMDMCC. Publishing the report and ensuring that the lessons are fed back into training activities and up-dated guidelines.

QUALIFICATIONS

Formal qualifications and at least ten years relevant work experience in management, public administration, development planning, or physical planning. A background in social anthropology and previous training in disaster management an advantage.

At least five years experience in field posts at divisional/district/thana level.

Personal experience in the organization of rescue, relief, and rehabilitation operations, and in collaboration between Government, NGOs, and voluntary organizations.

Demonstrated leadership qualities, flexibility, initiative and a willingness to take responsibility; an ability to work under pressure; a keen interest in disaster management; willingess to travel extensively throughout the country.

Duties 2:
Senior Specialist (Director), Disaster Management

(a) General

2a.1 Responsible to the Director General, DMB (Additional Secretary) for :

(i) Directing and co-ordinating the work of the staff of the Disaster Management Planning and Co-ordination Cell of the DMB;

(ii) Fulfilling the specific duties listed below, and performing other related tasks as and when requested by the Director General

(b) In 'Normal Time': in relation to disaster prevention/mitigation and preparedness

2b.1 Proposing policies and priorities, and associated procedures and criteria, for the consideration of disaster risks and the incorporation of disaster prevention/mitigation measures in general development planning.

2b.2 Monitoring, in collaboration with the Planning Commission and IMED, the effectiveness of the established policies, priorities, and procedures, and making recommendations for changes in policies or guidelines when found necessary.

2b.3 Collaborating with the concerned line agencies, undertaking risk assessments, and proposing specific disaster prevention/mitigation projects and other measures (including regulations), as required.

2b.4 Collaborating with the responsible authorities to mobilize resources for prevention/mitigation measures, and to ensure necessary technical supervision and the maintenance of structures.

2b.5 Reporting to the MDMR and IMDMCC on the implementation of national policies and programmes in relation to disaster risks and mitigation.

2b.6 Arranging independent evaluations of the effectiveness of specific disaster prevention/mitigation measures

2b.7 Collaborating with the responsible technical forecasting bodies (BMD and BWDB), related technical assistance projects, and those involved in the dissemination of messages (including TV, Radio and CPP) to ensure that cyclone and flood warnings from the national level are as timely and effective as possible

2b.8 Collaborating with BWDB, CPP, district administrations, local authorities, NGOs, professional associations, voluntary organizations and related technical assistance projects, to develop local level warning dissemination systems. Providing for arranging the provision of guidelines, equipment and training in support of such local level systems.

2b.9 Monitoring and reporting to the MDMR and IMDMCC on the effectiveness of warning systems

2b.10 Preparing refined/up-dated Emergency Standing Orders in collaboration with the concerned line ministries and agencies, and incorporating them in a National Disaster Preparedness Plan for approval by IMDMCC.

2b.11 Collaborating with line agencies, as required, in the preparation of agency action/contingency plans, and in defining lines of communication between agencies at all levels.

2b.12 Proposing, in consultation with concerned line agencies and NGOs, general policies and standards for the provision of relief following disasters. Preparing and distributing practical guidelines (for use at various levels) on the organization of rescue and relief assistance operations.

2b.13 Preparing detailed guidelines, including model preparedness plans, for the district, thana, and union-level authorities. In co-ordination and collaboration with the Senior Specialist, Training, assisting those authorities in the most disaster-prone areas in preparing their own plans.

2b.14 Preparing a GOB Disaster Management Handbook incoporating the up-dated standing orders; policies and standards of provision; practical guidelines and model plans.

2b.15 Monitoring and reporting to the MDMR and IMDMCC on the state of emergency preparedness in the disaster-prone districts and within the concerned line agencies.

2b.16 Collaborating with the Senior Specialist, Training, and other interested bodies including experienced research organizations and NGOs, to:

- prepare and distribute practical guidelines, for use at district, thana, union and village levels; [These guidelines on "how to be prepared" (for cyclones and floods) and "how to minimize damage and losses", etc., to be compiled on the basis of proven experience.]
- define training needs and review related curricula and materials

2b.17 Establishing operating procedures for an effective Emergency Operations Centre (EOC), and ensuring that necessary facilities, services, and systems, are available and functional at all times. Establishing arrangements for the core staff of the DMB to be supplemented, when necessary (immediately a disaster threatens or occurs), by the secondment of pre-identified personnel from key line agencies, the Armed Forces and, possibly, NGOs, professional associations and international aid agencies.

2b.18 Organizing exercises of the EOC at least once a year, including personnel from line agencies and the Armed Forces.

2b.19 Establishing and maintaining a roster of individuals experienced in the management of emergency operations, and relevant technical specialists (government personnel and others), who would be available, at short notice, to: (a) undertake preliminary reconnaissance and assessment missions following a disaster, and (b) help to direct and co ordinate operations (at national, zonal, or district levels) during the initial emergency relief phase. Co-ordinating with the Senior Specialist, Training to ensure the periodic group training for those on the roster.

2b.20 Collaborating with Establishment Division in maintaining arrangements by which trained and experienced senior civil service officers can be promptly sent on temporary assignments to reinforce the district, thana, and union-level administrations in disaster-affected areas. Ensuring these officers have up-to-date guidelines, and co-ordinating with the Senior Specialist, Training, to ensure the periodic group training for those on the roster.

2b.21 In collaboration with the NGO Affairs Bureau and the Senior Specialist, Information Management, keeping an up-to-date roster of NGOs having relevant experience and capabilities.

(c) During an Emergency: in relation to emergency response

2c.1 *In the event of a warning (an imminent disaster threat):*

- Mobilizing the staff of the DMB for their emergency (EOC) roles, establishing a duty roster (24-hour senior staff coverage) for the EOC, and instituting emergency operating procedures.
- Establishing and maintaining contacts with the disaster management focal points in concerned ministries, agencies, and the Armed Forces.

In the event of a disaster:

2c.2 Serving as Director of the EOC: managing the operations of the EOC on a day-to-day basis, ensuring the effective use of all available personnel (both DMB core staff and additional temporary personnel), and the efficient performance of all EOC tasks.

2c 3 Arranging immediate reconnaissance (e.g. overflights) of the affected area, and initiating action through the relevant operational agencies on the basis of the initial findings and past experience.

2c.4 Maintaining contact with the district administrations in the affected areas, and with all concerned line agencies. Ensuring that information on the situation, damage and needs is systematically received, analysed, and disseminated, as appropriate, by the Information Management Cell.

2c.5 Working with the Senior Specialist, Information Management, to propose priorities on the basis of available information, and to identify gaps in information and propose specific action to fill those gaps.

2c.6 Identifying needs for general staff support, or specific technical expertise, to assist local administrations and field personnel in specific areas: informing the Director General, DMB and assisting in mobilizir the required personnel.

2c.7 Making recommendations for the allocation of available rescue, relief and other relevant resources.

2c 8 Working with the Senior Specialist, Logistics and Telecommunications, to identify needs and define priorities for mobilizing and providing special resources and assistance in particular aspects of logistics, or in (re-)establishing telecommunications, in specific areas

2c 9 Monitoring the progress of operations, including the release and delivery of resources against agreed allocations. Identifying any particular problems or bottlenecks and initiating action to resolve them, or immediately informing the Director General, DMB for his action

2c 10 Providing advice and generally back-stopping the local authorities, officials, and operational agencies in the field. Arranging special mission to check information and solve problems on-the-spot, when necessary

(d) Post-disaster: in relation to rehabilitation and reconstruction

2d.1 Reviewing proposed reconstruction programmes and projects, making recommendations concerning priorities, and ensuring that risk reduction measures are built into all such programmes and projects as much as possible.

2d.2 Reviewing the performance of the EOC, and co-operating with the Director General, DMB and any others designated to undertake a post-facto evaluation, or post-mortem, of the tmergency operation:

- making any required improvements in EOC operating procedures, and agreeing with all concerned on any required modifications to existing Plans, including Standing Orders;
- arranging with the Senior Specialist, Training, for any required modifications to existing training curricula and materials, and for special training activities, if needed.

QUALIFICATIONS

Formal qualifications and at least eight years relevant work experience in management or physical planning; previous training in disaster management an advantage.

At least four years experience in field posts at divisional/district/thana level.

Personal experience in the organization of rescue, relief, and rehabilitation operations; in disaster preparedness or other forms of contingency planning; and in collaboration between Government, NGOs, and voluntary organizations.

Demonstrated leadership qualities; flexibility, initiative and a willingness to take responsibility; an ability to work under pressure; keen interest in disaster management; willingess to travel extensively throughout the country

Duties 3:
Senior Specialist (Director), Training and Public Awareness

(a) General

3a.1 Responsible to the Director General, DMB (Additional Secretary) for:

(i) Directing and co-ordinating the work of the staff of the Training and Public Awareness Cell of the DMB;

(ii) Fulfilling the specific duties listed below, and performing other related tasks as and when requested by the Director General, DMB

(b) In 'Normal Time' : in relation to disaster prevention/mitigation and preparedness

3b.1 Convening, on a regular basis, a broad-based Working Group on disaster management training, to agree an overall training strategy and to co-ordinate training activities and the preparation of training materials. [This working group to include representatives of concerned line agencies, the Armed Forces, training institutes, professional associations, BDRCS, ADAB and selected NGOs.]

3b.2 Defining, in consultation with the other Senior Specialists, the specific training and related activities to be arranged by the DMB, and obtaining the approval of IMDMCC through the Director General, DMB

3b.3 Arranging, in collaboration with other concerned agencies, training for district, thana and union-level officials, elected representatives, and other relevant persons, with specific reference to:

- the possibilities for local-level action to reduce risks and improve preparedness;
- the preparation of local-level disaster plans;
- the establishment of local-level warning disemination arrangements.

3b.4 Promoting the regular testing of local-level disaster plans through drills, or exercises. Advising and, where necessary, assisting the local authorities in organizing such exercises.

3b.5 Arranging for the inclusion of relevant disaster management modules in the basic and refresher training of BCS officers, police, ansars, VDPs, all field level officers of line agencies. In collaboration with other concerned agencies, proposing curricula and providing corresponding training materials and trainers guides for the various target audiences Mobilizing/ providing resource persons to assist the various training institutes in conducting the sessions, as required, and assessing the effectiveness of the training

3b.6 Liaising with the disaster management focal point in the Military Staff College to ensure complementarity between the training provided to civil officers and to Armed Forces personnel, and to arrange joint training exercises whenever possible.

3b.8 Promoting broad-based public education concerning preparedness for and response to cyclones and floods, and the related training of extension workers, teachers, religious leaders, women's groups, and others. Producing (or arranging the production of) relevant educational and training materials, and providing support in the initial planning and organization of training activities and exercises at local level. Supervising and evaluating these activities on an ongoing basis.

3b.8 Arranging with the relevant education authorities for the incorporation of relevant disaster preparedness components in school syllabuses, and in teacher training courses (in PTIs and TTCs). Proposing material to be included in text books or reading books, and in teachers guides.

3b.9 Arranging, in collaboration with the Disaster Management Planning and Co-ordination Cell, for the initial and periodic refresher training of government officers and other professional persons who are placed on rosters for emergency service.

3b.10 Collaborating with the Disaster Management Planning and Co-ordination Cell in the compilation, design and production of the GOB Disaster Management Handbook.

3b.11 Proposing, in consultation with the relevant sub-committees of the National Disaster Management Advisory Commitee, specific research studies on topics relevant to local-level prevention/mitigation measures or preparedness, and evaluating any research proposals made by other agencies or institutions. Arranging and supervising any studies that are approved and to be funded, wholly or in part, through the DMB.

(c) During an Emergency: in relation to emergency response

3c.1 Assisting the Director EOC (Senior Specialist Disaster Management) in the day-to-day operations of the EOC, with particular reference to the provision of advice and guidance to district administrations and operational staff in the field.

3c.2 Undertaking assessment and trouble-shooting missions to the field as directed by the Director General, DMB

(d) Post-disaster: in relation to rehabilitation and reconstruction

3d.1 Assessing needs for specific training of government, local authority, or other agency personnel for specific aspects of rehabilitation operations. Making recommendations to the Director General, [illegible] DMB, or other relevant authorities, and assisting in arranging the necessary training, where necessary.

QUALIFICATIONS

At least eight years experience in planning and organizing training and non-formal education programmes serving a variety of client groups.

Personal experience in collaboration between Government, NGOs, and voluntary organizations. Previous experience in the organization of rescue, relief, and rehabilitation operations, and in preparedness/contingency planning an advantage.

Previous formal training in disaster management, and in organizing disaster management training, an advantage.

Demonstrated leadership qualities, flexibility, initiative and a willingness to take responsibility; an ability to work under pressure; a keen interest in disaster management; willingess to travel extensively throughout the country.

Duties 4:
Senior Specialist (Director), Monitoring and Information Management

(a) General

4a.1 Responsible to the Director General, DMB (Additional Secretary) for

(i) Directing and co-ordinating the work of the staff of the Monitoring and Information Management Cell of the DMB;
(ii) Providing a full range of information management and computer services for the DMB as a whole;
(iii) Fulfilling the specific duties listed below, and performing other related tasks as and when requested by the Director General, DMB for his action

(b) In 'Normal Time' : in relation to disaster prevention/mitigation and preparedness

4b.1 Ensuring the correct installation, use, maintenance and security of all computers and related equipment and software, purchased for or otherwise provided to the DMB. Specifying any additional requirements.

4b.2 In close collaboration with the other Senior Specialists, developing and maintaining management information systems, both manual and computerized, to support all disaster management activities and operations of the DMB.

4b.3 Arranging necessary training for all levels of staff of the DMB in the use of the management information systems and, when required, in basic computing skills.

4b.4 Developing and maintaining a data base of basic "baseline" information likely to be relevant for any aspect or phase of disaster management: establishing co-operative arrangements with line agencies and other relevant bodies to receive data from them, cross-check against data from other sources, and share DMB data with all those collaborating.

4b.5 Collaborating with the Senior Specialist, Disaster Management, in developing management information systems (manual and computerized), including forms and worksheets, for use by district, thana, and union-level authorities in all phases of disaster management. Collaborating with the Senior Specialist, Training, in designing and arranging training for personnel at those levels in the use of the proposed systems, forms and worksheets.

4b.6 Specifying, in consultation with the Senior Specialist, Disaster Management, user requirements for a Disaster Management GIS system, and co-operating with the Geographic Information Systems project (FAP:19) in the development and testing of such a system.

4b.7 Maintaining, in collaboration with the NGO Affairs Bureau, ADAB, and VHSS, a data base of NGOs having particular experience and capabilities in disaster management.

4b.8 Maintaining, in collaboration with the other Senior Specialists, Establishment Division, and relevant professional associations, rosters (data bases) of government officers and other personnel having relevant experience who are available at short notice for emergency management duties.

4b.9 Collecting data on the progress of programmes and projects that affect disaster risks, and preparing reports on the status of disaster prevention/ mitigation and preparedness in the country.

4b.10 If required, and on request of the Director General, developing management information systems to support the operations of the DRR, and assisting in arranging relevant training for DRR personnel.

(c) During an Emergency: in relation to emergency response

4c.1 Ensuring the efficient operation of all management information systems, and the prompt entry of all incoming data from district administrations and other sources.

4c.2 Cross-checking all incoming data for plausibility (against baseline data) and consistency (against other reports). Informing the Director EOC (Senior Specialist, Disaster Management) of any uncertainties regarding particular reports, and proposing/initiating action to verify the data, when necessary.

4c.3 Reviewing available information on a regular, daily basis bringing particular features to the attention of the Director EOC (Senior Specialist, Disaster Management) and identifying any significant gaps in information which may require follow-up action.

4c.4 Preparing regular (daily) analyses of: reports on damage and needs, allocations of resources (supplies, equipment, personnel); specific relief/ rehabilitation activities underway; contributions (pledged and delivered); unmet needs. Presenting information in ways that facilitate rapid understanding and decision-making.

4c.5 Preparing regular summary narrative reports on the situation, the progress of rescue, relief and rehabilitation operations, and problems/constraints.

4c.6 Providing advice and assistance to district administrations, and any zonal offices that may be established by the Government, in setting up and operating management information systems at their level to assist in the management of local-level relief and rehabilitation operations.

(d) Post-disaster: in relation to rehabilitation and reconstruction

4d.1 Co-operating with the Planning Commission and line agencies, as required, in compiling data on reconstruction requirements and planned programmes and projects.

QUALIFICATIONS

At least eight years experience in information management including both manual and computer-based systems.

Formal qualifications and at least five years relevant work experience in systems analysis and in the design, installation and operation of management information systems, with particular emphasis on defining users' information needs and the potential uses of information.

Personal experience in the organization of rescue, relief, and rehabilitation operations, and in collaboration between Government, NGOs, and voluntary organizations, an advantage.

Demonstrated leadership qualities; flexibility, initiative and a willingness to take responsibility; an ability to work under pressure; a keen interest in disaster management; willingess to travel extensively throughout the country.

Duties 5:
Senior Specialist (Director), Logistics and Telecommunications

(a) General

5a.1 Responsible to the Director General, DMB (Additional Secretary) for

(i) Directing and co-ordinating the work of the staff of the Logistics and Telecommunications Cell of the DMB;

(i) Fulfilling the specific duties listed below, and performing other related tasks as and when requested by the Director General,

(b) In 'Normal Time' : in relation to disaster prevention/mitigation and preparedness

5b.1 Assessing, and keeping under constant review the logistic facilities in the disaster-prone areas, including: transport capacities; storage facilities (including at union level); supplies of motor fuel and lubricants ("POL"). Preparing regular reports on the situation, including recommendations for feasible, cost-effective short- and long-term action to increase capacity, where required.

5b.2 Collaborating with line agencies having responsibility for transport (including Roads and Highways, BIWTA/TC, Biman, etc.), users of transport (such as the Directorate of Health and the DRR), and the Armed Forces, in preparing contingency logistic plans for different emergency scenarios.

5b.3 Preparing logistic-related elements of the National Disaster Plan, and specific, practical guidelines for both national and local levels on: the transportation, handling and storage of supplies; the evacuation of people from threatened or disaster-affected areas; planning reconnaissance missions and the movement of field personnel; assuring POL supplies. Collaborating with the Senior Specialist, Disaster Management, to incorporate these in both the national Plan and the GOB Disaster Management Handbook.

5b.4 Establishing agreements with private transport associations concerning the mobilization of road and river transport at times of emergency.

5b.5 Collaborating with responsible line agencies to establish arrangements to ensure the prompt availability of specific items commonly required for rescue, relief and initial rehabilitation operations, through stockpiling and/or standing arrangements with suppliers. Defining desirable minimum stock levels of critical items in strategic locations, and monitoring stock levels.

5b.6 Assisting the district authorities in the most disaster prone areas to prepare their own contingency logistic plans as part of their overall disaster preparedness planning.

5b.7 Ensuring that the telecommunications equipment and facilities of the DMB are adequate and fully functional at all times, both for normal use and to support the operations of the EOC at times of emergency.

5b.8 Ensuring that the telecommunciations equipment and facilities of the district administrations (notably that provided by or through the MOR or DMB) are fully functional at all times, both for normal use and to support the operations of the district EOC/control room at times of emergency.

5b.9 Assessing needs and the possibilities of assuring telecommunications links between district headquarters and thanas, and with certain isolated unions, in the most disaster-prone areas. Making proposals and following-up with concerned agencies and authorities.

5b.10 Collaborating with T&T, the Police and other line agencies having HF/VHF radio networks, the CPP, and the Armed Forces, to establish arrangements for collaboration in the use of available telecommunications facilities during emergencies, and for the rapid (re-)establishment of links in isolated localities, when required.

5b.11 Working with the responsible authorities to ensure that recognized NGOs making important contributions to relief and rehabilitation operations have access to adequate telecommunications facilities, including HF/VHF radio communications where needed.

5b.12 Ensuring that telecommunications facilities are up-dated in line with improvements in T&T and related systems (e.g. the use of fax machines and electronic mail/bulletin boards).

(c) During an Emergency: in relation to emergency response

5c.1 Arranging transport for initial reconnaissance missions to/over the affected areas, including all necessary clearances and advice to authorities in those areas.

5c.2 Arranging transport, including fuel, for other assessment and operational support missions by DMB/EOC staff and others.

5c.3 Mobilizing transport from all sources to assist the local authorities in evacuation or rescue operations, where required.

5c.4 Assessing, and keeping under constant review, the overall logistic situation in the affected areas, and the capacities and constraints on transport and storage facilities. Making recommendations and, where possible, taking direct action to restore or increase capacity in the short-term.

5c.5 Collaborating with relevant line agencies (both those with responsibility for transport, and users of transport) and the Armed Forces, in co-ordinating the deployment and the use/tasking of available transport and related facilities, including ensuring fuel supplies.

5c.6 Providing advice and assistance, as required, to the district authorities in the worst-affected areas, in mobilizing and planning the most effective use of the transport capacities and storage facilities available to them. Identifying priority requirements for additional capacity and taking action to mobilize the required resources.

5c.7 Keeping the EOC telecommunications service functioning efficiently 24-hours-a-day.

5c.8 Liaising with T&T, the Police, other line agencies, the CPP, and the Armed Forces, to keep an up-to-date overview of all functioning telecommunications services, and helping to establish co-operation in areas where communications are a problem for certain agencies having important disaster-related functions.

5c.9 Advising the Director General concerning any requirements for urgent action to (re-)establish telecommunications links with isolated areas, possibly including the deployment of military signals units.

(d) Post-disaster: in relation to rehabilitation and reconstruction

5d.1 Collaborating with the responsible line agencies in defining priority requirements for rehabilitation and reconstruction of transport, storage and telecommunications facilities, and in monitoring the progress of such operations.

5d.2 Proposing, to the Director General and concerned line agencies, the measures that could be taken in the context of the overall reconstruction programme, and in ongoing development programmes, to reduce the vulnerability to future disasters of transport, storage and telecommuncations facilities, and to improve services as an aid to preparedness.

QUALIFICATIONS

At least eight years experience the planning and management of logistic operations. Experience in field posts at divisional/district level an advantage.

Broad experience in transport (all modes) essential; knowledge and experience of storage and telecommunications an advantage.

Personal experience in the organization of rescue, relief, and rehabilitation operations, and in collaboration between Government, NGOs, and voluntary organizations, an advantage.

Demonstrated leadership qualities; flexibility, initiative and a willingness to take responsibility; an ability to work under pressure; a keen interest in disaster management; willingess to travel extensively throughout the country.

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

FINAL REPORT

VOLUME III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

Part 2 : Management Information Systems

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LIST OF ACRONYMS AND ABBREVIATIONS

ADAB	Association of Development Agencies, Bangladesh
AIS	Advanced Information Systems (a private company)
DCS	Donor Contribution Systems
DoRR	Directorate of Relief and Rehabilitation
DPIS	Disaster Preparedness Information System
DRTS	Disaster Response Tracking System
FAO	Food and Agriculture Organisation
GIS	Geographical Information System
MIS	Management Information System
PACT/PRIP	An NGO specialising in coordination and support activities
WFP	World Food Programme

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

PART 2 : MANAGEMENT INFORMATION SYSTEMS

CHAPTER 1

INTRODUCTION

This report has been prepared upon completion of UNDP Project BGD/91/021 Assistance to Ministry of Relief in Coordination of Cyclone Rehabilitation.

The report addresses Activity 1.1.4 of the Terms of Reference to produce unified data collection and reporting formats. The report contains a large number of forms; some are existing government forms, some from NGOs and some are new forms proposed by the project. The new forms are at best provisional, and in some cases only indicative of medium to long term requirements. They are intended to promote further discussion, and early comments are welcome and will considered for inclusion in the operational forms.

It is important to note that many (but not all) of the data shown in tables and figures in this report are **fictitious**, and are shown for illustrative purposes only. **None of the statistical data in this report should be assumed to be correct, nor to apply to an actual disaster.**

This report refers throughout to the Disaster Coordination and Monitoring Unit (DCMU), however, it is recognised that much of the implementation and the ongoing development of the information systems described here will actually take place under the proposed follow on project Support to Comprehensive Disaster Management project, by which time the DCMU will be subsumed into the Disaster Management Bureau (DMB).

CHAPTER 2

OVERVIEW OF DATA SYSTEM

The data collection and reporting formats presented here should be seen as part of an integrated and evolving management information system (MIS):

Stage 1

- Database for consolidating and reporting contributions by donors or by relief type.
- Improve and computerise the damage assessment forms currently in use by the Ministry of Relief, incorporating amendments resulting from Operation Sheba.
- Improve and computerise the damage assessment procedures used by the Ministry of Agriculture for crops, livestock and fisheries.
- Develop a relief allocation and tracking system for the Ministry of Relief and the Directorate of Relief and Rehabilitation.
- Allow incorporation of computer datafiles produced by NGOs on NGO relief activities into a general reporting system.
- Compile baseline data on demography, health facilities, water supply, relief stores, telecommunications and important contacts.
- Identify, and provide basic computer training for, counterpart staff for long term involvement in information systems.

Stage 2

- Develop computerised linkages between the systems described above, so that damage assessments determine needs evaluations, and relief distribution represents the optimum compromise with the existing stocks and donor contributions.

Stage 3

- Enhance the analytical and reporting power of the MIS by incorporation of the above into a geographical information system (GIS).

At present the project is developing operational systems for stage 1 of the above, and in the pilot study or conceptual planning phases for Stages 2 and 3. Indeed it is questionable whether the project should attempt to implement the later stages until the 'stand alone' systems developed in stage 1.

The 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 are shown in **Figures 2.1 and 2.2.** These figures are tentative, and may be subject to major change in the future. **Figure 2.1** emphasises the administrative structure, although for simplicity only a selection of government are shown, while **Figure 2.2** emphasises the DCMU's operational role in relief allocation.

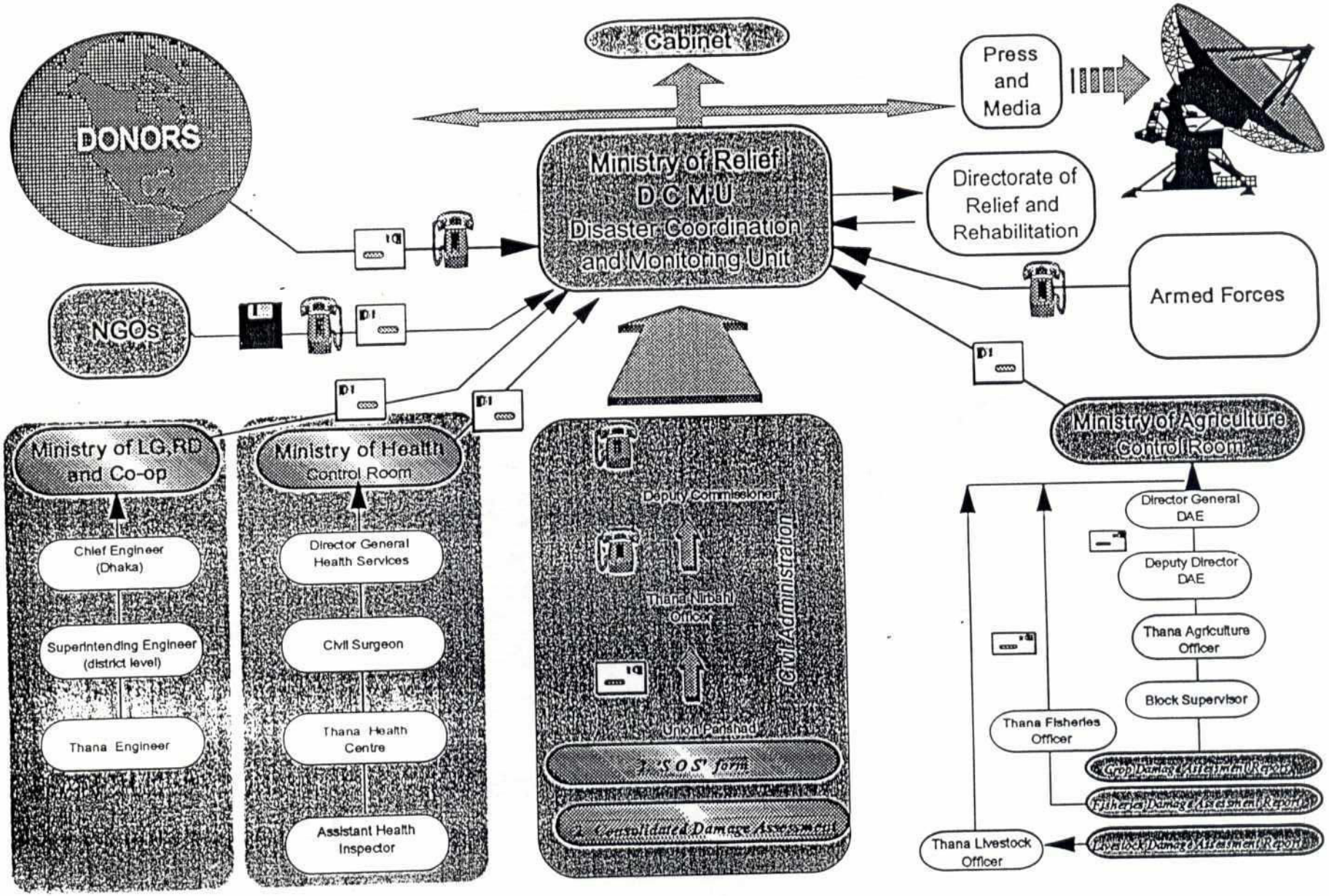
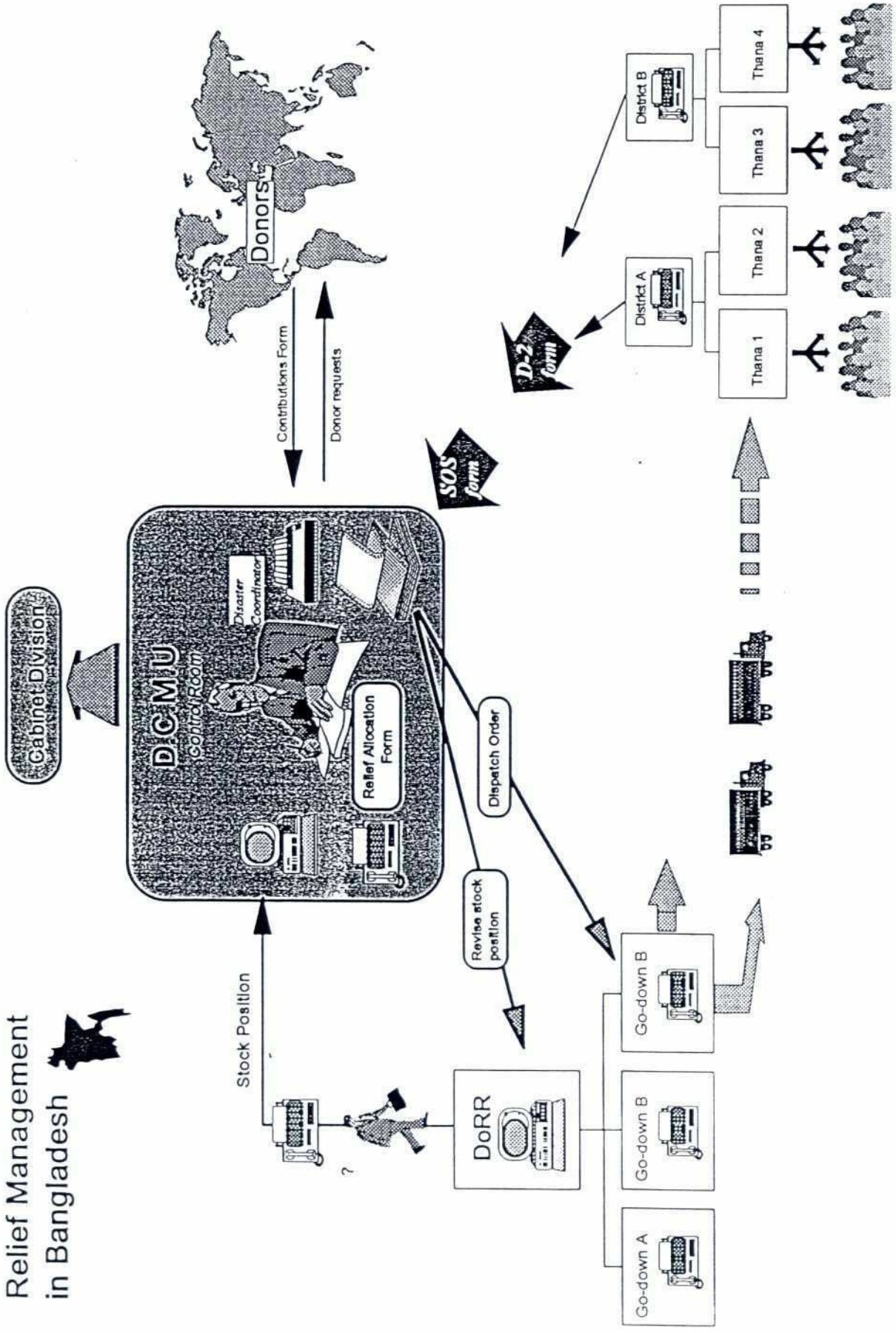


Figure 2.1
The Flow of Information Through the DCMU

Figure 2.2

Schematic Illustration of the DCMU's Role in Relief Allocation



CHAPTER 3

DONOR INFORMATION SYSTEMS

Following the experience of donors after the 1991 cyclone, it was considered necessary first to provide information to potential donors to guide them in deciding what goods and services are needed, and to whom they should be given, and secondly to help GoB keep track of what relief has been supplied or pledged. Two separate, but complementary, systems have been produced and are (potentially) operational. Both are stand alone systems, developed for use on IBM compatible computers, but both have the capability to be expanded into a comprehensive system in the future. One system has been prepared by an NGO specifically for NGO use (although also of benefit to government), and the second was written by the DCMU for relief routed through government. Although intended as operational systems, they also constitute useful sources of 'preparedness' information on donors and NGOs.

3.1 Disaster Preparedness Information System

The Disaster Preparedness Information System (DPIS) was written (under contract by Advanced Information Systems[1]) to assist donor agencies in the rational channelling of relief through NGOs, by advising them on the capability and past experience in emergency relief of NGOs. The system aims to tell the donor whether a given NGO has experience of the type of work proposed, whether they have first hand knowledge of the area, and whether the NGO has sufficient personnel to carry out the size relief programme proposed. Also, when the disaster is over, the system would provide donors, either individually or as a group, to systematically evaluate the effectiveness of the relief and rehabilitation work carried out by the various NGOs.

DPIS was developed by a local company Advanced Information Systems (AIS) under contract to PACT/PRIP, who shared the initial costs with OXFAM, UNDP, ODA (UK), CIDA (Canada) and SIDA (Sweden). It is a computer package written in R:BASE, using dBASE compatible files, and runs on any IBM compatible personal computer. The database is basically a compilation of the type and location of *normal* time operations of NGOs that may receive funds from international donors; the system being founded on the premise that this determines their capability to respond to a disaster. This might tend to exclude some NGOs who have previously carried work in certain sectors or areas, but provides a very good first approximation for selecting from the 600 or so NGOs that received foreign funds following the 1991 cyclone. Its main use is expected to be for donors to screen requests for funding. So far around 350 of those NGOs have completed questionnaires for DPIS. The information was based on activities during Flood'91, Flood'88 and Cyclone'91, as well as ongoing activities. Information in the DPIS database includes:

- name, address and phone, telex and fax numbers
- names of district where they operate
- contact person

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[1] AIS hold the source codes for DPIS.

- total number of staff
- type of relief or rehabilitation activity
- amount of funding received
- source of funds
- availability of evaluation reports

From these data, a range of reports may be generated (examples are given in **Figures 3.1** and **3.2**) :

- list NGOs by development activity
- list NGOs by rehabilitation activity
- list NGOs operating by district
- list NGO activities by donor
- full background of a particular NGO

Although prepared for NGO - donor use, DPIS is a substantial contribution to the baseline data for disasters, and will be incorporated into the MIS of the DCMU. There is a need to regularly update this information, which effectively requires the employment of one full time person. For the time being this cost is being met by PACT/PRIP and OXFAM. However, a long term source of funding is being sought.

Although DPIS was written primarily to assist donors in making rapid and rational choices between the large numbers of NGOs that may be offering to undertake relief distribution; DPIS could equally well be used by the DCMU in identifying NGOs to distribute relief in cases where the DoRR and other government agencies are not able to cope, or conversely to identify areas where NGOs are not well placed to assist in the relief programme.

The long term future of DPIS will depend primarily on the response of the donors.

3.2 Donor Contribution System

Donor Contribution System (DCS) was written by the DCMU for keeping track of the vast quantities of relief that may be given or pledged to government following a major disaster, and to allow knowledge to rapidly incorporated into the relief distribution process.
DCS is a computer package developed by the project in the dBASE language to run on any IBM compatible PC. It is intended to be used during the course of a disaster. The programs keep track of the category, specific type, source and quantity of the materials; and provides a variety of consolidated reporting formats, which allow the contributions by category, sub-type, donor or country. Information in the DCS includes:

- Donor information, including:
  - addresses in Bangladesh and abroad
  - telephone, fax and telex numbers
  - contact names

Figure 3.1

Example of Output from the 'Disaster Preparedness Information System' - I

```
                FULL PROFILE OF NGOs OPERATIONAL CAPACITY
-------------------------------------------------------------------------
Abbreviation: PMUK
     NGO Name: PROSHIKA MANOBIK UNNOYON KENDRA
      Contact: MR. QUAZI FARUQUE AHMED
      Address: HOUSE # 5/2
               SIR IQBAL ROAD
               MOHAMMADPUR
               DHAKA
               1207
     Tel:      81 5747 / 315 068-69     Total No Of Staff:        933

     Total Funding Received:  Tk132,722,027.00

               Donors Supporting Development Activities
-------------------------------------------------------------------------

                                CIDA
                                EZE - GERMANY
                                FORD FOUNDATION
                                NOVIB - HOLLAND
                                SWALLOWS - SWEDEN
                                SIDA


             Community Development Activities Per District
-------------------------------------------------------------------------
District: Barisal                          No Of Staff There:      102

                                Adult Education
                                Animal Husbandry
                                     Credit
                                Crop Husbandry
                                Group Formation
                           Health/Family Planning
                          Human Rights/ Legal Rights
                                Pisciculture
                                Rural Industry
                                Social Forestry
                    Training / Technical Assistance To Other Org
                                Water and Sanitation
-------------------------------------------------------------------------

                Total No Of Staff In All Districts : 937
```

Source : PACT/PRIP

Figure 3.2

Example of Output from the 'Disaster Preparedness Information System' - II

DISASTER INFORMATION AND BACKGROUND

1991 CYCLONE

Money Received	Commodities Received	Total Received	Donor Agency
Tk24,807,351.00		Tk24,807,351.00	CARE
Tk1,539,124.00		Tk1,539,124.00	CANADA FUND
Tk6,447,185.00		Tk6,447,185.00	EEC
Tk7,175,434.00		Tk7,175,434.00	EZE- GERMANY
	Tk500,000.00	Tk500,000.00	MSF
Tk26,658,139.00		Tk26,658,139.00	NOVIB-HOLLAND
Tk17,698,931.00		Tk17,698,931.00	SIDA
Tk1,775,000.00		Tk1,775,000.00	UNDP
	Tk60,190,000.00	Tk60,190,000.00	WFP
Tk233,367.00		Tk233,367.00	DONATION
Tk86,334,531.00	Tk60,690,000.00	Tk147,024,531.00	

Relief and Rehabilitation Activities

Burial of dead
Caring for distressed (Orphans, Old, & Sick)
Distributing clothing/ utensils
Distributing food
Distributing medicine
Distributing water / Water Purifying tablets
Organizing cash for work
Organizing credit
Providing house re-building materials
Providing medical workers
Rehabilitation of/ de-watering ponds
Repairing/ providing water supply equipment

Source : PACT/PRIP

Donor Information Entry Form

Donor name:	

Abbreviation	
Date of Information:	

Bangladesh Address		Code	Overseas Address		Code
P.O. Box :			P.O. Box :		
House/road:			House/road :		
Thana/city:			Town/city :		
District :			State/County:		
			Country :		
Phone :			Phone :		
Fax :			Fax :		
Telex :			Telex :		
Contact			Contact		
Person :			Person :		
Designation			Designation		

Donor name:	

Abbreviation	
Date of Information:	

Bangladesh Address		Code	Overseas Address		Code
P.O. Box :			P.O. Box :		
House/road:			House/road :		
Thana/city:			Town/city :		
District :			State/County:		
			Country :		
Phone :			Phone :		
Fax :			Fax :		
Telex :			Telex :		
Contact			Contact		
Person :			Person :		
Designation			Designation		

Donor name:	

Abbreviation	
Date of Information:	

Bangladesh Address		Code	Overseas Address		Code
P.O. Box :			P.O. Box :		
House/road:			House/road :		
Thana/city:			Town/city :		
District :			State/County:		
			Country :		
Phone :			Phone :		
Fax :			Fax :		
Telex :			Telex :		
Contact			Contact		
Person :			Person :		
Designation			Designation		

- Information about the type and quantities of relief according to the following categories:

  - food
  - shelter
  - transportation
  - money
  - communication
  - water supply equipment
  - medical supplies

Examples of the forms to be used in collecting background information on donors, and their specific contributions, are shown in **Figures 3.3 and 3.4** respectively. Reports can be generated on all the categories listed above, and combinations thereof. Examples of the DCMU reporting formats (by contributor and by contribution) are shown in **Figure 3.5**.

Donor Contribution Entry Form

Disaster Name	Disaster Date	Contributor Name	Item Name	Quantity	Unit	Value	Currency	Local Purchase	Estimated Arrival Date	Actual Arrival Date	Port of Arrival	Source of Information	Remarks

Figure 3.4
Donor Contribution Entry Form

Figure 3.5

Examples of Reports from the 'Donor Contribution System'

(a) By Contributor and Category

Contributor	Item Name	Quantity	Value	
EEC	Food	327	24,150	Taka
INDIA	Shelter	1,800	23,400	US$
MALAYSIA	Food	132	1,500	Taka
	Relief	300	3,300	Taka
PAKISTAN	Food	2,100	33,000	Taka
JAPAN	Food	150	12,000	Taka
	Shelter	1,332	133,320	Taka
USA	Food	2,080	169,980	Taka
	Health	88	7,790	
UNDP	Food	944	14,133	Taka
	Relief	900	3,330	US$
UK	Food	1,870	111,110	US$
OPEC	Food	880	55,500	us$
TOTAL			193,340	$
			399,173	Tk

(b) By Category and Item

Relief category	Item name	Contributor	Quantity		Value	
Food	Rice	EEC	218	Ton	16,100	Taka
		MALAYSIA	132	Ton	1,500	Taka
		PAKISTAN	2,100	Ton	33,000	Taka
		USA	990	Ton	163,980	Taka
		UNDP	900	Ton	14,100	Taka
		UK	1,860	Ton	111,100	US$
		OPEC	880	Ton	55,500	us$
	Chira	EEC	109	Ton	8,050	Taka
		USA	90	Ton	5,000	Taka
	Gur (country sugar)	JAPAN	150	Ton	12,000	Taka
	Unspecified	USA	1,000	Ton	1,000	Taka
		UNDP	44	Tt	33	
		UK	10	Tk	10	
Health	Unspecified	USA	88	Uiu	7,790	
Shelter	Tents	INDIA	1,800	Nos	23,400	US$
		JAPAN	1,332	Nos	133,320	Taka
Relief	Hurricane lanterns	MALAYSIA	300	Nos	3,300	Taka
	Matches	UNDP	900	Gross	3,330	US$
TOTAL					193,330	US$
					399,183	Taka

'ডি' ফরম

১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫	১৬	১৭	১৮	১৯

'D' Form

Sl No	Name of affected people with name of father/husband	Sl No of Assessment list	No of damaged hous		Approximate Cost	Statement of loss of Cattleheads					No of Duck and Chicken list	Approximate Cost	No of damaged trees	No of damaged fruitbearing trees	Approximate cost	Amount of crops lost per acre	Requirement of relief	Remarks
			Partial	Fully		Sheep	Bufallo	Cow	Goat	Bullock								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Figure 4.1
The 'D' Form Heading

Figure 4.2

The Operation Sheba Damage Assessment Form

ZRC OFFICE, CHITTAGONG. DAMAGE REPORT DATE: 5 JUNE, '91 (DISTRICT WISE)

DISTRICT	NO. OF UNION WARD	TOTAL AREA (Sq. Km)	AFFECTED AREA (Sq. Km)	% AFFECTED AREA	TOTAL POPULATION 1990	AFFECTED POPULATION			TOTAL AFFECTED POPULATION	TOTAL AFFECTED (%)
						WORST	BADLY	PARTIALLY		
CITY CORPORATION	41	241	96 00	39.83%	2029557	209533	208186	185592	603311	29.73%
CHITTAGONG	196	4973	2083 00	41.89%	4102157	435113	740097	541793	1717003	40.96%
COX'S BAZAR	56	2369	2270 54	95.84%	1320489	404504	238647	119152	762303	57.73%
NOAKHALI	77	3054	1298 90	42.53%	2295141	116000	223816	344303	684209	29.81%
LAXMIPUR	48	1429	1202 40	84.14%	1432797	0	116060	177971	294031	20.53%
FENI	40	984	542 00	55.08%	1147571	0	90502	130071	220973	19.78%
BANDARBAN	28	4502	1461 57	32.46%	222829	0	39155	69326	108481	48.68%
RANGAMATI	47	6272	2457 90	39.19%	387475	0	27104	29993	57097	14.74%
KHAGRACHHARI	34	2590	985 00	38.03%	357765	0	30837	69266	100103	27.98%
GRAND TOTAL	507	28414	12397.31	46.83%	13385281	1165150	1720802	1667558	4553511	34.02%

DISTRICT	DEATH	BURIAL	INJURED	FAMILY AFFECTED			TOTAL FAMILY AFFECTED	HOUSE FULLY DAMAGED	HOUSE PARTIALLY DAMAGED	LOSS OF CATTLEHEAD
				WORST	BADLY	PARTIALLY				
CITY CORPORATION	1651	658		36760	36524	32560	105844	40000	145000	55395
CHITTAGONG	76805	42503	0	76336	129842	95051	301229	385156	254125	169917
COX'S BAZAR	50014	30253	45584	70960	41868	20904	133738	148706	149297	280114
NOAKHALI	3070	2060	0	20351	39266	60420	120037	150407	81355	68917
LAXMIPUR	10	10	2900	0	20361	31223	51584	17902	27033	599
FENI	5	5	0	0	17000	22819	39819	23602	37173	219
BANDARBAN	7	2	241	0	6869	12167	19031	14919	18861	2527
RANGAMATI	15	15	863	0	4755	5262	10017	49769	27776	5222
KHAGRACHHARI	17	17	205	0	5410	12153	17562	38700	33277	1561
GRAND TOTAL	131539	75523	460123	204412	301845	292554	798861	864161	773097	584471

DISTRICT	LOSS OF POULTRY	CROP FULLY DAMAGED	CROP PARTIALLY DAMAED	LOSS OF CROP IN Tk (Million)	SALT DAMAGED (Ac)	SALT DAMAGED Tk (Million)	SHRIMP DAMAGED (Ac)	SHRIMP DAMAGED Tk (Million)	EDUCATION INS FULLY DAMAGED	
									PRIMARY	OTHERS
CITY CORPORATION	160000		4585	64 89					40	35
CHITTAGONG	318208	28936	180328	1545 93	2111	54 75	1575 85	33 40	321	343
COX'S BAZAR	491932	26349	30212	864 61	41170	876 20	40200	2441 68	166	358
NOAKHALI	77637	35958	35076	488 14	0	0 00	0	0 00	223	462
LAXMIPUR	3353	686	45008	241 03	0	0 00	0	0 00	0	0
FENI	3394	10380	39040	249 22	0	0 00	0	0 00	53	16
BANDARBAN	8180	4035	19767	90 83	0	0 00	0	0 00	40	25
RANGAMATI	6272	4274	32198	141 85	0	0 00	0	0 00	0	0
KHAGRACHHARI	33651	15064	500	97 23	0	0 00	0	0 00	0	0
GRAND TOTAL	1122657	126287	366714	3783 74	43281	930 95	41775 85	2475 00	849	1239

DISTRICT	EDUCATION INS. PARTIALLY DAMAGED		EDUCATION INS. TOTAL DAMAGE		MOSQUE DAMAGED	PACCA ROADS DAMAGED KM	KUCHA ROADS DAMAGED KM	BRIDGES /CULVT DAMAGE	EMBANK-MENT KM	FORESTRY Tk (Million)
	PRIMARY	OTHERS	FULLY	PARTIALLY						
CITY CORPORATION	80	55	75	135		120 00		20		
CHITTAGONG	976	800	664	1776	1987	177 64	1023 28	560	325 94	1073 02
COX'S BAZAR	222	65	524	287	315	86 00	72 67	135	458 86	86 67
NOAKHALI	214	167	685	381	0	8 00	500 00	0	234 38	0 00
LAXMIPUR	0	0	213	607	0	0 00	0 00	0	31 70	4 70
FENI	173	98	69	271	118	49 30	552 00	21	271 08	43 82
BANDARBAN	159	65	71	224	350	32 20	50 20	0	0 00	3 60
RANGAMATI	300	178	0	564	0	0 00	0 00	3	6 67	100 00
KHAGRACHHARI	0	0	262	117	235	35 00	122 00	5	0 00	76 32
GRAND TOTAL	2210	1428	2563	4443	3005	511 14	2321 05	744	1328 58	1388 13

DISTRICT	POWER TK IN (Million)	WOUSTRIES DAMAGE		FISHERIES In Tk (Million)	TUBEWELLS DAMAGE Nos.	PONDS/ TANKS Nos.	BOATS/ TRAWLLERS Tk (Million)	T & T Tk. in (Million)
		Nos.	Tk (Million)					
CITY CORPORATION			5500 00			1060		
CHITTAGONG	9637 65	0	7411 00	1626 70	4890	13457	1900 00	279 80
COX'S BAZAR	109 60	0	650 00	2103 75	3734	3130	700 00	100 25
NOAKHALI		53	2 32	17 03	451	945	257 25	0 15
LAXMIPUR	1 20	0	0 00	76 19	149	149	0 00	0 00
FENI	0 62	0	2 62	0 00	107	7	0 12	1 15
BANDARBAN	0 00	0	0 00	0 00	0	0	0 00	0 00
RANGAMATI	16 00	0	4 30	0 00	0	0	0 00	0 00
KHAGRACHHARI	0 00	0	0 00	0 00	0	0	0 00	0 00
GRAND TOTAL	9965 07	53	13570 24	3823 67	9335	18748	2852 37	381 30

CHAPTER 4

DAMAGE AND NEEDS ASSESSMENTS

4.1 General Damage Assessments

The source of damage and needs assessment will come through the civil administration. In the past the main source of information has been the 'D' (damage) form, the title block of which is shown (translated into English) in **Figure 4.1.** During the 1991 cyclone, the Zonal Relief Coordinator for Chittagong developed an improved version of the 'D' form as part of the Operation Sheba activities; this is shown in **Figure 4.2.**

The main weakness of all existing damage assessment forms is that do not take account of the time factor; the degree of detail should increase with time after the disaster. There is an urgent need to identify which areas are worst affected during the first 24 to 36 hours. To request a detailed assessment immediately merely slows down the reporting process, and prevents the necessary relief distribution being set in train. Therefore two forms are proposed to replace the existing 'D' form. The first, the 'SOS' form (**Form D-2.1**) collects and requests only:

- thana name
- the number of affected unions
- the approximate population affected
- the approximate number of houses destroyed
- the number of deaths
- the categories of most urgent need

and is intended to be forwarded by radio or telephone. Staff of the DCMU would immediately enter these data onto the computer. Short term relief would be distributed primarily on the basis of this form. However, there should be checks on the accuracy of these reports, and it is recommended that there should be specially trained damage assessors from the Ministry of Relief (and/or other suitably qualified individuals) who should visit the worst affected thanas (by helicopter if necessary) in the following 24 hours. The initial damage assessment might be further corroborated during the following days by reports received from the armed forces, NGOs and others. The field form for the 'SOS' report is shown in **Figure 4.3,** and the DCMU reporting format is shown in **Figure 4.4.**

The second form, or rather group of forms, is the consolidated damage assessment (**Form D-2.2**) is based largely on the forms developed for Operation Sheba, and is intended to be completed approximately one week after the disaster. This set of forms includes all the information listed above, although it will have verified by this time. Additional the civil administration to compile the sectoral damage assessments of the various line departments. This report would be the basis for planning medium to long term relief work. Subsequent to this report, line departments would prepare their own sectoral reports which would be used for planning the rehabilitation phase. The field forms are shown in **Figures 4.5 to 4.7**, and examples of the reporting formats of **Form D-2** are given in **Figures 4.8 and 4.9**.

4.2 Agriculture Damage Assessments

Issues concerning disasters and agricultural damage are discussed fully in **Volume II** of this Final Report.

4.2.1 Crop Damage

At present there are three parallel systems of reporting crop damage:

(i) through the civil administration :
- Union Parishad
- Thana Nirbahi officer
- District Commissioner
- Ministry of Relief

(ii) through the Department of Agricultural Extension:
- Block Supervisor
- Thana Agricultural Officer
- Deputy Director
- Director General

(iii) through the Bureau of Statistics:
- Field Assistant
- Thana Statistical Officer
- Regional Statistical Officer
- BBS, Dhaka

This predictably leads to a multiplicity of damage assessments. In the case of cyclones and floods, further confusion arises from the fact that the real damage to crops cannot be reliably estimated until about 2 weeks after the event. It is recommended that, in future, crop damage assessment is performed by DAE. The assessment should be performed twice, once after 2-3 days and again after 2-3 weeks. The proposed form for this purpose is shown in **Figure 4.10.** It is also recommended that the assessment forms should be countersigned (or otherwise agreed) at union level by the Union Parishad officials, and at thana level by the Thana Statistical Officer. A hypothetical example of the DCMU reporting format for crop damage (**Form D-3**) is shown in **Figure 4.11**.

4.2.2 Livestock and Fisheries

Both the Departments of Fisheries and Livestock prepare damage assessments after disasters, however, investigations by the project have shown that neither has an agreed and accepted format for reporting, this being left to the individual Thana Fisheries and Livestock officers. Consequently two new forms (**Figures 4.12 and 4.13**) have been prepared and are recommended for use by the relevant departments. In the case of the fisheries form, more importance should probably be given to the loss of equipment than the area of fisheries damaged.

Figure 4.3

The 'SOS' Damage Assessment : Field Form

'SOS' Form (D2/1)

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

URGENT NEED

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

Figure 4.4

The 'SOS' Damage Assessment : Reporting Format

SOS FORM - AFFECTED THANA NAME AND EMERGENCY NEED LISTING

Thana Name Geo_code	Disaster Date	Affected Union	Pop	Death	House des(%)	URGENT Sr	Fa	Wa	Fo	NEED Cl	Sh
30311	Cyclone 29/09/92	4	367,621	12	30	Y	Y	Y	Y	Y	N
30711	Cyclone 29/09/92	2	211,101	0	40	N	N	N	Y	Y	Y
CHAR FASSON 30925	Cyclone 29/09/92	2	518,157	0	10	N	N	N	Y	Y	N
TOTAL	Thana 3	8	1096,879	12	27 %	1	1	1	3	3	1

Sr=Search & rescue, Fa=First aid, Wa=Water, Fo=Food, Cl=Clothing, Sh=Shelter
BGD/91/021 :ASSISTANCE TO MINISTRY OF RELIEF IN CYCLONE REHABILITATION

DAMAGE ASSESSMENT FORM (D-FORM #2/2.1)

Thana Name	Affected Unions (No)	Affected Area (sq. km)	Prop. Affected Area (%)	Affected Population (No)			Death No	Buried No	Injured No	Family Affected (No)			House Destroyed (No)	House Partially Damaged (No)
				Worst	Badly	Partially				Worst	Badly	Partially		

Figure 4.5
Damage Assessment Form D-2 : Field Form (Part 1)

DAMAGE ASSESSMENT FORM (D-FORM #2/2.2)

Loss of Cattlebead	Loss of Poultry	Crop Destroyed	Crop Damaged	Loss of Crop in Tk. (Thou)		Salt Damaged (Ac)	Salt Damaged Tk. (Thou)	Shrimp Damaged Tk. (Thou)		Education Ins. Destroyed		Education Ins. Damaged	
Tk. (Thou)	Tk. (Thou)	Tk. (Thou)	Tk. (Thou)	Destroyed	Damaged			Acre	Taka	Scool/ Madrasa	College	Scool/ Madrasa	College

Figure 4.6
Damage Assessment Form D-2 : Field Form (Part 2)

DAMAGE ASSESSMENT FORM (D-FORM #2/2.3)

Mosque Damaged	Roads Destroy (Km)		Roads Damaged (Km)		Bridges/Culvert Damaged		Embank-ment	Foresty Tk	Power Tk	T&T Tk	Industries Damaged		Fisheries Tk.	Tubewells Damag (Nos)			Ponds/ Tanks	Boats/ Trawlers	Net (Tk)	Loom (Tk)
(No)	Pucca	Kucha	Pucca	Kucha	Badly	Slidely		(Thou)	(Thou)	(Thou)	Nos.	Tk. (Thou)	(Thou)	DTW	STW	HTW	(Nos)	Tk.(Million)	Primary	Other

Figure 4.7
Damage Assessment Form D-2 : Field Form (Part 3)

Figure 4.8

Damage Assessment Form D-2 : Reporting Format (Part 1)

DAMAGE ASSESSMENT FORM # 2
(DAF: 2)

FIELD SITUATION AT: 01/11/92

Thana Name	Total Area	Affected Area	(%)	Total Popu	Affected Popu Badly	Affected Popu Middle	Affected Popu Slight	Total affected Popu	Total affected (%)	Affected Family Badly	Affected Family Middle	Affected Family Slight	House Damaged Full	House Damaged Part.	Loss of Cattle	Loss of Poult	Crop Damage Full	Crop Damage Part.	Salt Damage Acre	Salt Damage Taka	Shrimp Damage Acre	Shrimp Damage Taka	Primary Schools Badly	Primary Schools Slight	Other Ed. Inst. Badly	Other Ed. Inst. Slight	Mosque
CHAKARIA	159003	1,002	2	409,346	22	222	112	356	0.087	2	4	3	4	4	40	500	660	400	2	2	30	40	2	5	6	7	8
KUTUBDIA	53324	228	8	95,035	558	2216	448	3224	3.392	111	11	34	54	55	556	55	44	33	454	55	55	55	66	77	88	76	5
RAMU	96794	50,000	52	167,480	5874	6785	3434	16093	9.609	534	44	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEKNAF	96042	4	4	152,557	50	24	55	129	0.085	2	3	5	0	30	1	1	1	1	1	1	1	1	1	1	1	1	0
BAGERHAT	57395	222	2	235,848	2002	1102	112	3216	1.364	120	200	110	10	11	43	11	11	111	20	21	12	13	10	21	21	11	1
CHITALMARI	[illegible]	2	2	127,524	2	2	2	6	0.005	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	110,926	0	50	0	50	0.045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BHOLA SADAR	[illegible]	4	[illegible]	351,674	4	4	4	12	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0
GALACHIPA	313421	[illegible]	[illegible]	286,307	2022	6541	121	8684	3.033	11	31	22	43	22	11	223	222	11	556	544	3,212	344	234	45	4323	4	3
TOTAL Thana	[illegible]	[illegible]			10,534	16,948	4,288	31770		782	295	231	113	124	651	790	938	556	1,033	623	3,310	453	317	153	4439	99	17

Figure 4.9

Damage Assessment Form D-2 : Reporting Format (Part 2)

DAMAGE ASSESSMENT FORM # 2
(DAF - 2)

FIELD SITUATION AT: 01/11/92

Thana	Pucca Road (ka) : Badly	Slight	Kacha Road (ka) : Badly	Slight	Bridge/Culvt (no): Badly	Slight	Embank: (ka)	Forestry: (Tk)	Power : (Tk)	T & T : (Tk)	Industry : (no)	(Tk)	Fish : (Tk)	T U B E W E L L S (no): DTW	STW	HTW	Ponds : (no)	Boats : (Tk)	Net : (Tk)	Loom : (Tk)
CHAKARIA	98	8	7	545	2	9	2	7,000	565	2	655	7567	2	2	2	2	2	2	2	2
KUTUBDIA	8	8	4	4	1	2	4	4	5	5	6	1	1	1	2	3	3	4	0	0
KAKU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEKNAF	1	1	1	1	6	1	1	1	1	1	1	1	1	0	0	0	1	1	0	0
RAJARHAT	12	49	81	21	4	5	1	5	3	1	3	1	1	0	0	0	10	11	0	0
[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	112	212	2	2	212	22	22	0	0	0	2	2	0	0
[illegible]	118	114	642	24	22	220	7,222	576	11	877	7592	27	27	3	4	5	18	20	2	2

Crop Damage Assessment Report

Thana ..... District .....

Sl. No.	Name of Damaged Union	Number of Blocks	Name of Crop	Area Under Crop (Acre)	Damaged/ Flooded Area (Acre)	Total Damaged Area (Acre)	Partially Damaged Area (Acre)	Extent of Partial Damage (%)	Partially Damaged Area Converted to Fully Damaged Area (Acre)	Total Area Damaged (Acre)	Damage of Crop area Compared to Total Land (%)	Expected Yield per Acre (Maund)	Loss in Production (Maund)	Value (Tk)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Reason for crop loss .....

Date of event .....

Action taken .....

Remarks .....

Name of Assessee .....

Signature .....

Designation .....

Date .....

Figure 4.10
Crop Damage Assessment Form

Figure 4.11

Sample Output of Crop Damage Reporting Form D-3

DAMAGE ASSESSMENT FORM D-3
(Thanawise Crop Damage)

FIELD SITUATION AT: 31/10/92

Thana Name	Name of Crop	Time(week) Elapsed Since Planting	Area under Crop (Acre)	Damaged Flooded Area (Acre)	Fully Damaged Area (Acre)	Partially Damaged Area (Acre)	Extent of Partial Damage (%)	Part On Area Convert to Fully On Area (Acre)	Total Area Damaged (Acre)	Propotion of damaged area Compared to Crop Land (%)	Expected Yield tonne per Acre	Loss of Production (Ton)	Price per tonne (Thou Tk)	Total Value (Thou) (Tk)
MANPURA	HYV boro	0	55	33	10	23	45	10	20	37	3.20	65	3	195
Number of Crop:	1		55	33	10	23	45	10	20	36.36	0.00	65		195

FAZLUDDIN	HYV boro	0	32	22	12	10	56	6	18	55	3.33	59	3	176
Number of Crop:	1		32	22	12	10	56	6	18	56.25	0.00	59		176

Livestock Damage Assessment Report
(Individual Owned/Govt.Owned)

Thana ..... District .....

Sl. No.	Name of Damaged Union	Number of Villages	Category of Livestock (Cow/Bullock/ Goat/Poultry/ duck/etc.	Number of Livestock Under Damaged Area	No. of Livestock		Expected Yield per 100 No. (Maund)	Loss in Production (Maund)	Value (Tk)	Fully Damaged Fodder Area (Acre)	Partially Damaged Fodder Area (Acre)	Extent of Partially Damaged Fodder Area (%)	Partially Damaged Area Converted to Fully damaged Fodder Area (Acre)	Total Damaged Fodder Area (Acre)	Damage of Fodder area Compared to Total Fooder Area (%)	Expected Yield of Fodder per Acre (Maund)	Loss in Production (Maund)	Value (Tk)	Remarks
					Dead	Deceased													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Reason for Extensive ...
Date of event
Action taken if any
Remarks

Name of Assessee .....
Signature .....
Designation .....
Date .....

Figure 4.12
Livestock Damage Assessment Report

Fish Damage Assessment Report

Thana ..... District : .....

Sl. No.	Name of Damaged Union	Number of Villages	Number Ponds/ Ditches	Category of Fishes *	Area Under Fishes (Acre)	Damaged/ Flooded Area (Acre)	Total Damaged Area (Acre)	Partially Damaged Area (Acre)	Extent of Partial Damage (%)	Partially Damaged Area Converted to Fully Damaged Area (Acre)	Total Area Damaged (Acre)	Damage of Fish Rearing are Compared to Total Fish Rearing Area (%)	Expected Yield per Acre (Maund)	Loss in Production (Maund)	Value (Tk)	Category of Fishing Equipment **	Cost of Damaged Equipment (Tk)	Value (Tk)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

* Common Carp, Cat fish, Zeol fish, Fingerlings, Eggs ** Nets, Boats, Trollers & other equipments

Reason for fish loss
Date of event
Action taken against
Remarks

Name of Assessee .....
Signature .....
Designation .....
Date .....

Figure 4.13
Fisheries Damage Assessment Report

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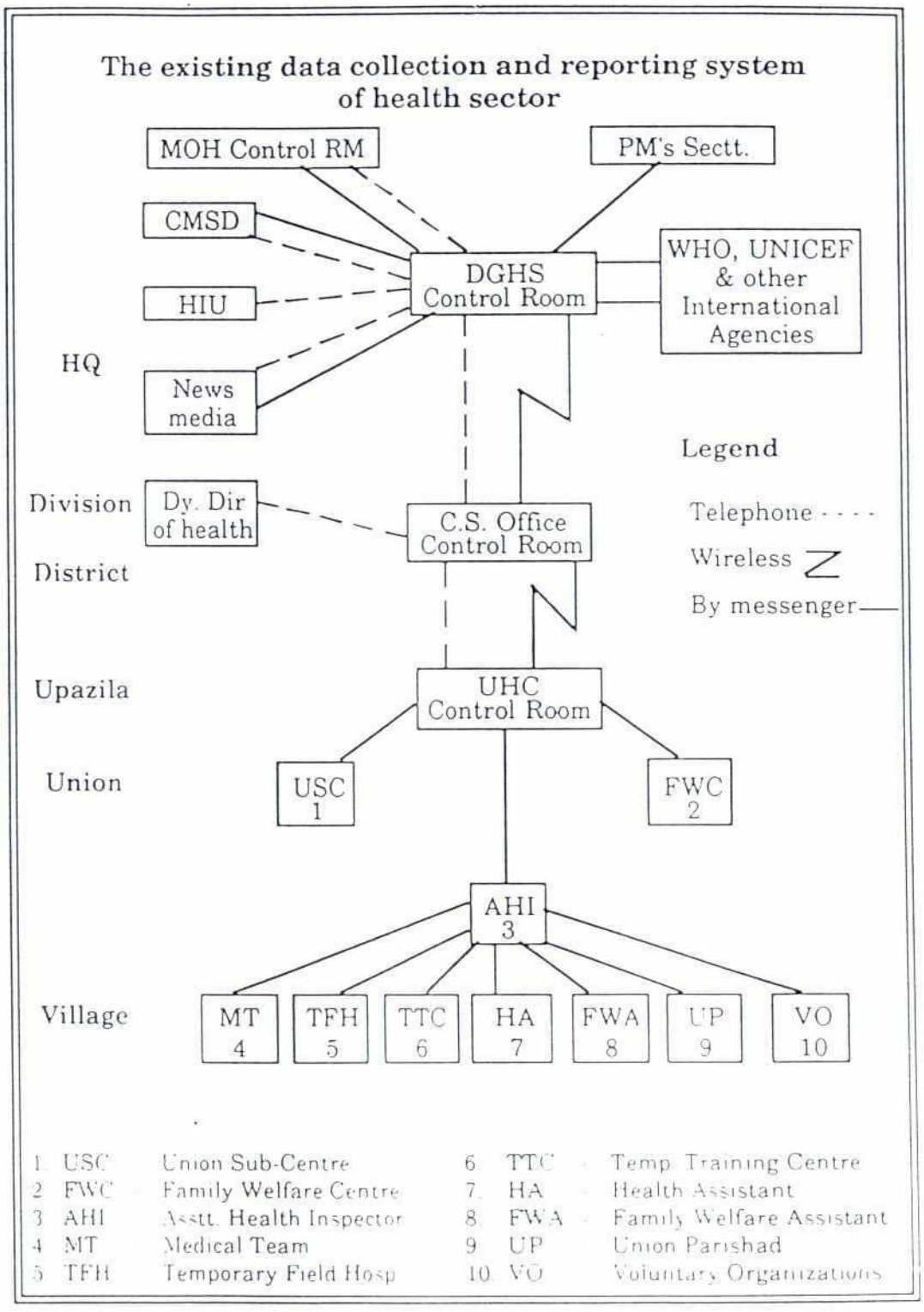
Figure 4.14

Data Collection and Reporting in the Health Sector



Source : M.A. Hafez. 1992. *In:* Workshop on 'Lessons learnt during Cyclone - April 1991', GoB/WHO, Dhaka.

4.3 Other Damage Assessments

Detailed damage assessments of other sectors of the economy such as infrastructure, water supply and sanitation would not be a high priority for the operational functioning of the DCMU. Those reports received through the civil administration (as described in section 4.1 and **Figures 4.5 to 4.9**) should prove adequate to give an early picture of the total damage. More detailed reporting should be left to the line agencies that would be responsible for implementing a rehabilitation programme. Summary information might be collected later from the headquarters of the relevant agencies.

The health sector differs from the other sectors of direct concern to the DCMU in that there is already an Emergency Preparedness Programme (EPP) for health and currently receiving assistance from WHO. The DCMU should exchange data with the EPP, rather than attempt to duplicate its function. The system of data collection and reporting in the health sector is illustrated by **Figure 4.14.**

CHAPTER 5

RELIEF MANAGEMENT

5.1 NGO Activities

PACT/PRIP and ADAB have developed (again under a contract with Advanced Information Systems[2]) a computer system for tracking NGOs relief activities, known as the Disaster Response Tracking System (DRTS). The package is developed in R:BASE and runs on IBM compatible computers. The information is divided into relief and rehabilitation categories, each with separate entry forms as shown in **Figure 5.1 and 5.2.** Reporting consists in listing the quantity and value of materials delivered to each thana or union, or the number of people that have benefited from a particular relief programme. It appears to be aimed mainly at NGOs internal requirements for accounting to their donors. It is not directly linked to either baseline data on population or an associated assessment of damage or needs. Therefore, as it stands the system is of limited value to the DCMU, however, it has the potential to be integrated into a general system as proposed below. Its value will be fully realised only when linked with damage and needs assessments.

5.2 Government Activities

Although the systems have not yet been coded, it is planned that a relief distribution tracking system will be developed for the DCMU. Initially it will be developed as a stand-alone system, but this should be seen as an interim solution. In the longer run the relief distribution will be reported in parallel with the various damage assessments, and cross referenced with the baseline data. Such co-reporting would provide a degree of internal evaluation of the effectiveness of the relief programme, especially when NGO relief is combined on the same form. The following principles should guide the development of comprehensive relief management information system:

i Effective relief management can only be developed from an accurate and timely system for damage assessment. The damage reports should follow an agreed chronology and format.

ii Needs assessment must be derived from the damage assessment.

iii Coordinated, real-time allocation of relief presupposes a continuously updated computerised inventory of:

- the location and quantity of materials in go-downs
- the location and availability of all modes of transport
- the condition of the relief distribution routes for each mode of transport
- The availability and price of goods in the commercial wholesale markets

---

[2] AIS hold the source codes for DRTS.

DISASTER RELIEF ACTIVITIES REPORT

NGO _____ DISASTER _____ DATE: _____

A : NGO Relief by Program, Area, Item, Population Served

1 Program	2 District	Code	3 Upazilla	Code	4 Union	Code	5 Village	Code	6 Items	7 Quantity	8 Measure	9 Popu. Served

B : NGO Relief by Program, Donor, Fund

1 Program	2 Donor	3 Cash Received	4 In Kind Received	5 Amount Spent

Relief Program Names	please tick (√)
Burying Dead	
First Aid	
Medicines	
Food	
Clothing	
Water Supply	
Sanitation	
Shelter	
Medical Teams	
Utensils	
Transportation	
Camps	
Cash for Work	
Credit	

Source : PACT/PRIP

Figure 5.1
DRTS : Disaster Relief Activities Report

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Source : PACT/PRIP

DISASTER REHABILITATION ACTIVITIES REPORT

NGO _____ DISASTER _____ DATE _____

NGO Rehabilitation by Program, Area, Item, Population Served

1 Program	2 District	Code	3 Upazilla	Code	4 Union	Code	5 Village	Code	6 Items	7 Quantity	8 Measure	9 Popu. Served

NGO Rehabilitation by Program, Donor, Fund

1 Program	2 Donor	3 Cash Received	4 In Kind Received	5 Amount Spent

Rehabilitation Program Names	
	please tick (√)
Housing Rebuilding	
Public Infrastructure	
Cash Credit	
Cash for Work	
Food for Work	
Tools/Equipment	
Rehab. Water Supplies	
Health Education	
Rehabilitation of Disabled	
Providing Agric. Advice	
Cash for Training	
Seeds/Seedlings	
Draught Animals	

Figure 5.2
DRTS : Disaster Rehabilitation Activities Report

Figure 5.3

Possible Relief Allocation Format

Energency Relief Allocation Entry

Thana : MORRELGANJ	Geocode 30160
Affected Population	367621

Energency relief for a family of 6 for one week		Indicative Allocation for Affected pop:	Actual Allocation
Chira/Biscuit/Chapati /Cook food	10 Kg	612701.67 Kg	1111
Molasses (Gur)	2 Kg	122540.33 Kg	2222

Energency relief for a family of 6 for one week		Indicative Allocation for Affected pop:	Actual Allocation
Water purification tablets	7 pc	428,891 pc	3333
Plastic jericans	2 pc	122,540 pc	4444

Energency relief for a family of 6 for one week		Indicative Allocation for Affected pop:	Actual Allocation
Lungee	2 pc	122,540 pc	5555
Saree	2 pc	122,540 pc	6666
Children Cloth	2 sets	122,540 pc	7777
Plastic jug	1 pc	61,270 pc	8888
Plastic mug	1 pc	61,270 pc	9999
Plastic bowl	1 pc	61,270 pc	1111

All input correct ? N

The maintenance of such information must be an integral part of the day to day operation of the concerned organisations. It would not be practical for the DCMU to do this. The compiled information must be immediately available to the DCMU in computer format, and programs written to interact with the systems of the both the other organisation and the DCMU.

iv The systems should include a two-way dialogue with the donor agencies, transferring information on what is being offered and what is being requested.

v A computer package for relief allocation tries to achieve a compromise between points (i) to (iv).

Operational computer systems cannot be produced at this stage because the precise chains of command through which the DCMU would operate are not known. However, a prototype system to illustrate how an operational DCMU **might** work are shown in **Figure 5.3**, which is a print-out of a computer screen that a '*relief coordinator*' might use to allocate resources. The concept between the computer screen is that *per capita* allocations are more or less predictable, and that a set of nominal allocations can be combined with the damage reports to provide the '*relief coordinator*' with tentative allocations for each thana, which he would review in the light of the actual stocks and transport available to him to determine a specific allocation. Such a form would be used in the context of an organisational environment shown earlier in **Figure 2.2**. This computer program will require careful field testing (and probably revision) under the proposed follow on project Support to Comprehensive Disaster Management before making it an operational system.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

The project has collected and reviewed the available forms used for the assessment of damage and for monitoring relief programmes. The principal forms have been included in this report, both as they would be used in the field and in the format that the compiled data would be reported in Dhaka. Where appropriate revisions to these forms have been proposed. It is widely recognised that these forms should be compiled into a computerised system, at least at national level. This process has been initiated for NGO activities by the PACT/PRIP organisation. The DCMU has commenced on the development of a comprehensive management information system. Such a task cannot be completed in one phase. The systems must be constructed as modules which can be field tested. Such activity will require implementation and development along side government staff who have not yet been appointed. Also the performance of the systems during future disasters must be evaluated, and appropriate changes made. Operational linkages must be built between the modules of the MIS, and procedural and computer linkages must be established with the information systems used by other agencies such as the Ministry of Food, FAO, WFP, EPP and ADAB.

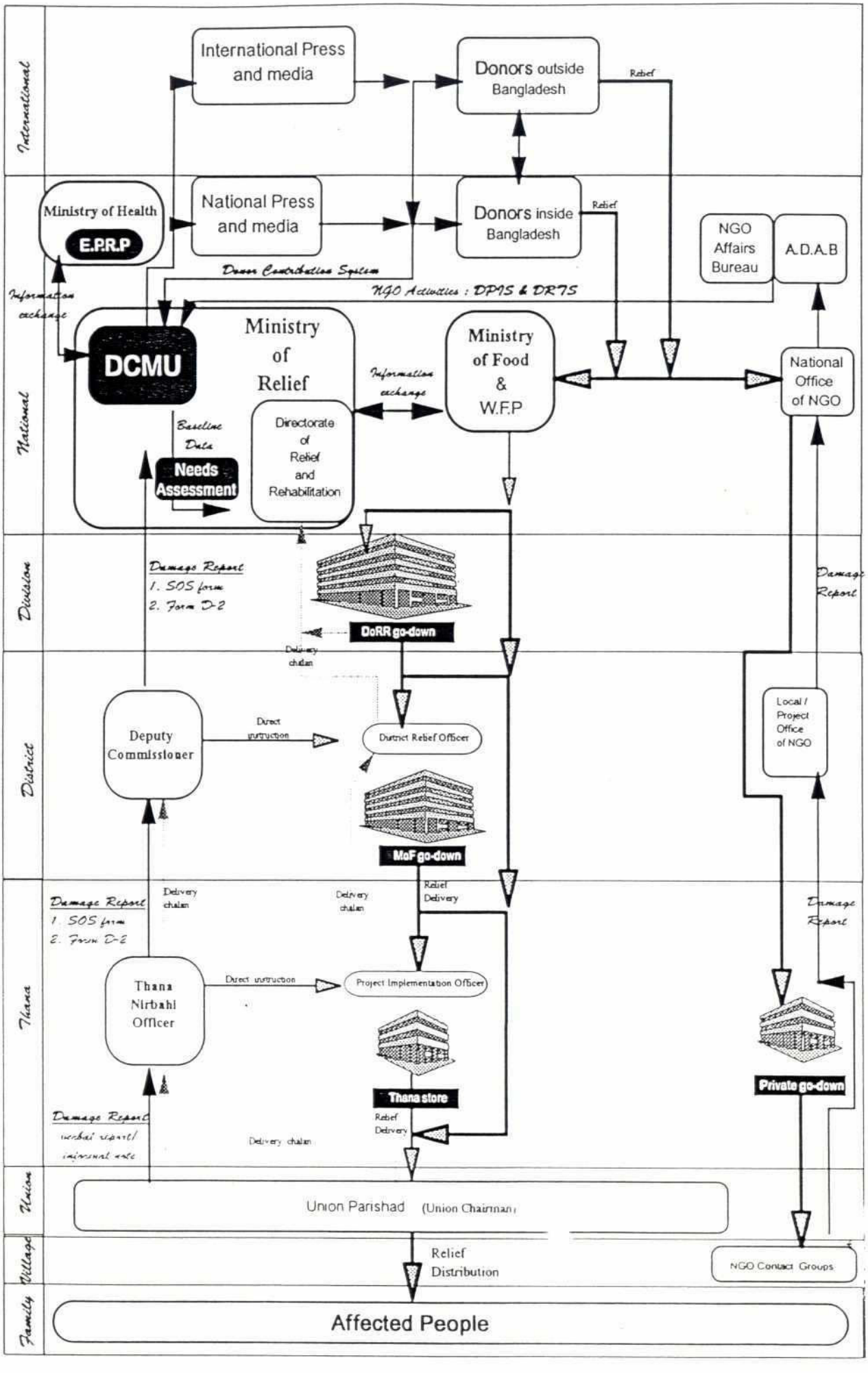
Computer systems have been developed, either by the DCMU or PACT/PRIP, to a (potentially) operational level for the following purposes:

- Evaluating NGO capability to carry out disaster relief
- Tracking donor contributions to government, and advising
- 'SOS' Damage Report for the Ministry of Relief
- Consolidated Damage Assessment for the Ministry of Relief
- Damage assessments for crops, livestock and fisheries
- Tracking relief distribution by NGOs

In addition there is a prototype system to assist in determining relief allocations by MoR and DoRR, however, this should not be implemented without substantial testing.

Figure 6.1 attempts to describe the scope of information transfer during the damage assessment and relief distribution process.

Figure 6.1
Information Channels in the Relief Process



ANNEX A

Project Experience During the Cyclone Alarm of 20-21 November 1992

A.1 Introduction

During the third week of November 1992 a major depression built up over the Bay of Bengal. On the 20 - 21st November, the Bangladesh Meteorological Department issued storm warning signal Nr 10 in various parts of the coastal area. As it turned out, the cyclone turned away and passed to the south of Cox's Bazaar, causing only minor damage. During the alert stage, the DCMU prepared to try to assist, by moving its computers (together with the computer systems described in this report) into the Control Room of the Ministry of Relief. Of course, as it turned out the systems could not be tested in earnest, however, the opportunity was taken to give demonstrations and conduct some training for ministry staff on the use of the systems. For this purpose a computer was located in the Relief Control Room (RCR) for a period of 10 days.

The Consultants experience during this time was very encouraging with regard to both the enthusiasm of the more junior staff to learn and apply computer techniques to their work, and also the appreciation of more senior staff of the potential benefits of computerisation. Following this experience an additional six staff were selected for basic computer training, to be followed by an on-the-job training programme.

A.2 Organisation of the Relief Control Room

The manpower attached to the RCR is as follows:

-	Officer-in-Charge	3
-	Engineering Supervisor	1
-	Radio Technician	3
-	Draughtsman	1
-	U.D.Assistant	2
-	L.D.Assistant	4
-	Typist	3
-	Telephone Operator	2
-	Peon	3

The posts of 'officer-in-charge' are permanent. According to the RCR staff these posts are 'non transferable'. For direct recruitment, the minimum qualification is a masters degree.

RCR telecommunications facilities consist of leased telephone lines linking 20 District HQs. integrated into an aging PBX, and a HF/SSB radio telephone network linking 54 out of 64 District HQs. The PBX has been in operation for more than 20 years and requires early replacement. The HF/SSB radio telephone transceivers located at the control room and at out-station District HQs, have been in operation since 1972, and their present performance is far from satisfactory. Spares are no longer available for the wireless system. They have adequa-

maintenance staff but no workshop facilities. Maintenance work of all radio equipment is presently being undertaken by technicians on deputation from the T&T Board.

In 'peace time', the Control Room is open 16 hours a day and supervised by one officer-in-charge for each of the 8 hours periods - from 6 a.m to 2 p.m, and from 2 p.m to 8 p.m The HF/SSB radio telephone network open 3 hour per day from 10.30 a.m to 12 noon, and from 3.30 p.m to 5 p.m. During emergency periods the control room works round the clock with three shifts.

When an emergency occurs, the Control Room first transmits messages to all of the 54 districts at one time. After completion of the delivery message they receive messages from different districts one by one. They also receive messages from down to thana level over the telephone - at any time of the day. On 26 November 1992 they received one damage report from Cox's Bazar (about the cyclone in Teknaf) by telephone, which took half an hour. After receiving the message they sent it to their typist and then delivered it to different officials. Sometimes it takes several hours to complete the processing of one message using this procedure.

A.3 Short Term Computer Training

A short, *in promptu* introductory course was arranged in the Control Room. From the outset RCR staff were shown how computers could generate reports from their real data. When they saw the hard copy of reports from their data they were surprised. They said that it sometimes took several days to generate this type of report. With a computer it took half an hour to edit data and generate a new report. They also requested that a program for data entry and report generation for their "1992 Relief Sanctioned by MOR" be written (see section A.4). Various computer programs were demonstrated - and the particular applications of every program or system such as the Donor Contributor System, the Damage Assessment forms (SOS, D-2, crop damage etc) were emphasised. Standard software packages such as LOTUS, dBASE, and Wordperfect were also demonstrated. The Participants in the course were:

Kazi Bodrudozza	Officer-in-Charge
Md. Ali Akbar Bhuiyan	Officer-in-Charge
Md. Dalil Uddin	Officer-in-Charge
Md. Mokkashur Rahman	Radio Technician
Md. Md Ashrafuzzaman	Radio Technician
Md. Golam Kibria	L.D. Assistant

Participants were generally positive about the computer programs developed by DCMU. All thought that the programs were 'very relevant' to their work. The majority of the trainees were found to be very capable, and they reacted well to the interactive style of the training. The trainees were cooperative and attentive. It was observed that the younger participants were particularly eager to learn, and open minded to receive new technology. There were requests to place a computer permanently in the RCR.

A.4 Reporting Formats and Activities

During and just after the alert period the RCR was noted to be involved to be involved with the following activities:

i) After a disaster the RCR prepares damage reports every day and sends them to different officials.

ii) The RCR prepares statements of sanctioned relief goods for different districts or thanas. This may continue for six months or longer.

iii) The RCR prepares damage assessments and relief distribution reports for disasters such as accidents and fire.

iv) The RCR prepares weekly statements on the various development works such as:
- Test relief
- V.G.D. works
- I.F projects
- BWDB projects
- Fisheries projects

During the course of the training, ministry staff drew the Consultants attention to three reporting formats currently in use but not previously in the possession of the DCMU. These forms are included here as Tables A1 to A3. It should be noted that the damage assessment form shown in Table A.1 is not the only one in use currently in use in the RCR. There are also special forms prepared for 'non-standard' disasters such as providing relief to the Rohingya refugees. Table A.4 shows a summary of relief sanctioned during 1992. This form was prepared during the course of the training described in Section A.4; and was based directly from papers currently in use in the Relief Control Room. It may noted that there are no dates and the name of the disaster or disasters are not given. The form was prepared primarily as a training exercise an no doubt there is room for improvement. This form, as with Tables A1. to A.3, is included as background information only, but will be given full consideration during the ongoing development of the Management Information System for the DCMU.

TABLE A.1

Damage Assessment Format Currently Used by the MoR Control Room

Sl. No.	Name of District	No. of Thana	No. of Pourasava	No. of Union	Total Population	Affected Population	Affected Area
1	2	3	4	5	6	7	8

Continued

Crops Damaged in Acres		House Damaged (in numbers)		Human life Lost	Cattlehead Lost	Poultry Lost
Fully	Partly	Fully	Partly			
9	10	11	12	13	14	15

Continued

Educational Institution Damaged (in Numbers)		Mosque/Madrasha Damaged (in Numbers)		Road Damaged (in KM)		Bridge/Culvert (in Numbers)	
Fully	Partly	Fully	Partly	Fully	Partly	Fully	Partly
16	17	18	19	20	21	22	23

Continued

Embankment Damaged (in KM)		Remarks
Fully	Partly	
24	25	26

TABLE A2
Relief Sanctioning Form used by MoR Control Room

RELIEF SANCTIONED FOR FLOOD AFFECTED AREAS

Sl. No.	Name of District	G.R. Cash	H.B. Grant	Carrying Cost	Contingency	G.R. Rice (M.T.)	G.R. Wheat (M.T.)	T.R. Rice (M.T.)	T.R. Wheat (M.T.)
1	2	3	4	5	6	7	8	9	10

Continued

C.I. Sheet Bundles	Saree/ Dhuri (numbers)	Lungi (numbers)	Clothing	Biscuit (Tin)	Milk Powder	Gur (Kg)	Chira (Kg)	Bread/ Chapati (in Numbers)	Utensils (Numbers)
11	12	13	14	15	16	17	18	19	20

Continued

Water Purifying Tablets (Numbers)	Match Box Gross	Others	Remarks
21	22	23	24

TABLE A.3

RADIO MESSAGE
MINISTRY OF RELIEF
RELIEF CONTROL ROOM

From :_____

To : 1._____

2._____

MESSAGE Nr:_____ DATE:_____

MESSAGE TRANSMITTER'S NAME:
DESIGNATION :
DATE
TIME

MESSAGE RECIPIENT :
DESIGNATION :

TABLE A.4

BGD/91/021 : STATEMENT OF RELIEF SANCTION FOR VERIOUS DISASTER BY MOR
FROM / / TO / /

Dhaka Division

Slno	Dist	GR Wheat MT.	GR Rice MT.	GR Taka	HB Taka	Trans Taka	Sharee Pc.	Lungi Pc.	Biscuit Tin/Cort	CI Sheet Bundle	Milk	Old cloth
1	Dhaka	0	13.	93000	0	0	585	735	190	598	35	0
2	Manikgonj	0	22	21000	75000	0	350	350	0	4	0	0
3	Munshigonj	0	36	31500	0	0	550	600	250	226	0	0
4	Gazipur	0	0	3000	0	0	0	0	0	218	0	0
5	Narayangonj	0	37	64000	0	0	670	570	450	120	20	0
6	Narshindi	0	0	42000	0	0	125	25	50	354	0	0
7	Mymenshingh	1	5	62000	0	0	375	175	300	455	20	0
8	Kishoregonj	0	0	500	0	0	0	0	0	2	0	0
9	Jamalpur	0	0	32000	0	0	100	100	25	5	0	0
10	Netrokona	0	123	10000	0	0	200	400	300	150	30	0
11	Tangail	0	28	166500	0	0	300	200	50	2328	0	0
12	Sherpur	0	20	105500	0	0	168	168	12	104	0	0
13	Faridpur	0	5	20500	0	0	100	10	50	59	50	0
14	Rajbari	0	0	0	0	0	0	0	0	108	0	0
15	Gopalgonj	0	0	1000	0	0	0	0	0	4	0	0
16	Madaripur	0	66	217000	0	0	1100	1100	400	165	0	0
17	Shariatpur	0	0	112500	0	0	100	100	50	2	25	0
18	DG Relief	0	0	0	0	3215723	0	0	0	0	0	0
Dhaka	18	1	358	982,000	75,000	3215,723	4,723	4533	2127	4900	180	0

ANNEX B

DISASTER MANAGEMENT BUREAU/ DISASTER COORDINATION AND MONITORING UNIT

MIS USER MANUAL

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Note: The systems and data bases described were developed by the Disaster Coordination and Monitoring Unit (DCMU) which was established on June 1992. The DCMU was subsumed into the Disaster Management Bureau in April 1993.

ANNEX B

DISASTER MANAGEMENT BUREAU/ DISASTER COORDINATION AND MONITORING UNIT

MIS USER MANUAL

B.1 INTRODUCTION

B.1.1 General

The Disaster Co-ordination and Monitoring Unit (DCMU) the precursor of the Disaster Management Bureau (DMB) has developed a number of information systems to assist (primarily) the Ministry of Relief and other organisations concerned with disaster management in Bangladesh. The systems developed fall into two basic groups that may be termed Operational Systems and a Decision Support System. The operational systems specifically address the emergency phase activities of damage assessment, relief allocation and interactions with the donor agencies. For the operational system DMB has developed two separate **User Handbook** on MIS. One is for 'Damage and Need Assessment System' and the other for 'Donor Contribution System.'

A wide variety of baseline data, covering demography, health, agriculture, infrastructure and administration, have been assembled into a Decision Support System to form as accessible pool of existing information during emergencies. An outline of the DMB/DCMU Management Information System (MIS) is shown in **Figure B1.1**. Externally devised systems, developed for NGOs by PACT/PRIP have been incorporated into the MIS. With the exception the NGO systems, all computer programs have been written using dBASE IV. For reasons of integrity, copies of the MIS are being distributing as RUNTIME modules only, however, source codes are available on request.

At its most general level, the MIS program may be initiated by typing <DMB> at the DOS prompt which starts the self explanatory menu shown in **Figure B1.2.**

B.1.2 Installation

The programs and database files required to run the DMB/DCMU Management Information System are all included on a diskette at the back of this report. The programs and data files are contained in four compressed files:

- DATABASE.ZIP
- DONOR.ZIP
- DAMAGE.ZIP
- DPIS.ZIP

Type **Install** from A: Drive to copy all files to appropriate directories, or these files should be copied to the following directories separately:

Directory Name	Purpose	Hard Disk Space Required[1]

[1] These figures allow around 10-30% for additional data entry.

C:\DMB\DATABASE	Baseline data	3.5 - 4 MB
C:\DMB\DONOR	Donor Contributions	1 MB
C:\DMB\DAMAGE	Damage Assessments	2.5 MB
C:\DMB\DPIS	NGO preparedness	6 MB

Once copied to the target directories, the files should be decompressed using the program PKUNZIP (*usage* pkunzip <*zip file name*> *.*). To run the programs, either dBASE IV or dBASE RUNTIME and Norton Utility must be installed on the computer.

Figure B.1.1

Components and Directory Structure of the DMB/DCMU Management Information System

(1) A computerised preparedness information for NGOs developed by PACT/PRIP

(2) A pilot study to investigate the potential of GIS in disaster managment is being carried out during project extension period in collaboration with FAP:19.

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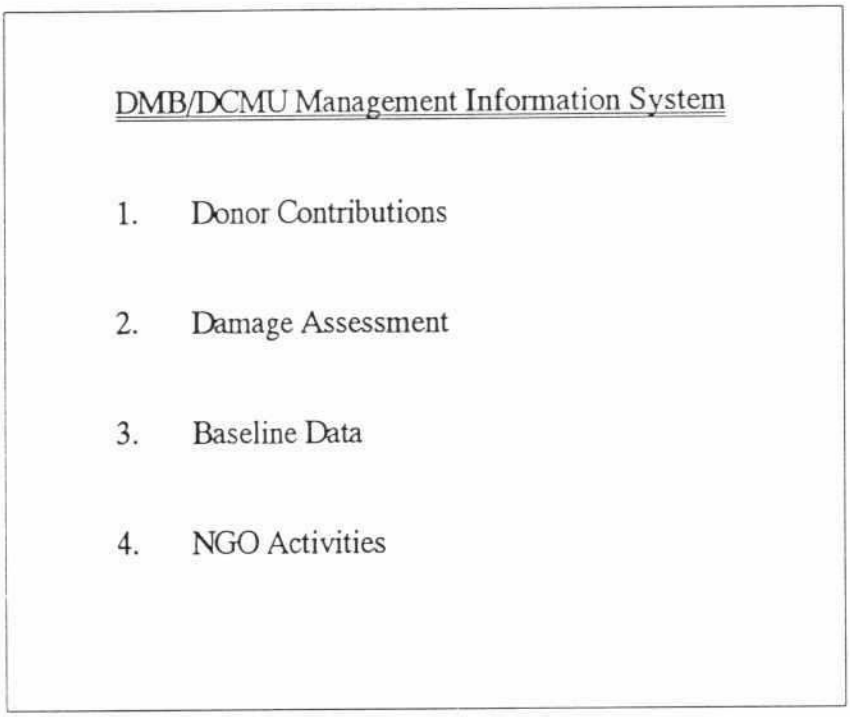
Figure B1.2

Opening Menu of the Management Information System



B.2 BASELINE DATA : A DECISION SUPPORT SYSTEM

B.2.1 Introduction

A wide range of data on facilities, resources etc. have been integrated through a user friendly menu system into a Decision Support System (DSS) which allows the retrieval and analysis of information according to the following criteria :

- geographical area/administrative unit
- a particular disaster event
- key words for particular subjects.

The DSS is not complete in terms of data definition, in fact it probably never will be since new data will continue to become available, and old data will require correction. The DSS has been designed to be as general as possible. At present, the DSS contains information on the following:

- Administration: lists of all thanas, districts and unions
- Demography: 1991 BBS census statistics at union level
- Telecommunications: radio and radio-telephone lines for the whole country.
- Agriculture and irrigation statistics by thana
- Land characteristics: flood phase distribution by thana
- Cyclone shelters: purpose built shelters and other two storied buildings
- Storage: capacity and location of all Ministry of Food godowns
- Health, numbers of hospital beds and location of health centres
- Markets: products available from the main trade centres
- Damage: records of past disasters

The analytical capacity of the DSS is presently limited, owing to restrictions of time and higher priority given to establishing a strong database. However, it is considered that the structure established provides a solid foundation for the development of powerful analytical tools in the future, especially when linked into a Geographical Information System (GIS). The concepts are shown schematically in **Figure B2.1**.

B.2.2 Operation

For the system user, operation is largely intuitive and self-evident. The DSS may be actuated in any of three ways:

- from the opening menu shown in **Figure B1.2** (itself initiated by typing <DMB>).
- from the DOS prompt by typing the following commands:
  - CD\DMB\DATABASE
  - DBASE GDBMENU
- from WINDOWS by double clicking on the icon named "Geographical Database"

Upon activating the DSS by any of these means, the user is presented with a bar menu at the top of the screen, with titles such as "Location", "Applications", "Update" and "Help". Navigating with the cursor keys the user presses <ENTER> on the desired topic and a pull down menu appears. Use the up and down cursor keys and press <ENTER> to run the named program, or press either the left or right cursor key to cancel the pull-down menu. At every stage of the operation, the bottom line of the screen gives a more detailed description of what the highlighted

option will do. Photographs showing the typical appearance of the menus are shown in **Appendix A. Table B2.1** lists the range of applications available in the DSS, and samples of the program outputs are given in **Appendix B.**

It has been assumed that in most operations, the user will want to specify either a particular disaster event, a specific geographical area or both. It has been a design principle that the user should select the names of places or events from lists generated by the computer, because typing these in inevitably leads to errors and confusion. The DSS adopts the BBS hierarchical geocoding system, which consists of a concatenated string of numbers, which may be from one to ten characters long depending on the administrative level:

- 1 digit code for the division
- 2 digit code for the (new) district (total 3)[2]
- 2 digit code for the thana (" 5)
- 2 digit code for the union (" 7)
- 3 digit code for the mouza (" 10)

A single digit geocode "0" is used to refer to international data. The international geocode may be extended by appending international telephone dialling code of the concerned country. The BBS geocodes are fundamental to the programming of the DSS, but although they are often displayed, the user is never required to know them. The procedure in the DSS is to first specify a geographical location (plus any other filter criterion) and then select an application. An example of these procedures is shown in Box.1.

Both the DSS and the operational systems make use of a system of a system of codes to refer to different disaster types and also disaster events. The choice of codes was basically arbitrary, but a cross reference between these local codes and the proposed standard international codes of UNDRO has been built into the database structure.

B.2.3 Data Specification

a) Administration and Demography

These data are taken from the BBS 1991 census data. List of names and geocodes for divisions, greater districts, districts and thanas are complete at national level. List of unions and their geocodes are substantially complete. Total areas and 1981 population data are complete at thana level 1991 population data are being entered manually as the "Community Series" publications are issued, as BBS refuses to release their data on diskettes in advance of printing.

The following information are being entered at union level:-

- male and female population
- male and female literacy (7 years plus)
- number of households
- house construction (brick/cement, C.I. sheet, thatch)
- household water supply (tap, tubewell, pond, river)
- houses with electricity.

---

2 Older data, from other sources may use a different two digit code referring to the twenty greater districts. The master file for districts (ZILAS.DBF) includes cross references to these codes.

Figure B2.1
Conceptual Description of the Decision Support System

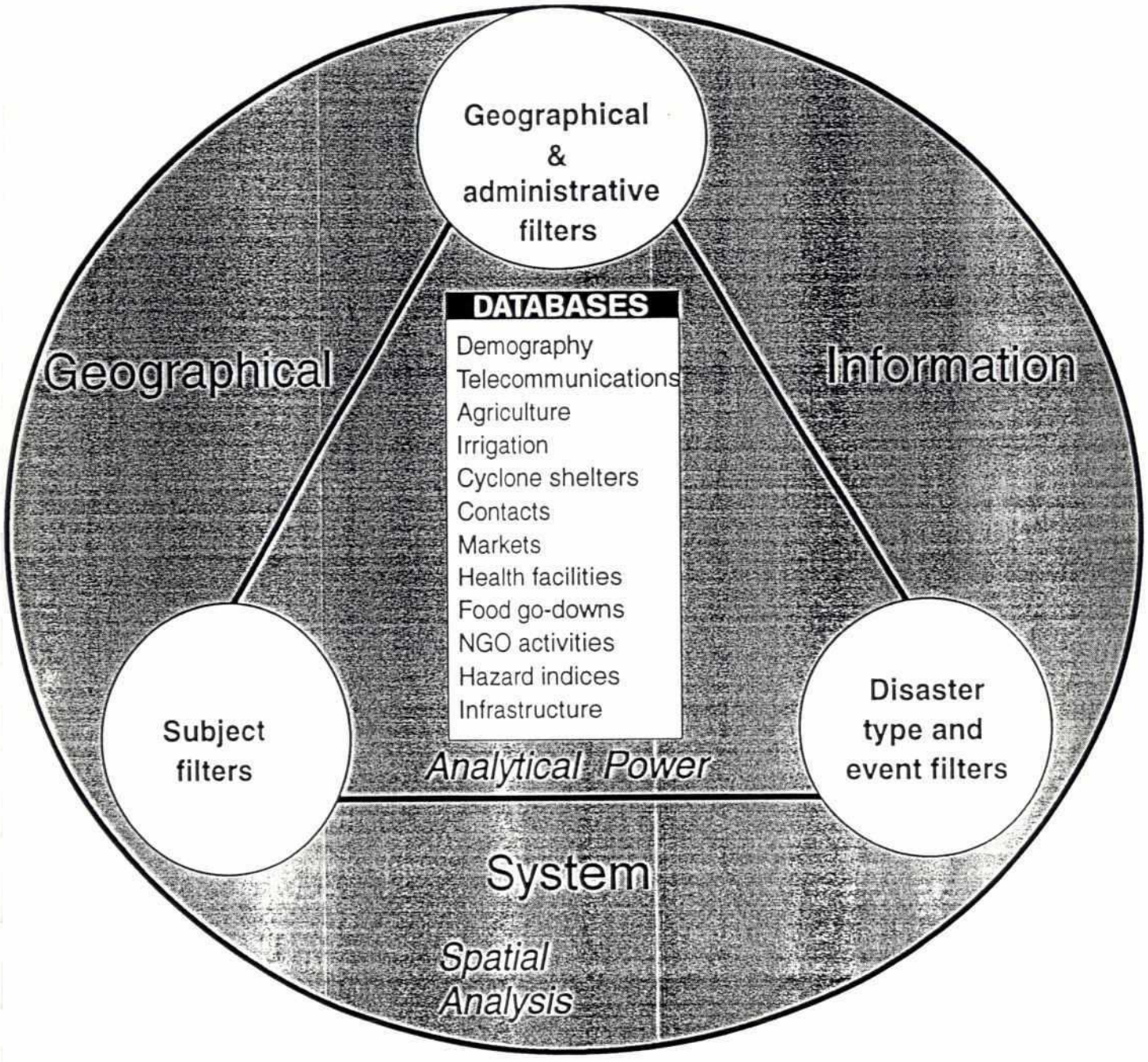


TABLE B2.1

Menus and Applications in The Decision Support System

LOCATION

- Choose a country
- Choose a Division
- Choose a District
- Choose a Thana
- Choose a Union
- Choose a Mouza
- Search for a place name

APPLICATIONS

- Report damage for specified location and disaster
- List hazard and risk indices for a district
- BBS 1991 census results for a thana or union(inc. literacy, housing & water supply)
- List all telecommunications links to and from a district or thana
- List contact personnel in a given district or thana
- Inventory of cyclone shelters and 2 storeyed in a thana
- Report on agricultural cropping patterns and minor irrigation in a thana
- Land type (flooding) characteristics of a thana
- Products available from main commercial markets in a thana or district
- Health facilities at thana or district level
- Capacity of food go–downs in a district or thana (inc. LSDs, CSDs & silos)
- Infrastructure and transport links in a thana or district
- Directory of NGO offices in district

SUBJECT

- Specify a disaster event
- Select a subject to filter the databases by

UPDATE

- Reindex all database files
- Recalculate 1991 thana populations (from union data)
- Recalculate district data from thana data

HELP

- Introduction to the DSS
- Guide to basic operations
- Explanation of hazard indices

SPECIAL

- Menu description
- List all thanas, geocodes and indices

KNOWLEDGE

- Logistical guidance for emergency feeding programmes
- Dissemination of Special Weather Bulletins under Standing Orders

EXIT

- Quit to DOS
- Quit to dot prompt

Note : Capitalised headings correspond to main menu captions in the DSS.

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BOX 1

Example of DSS Operation

Question : What are the demographic characteristics of Kutubdia Thana ?

A1 *Select "Location" and then "Thana" from the menu.*

R1 *A list of the divisions and their geocodes appears in a window.*

A2 *Press < 1 > for Chittagong.*

R2 *A list of the districts in Chittagong division and their geocodes appears.*

A3 *Press < 22 > for Cox's Bazar District then < ENTER >.*

R3 *A list of the thanas in Cox's Bazar and their geocodes appears.*

A4 *Press < 45 > and < ENTER > for Kutubdia thana.*

R4 *The window and the pull-down menu disappear, however the names of the selected division, district and thana are now displayed on the left of the screen.*

A5 *Select "Applications" and then " Population" from the menu.*

R5 *A full screen window opens and list of all the unions in Kutubdia is displayed together with their populations, numbers of households, and average literacy rates and access to safe water.*

A6 *Press any key to close the window, or < PrintScrn > to print before returning to the main menu. At this stage the user may select any other item from the applications menu for a display of the information on Kutubdia. Alternatively the user may go back*

BBS is giving priority to the publication of census data from the coastal districts. Data entry is complete for the following districts of Chittagong and Khulna divisions.

Chittagong	Khulna
Cox's Bazar	Barisal
Khagrachari	Patuakhali
Bandarban	Barguna
Rangamati	Bhola
Feni	Bagerhat
Noakhali	

b) **Agriculture and Irrigation**

Cropped areas from the BBS 1987 surveys for all major, and most minor, crops are being compiled at thana land. Data collection/entry is complete for the whole of Rajshahi Division (from FAP:2) and much of Chittagong Division (from FAP:5). Data are presented as hectare totals, but with a graphic display of the rice and wheat cropping pattern. The operating numbers

and total area irrigated for all kinds of minor irrigation equipment is complete at thana level for the whole country. The data were obtained from the census organised through DAE by AST/CIDA is March 1991.

c) Land Type and Flooding

Thana land areas of each major land types (i.e. high, medium high etc.) are being compiled. The main source of data has been WRPO (ex-MPO) via the various FAP regional studies. Data collection is complete for Rajshahi division and partially complete for Chittagong. A statistical table and a graphic display of the proportion of each land type are provided.

d) Telecommunications

Data have been compiled from the detailed study of telecommunications presented in BGD/91/021 Final Report, Volume VI. Over 1,000 telecommunications links are included in the database and may be retrieved at either district or thana level, with both "from" and "to" destinations included. Telecommunications links have been compiled for the following agencies.

- Police
- Army/Navy/Air Force
- Civil Aviation Authority
- Bangladesh Red Crescent Cyclone Preparedness Programme (CPP)
- Bangladesh Inland Water Transport Corporation (BIWTC) and Authority (BIWTA)
- BWDB Flood Forecasting Service
- Bangladesh Railway
- Bangladesh Meteorological Department

For each telecommunications link, the DSS presents the user with the following information:

- Name of institution
- Type of equipment
- Contact person at source, including designation and phone numbers
- From/to destinations, including geocodes
- Frequencies (whole appropriate)
- Operating hours
- Miscellaneous comments

e) Cyclone Shelters, Killas and Protective Building

A single and comprehensive source of these data has been provided by the Multipurpose Cyclone Shelter Programme (BUET/BIDS, 1992). Macintosh text files, as used in the MCSP find report, were transferred to IBM format and then assembled into a single dBASE file containing 1616 records distributed as follows :

- PWD/IDA Cyclone Shelters	227
- BDRCS Cyclone Shelters	62
- CARITAS Cyclone Shelters	12
- Coastal Communication Centres	132
- Sub-Coastal Communication Centres	138

-	School -cum-Shelters (Phase-I)	25
-	Primary Schools on stills	12
-	Other 2 or more storied buildings	862
-	Killas	147

Each record contains the following information:

- Name and location to union or mouza level
- Geocodes to at least thana level
- Shelter type (coded as per the above list)
- Normal use of the building
- Capacity as a shelter
- Number of storeys
- Whether in public on private management.

f) Natural Hazard and Risk Indices

BGD/91/021 developed a hazard index for each thana based upon the most common types of disaster that occur in Bangladesh. The scoring system was:

			Score
Cyclones	-	High Risk Area (MCSP)	5
	-	Risk Area (MCSP)	3
	-	Wind Risk	1
Floods	-	Severely flooded areas, due to major river floods	3
	-	Flash flood areas and medium major river floods	2
Drought	-	Very Severely drought prone area (BARC)	2
		Severely drought prone (BARC)	1
River Erosion	-	Severe (river or marine) erosion	2
	-	Erosion	1

The individual indices were summed to generate a composite "Hazard Index". These hazard indices were employed to a produce a preliminary risk index, which is defined as the product of hazard and vulnerability. It is anticipated that more sophisticated analysis of hazard, vulnerability and risk will be undertaken in the future, however, for the present population density has been taken as the primary indicator of vulnerability. The "risk index" used is the product of a hazard factor and a population density factor, each of which has a maximum value of 10. The hazard factor is defined to have a value of 10 for the thana which has the highest "disaster index", which is currently Sarankhola thana of Bagerhat District. A population density factor of 10 is assigned to the non-metropolitan thana (excluding Dhaka, Chittagong, Khulna and Narayanganj) with highest population density (calculated by in inflating the 1981 population at 2.2% a year for 12 years), which is Daulatpur thana of Khulna District. Indices for the highest risk thanas are shown in **Table B2.2**, and a listing by district is given in **Table B2.3.** A complete listing by thana is given in **Appendix H.**

TABLE B2.2

Thanas with the Highest Risk from Natural Disasters

District	Thana	Hazard Indices					Risk
		Flood	Cyclone	Erosion	Drought	Total	Index
Chittagong	Metro	0	5	0	0	5	530
Narayanganj	Narayanganj	1	0	1	0	2	83
Khulna	Khulna	0	1	0	0	1	59
Noakhali	Senbag	0	5	0	0	5	26
Chittagong	Anwara	0	5	0	0	5	25
Sirajganj	Belkuchi	3	0	2	0	5	24
Chandpur	Matlab	3	1	1	0	5	22
Chandpur	Faridganj	3	1	0	0	4	22
Sirajganj	Sirajganj	3	0	2	0	5	22
Kurigram	Chilmari	3	0	2	0	5	20
Narsingdi	Narsinghdi	2	0	1	0	3	18
Munshiganj	Lohajang	3	0	1	0	4	18
Barisal	Barisal	1	3	0	0	4	18
Feni	Sonagazi	0	5	1	0	6	18
Comilla	Homna	2	1	1	0	4	18
Cox's bazar	Cox's bazar	0	5	0	0	5	17
Narsingdi	Raipura	2	0	1	0	3	17
Narsingdi	Palash	2	0	1	0	3	17
Barisal	Gaurnadi	1	1	0	0	2	17
Tangail	Nagarpur	3	0	2	0	5	16
Bhola	Bhola	0	5	1	0	6	16
Chittagong	Boalkhali	0	3	0	0	3	16
Barguna	Betagi	0	5	1	0	6	16
Tangail	Tangail	2	0	2	0	4	16
Kushtia	Kushtia	2	0	1	1	4	16
Bhola	Burhanuddin	0	5	1	0	6	15
Barisal	Bakerganj	1	3	1	0	5	15
Munshiganj	Sreenagar	3	0	1	0	4	15
Barguna	Bamna	0	5	1	0	6	15
Bagerhat	Rampal	0	3	1	1	5	15
Sirajganj	Kamarkhanda	3	0	1	0	4	15
Gaibandha	Sandarganj	3	0	2	0	5	15
Comilla	Laksam	1	1	1	0	3	15
Chittagong	Banskhali	0	5	0	0	5	15
Jamalpur	Dewanganj	3	0	1	0	4	14
Khulna	Daulatpur	0	1	0	0	1	14

Source : Project Studies

See text for expalanation of hazard and risk indices

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TABLE B2.3

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	Shariyatpur	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

Source : Project Studies

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

TABLE B2.3 (Continued)

Hazard and Risk Indices by District

Geocode	District	Hazard Index	Rank	Population Density(1)	Risk Index
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
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 cntres of Dhaka, Chittagong, Khulna and Narayanganj).

2. Risk index is defined as:

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

where

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

$$\text{Vulnerability factor} = \frac{10 * \text{population density of thana}}{\text{highest non–metrpolitan population density}}$$

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

g) Food Storage and Markets

A complete list of Local Storage Depots (LSDs) Control Storage Depots (CSDs) and Silos was obtained from the Directorate General of Food, converted to database format and geocoded. The database contains 615 thana or sub-thana level LSDs, while CSDs are distributed at district level, and Silos at divisional level. Each "go-down" is referenced with a name and a capacity in metric tons. The Food Directorate maintains reasonably up-do-date records of stocks, and it should be a Standard Operating Procedure for the DMB/DCMU to hold current stock records. A similar database should be compiled for DoRR relief stores.

A database of the main commercial markets in the country has been initiated using the listing given by Rashid (1991). This database is a useful starting point, but it should be expanded to include those products specifically required during disasters, together with current prices and the names of the principal traders.

h) Health Facilities

Health related data have been collected at district, thana and union level. District level data include the number of beds in government and NGO run hospitals, special hospital facilities, and the number of pharmaceutical factories. At thana level, the database shows whether or not a thana has a health centre, and if so, how many beds it has. A list of union health centres is also given.

i) Infrastructure

The DSS includes the lengths of railway track, pucca and katcha roads, and the numbers of bridges and culverts for all thanas. Details of jetties, ghats and helipads have been added for the coastal area. This type of information is indicative only of the quality of transport services. A purely statistical database cannot give a better picture, incorporation into a GIS will correct this deficiency.

j) Contacts

Databases are being compiled at all administrative levels of the personnel, whose position, profession or general expertise makes than potentially important during disasters. These include many government personnel, such as Deputy Commissioners, Thana Nirbahi Officers, District Relief and Rehabilitation Officers, Civil Surgeons, Army Commanders etc. and also experts in disaster management from the NGO community. The database has been set up with a flexible format, and includes the opportunity for key word searches. Each record may contain the following information:

- Name
- Designation
- Agency
- Address
- Office and home phone numbers
- Subjects of expertise or authority

k) Damage Assessments

Once a disaster has occurred, damage reports become baseline data for mitigating future events. By selecting either a district or thana, and a disaster event, the user may generate reports of general and specific damage to the crops, livestock and fisheries sub-sectors. These programs access database produced by the Damage and Needs Assessment System. Reports from current or historical disasters may be retrieved, however, so far only data from 'Cyclone 91' have been entered.

l) Directory of NGOs

Critical information on the activities of NGOs involved in relief and rehabilitation activities has been extracted from the output files of PACT/PRIP's Disaster Preparedness Information System (DPIS). The information includes the names and addresses of NGOs together with phone and fax numbers and the total number of staff. The database contains records for 150 NGOs in all parts of the country; all locations have been geocoded. More detailed information on an individual NGO can be obtained directly from the DPIS **(Chapter 6)**.

B.2.4 File Specification

The large variety of data types and sources requires a large number of database files and indexes. **Figure B2.2** provides a guide to their organisation and function, while **Appendix.II** details the internal structure of the files and explains the meaning of the key fields. All indexes are of the multiple index (.MDX) type. All of the true "data" files (as opposed to coded reference files) area indexed on BBS geocodes. In some cases, a field "OLDGEOCODE" has been included as a cross reference to older data, where the second and third digits refer to the 20 greater districts rather than the 64 zilas (as in the field ("GEOCODE"). As a general rule, file names have been given a suffix to indicate the administrative level to which the data refer, where "Z_" indicates zila, "T_" indicates thana level data, and "U_" union.

In addition to this report, efforts have been made to make the Decision Support system self-documenting. The menu includes a "Help" pull-down option which explains basic operations and the background to calculations displayed by other menus. Before selecting any option from either the main menu or a pull-down menu, the user is presented with a message at the bottom of the screen that him/her with what the particular option will do. Data sources are normally shown along with data reports. For the programmer, a catalogue file describes the function of all database files and programs. Thee messages may be read when using dBASE's "Control Center" or by "browsing" the file GDB.CAT. Pains have been taken to make file, field and program names as obvious as possible.

B.2.5 Future Developments

The Decision Support System is far from complete, and perhaps it never will be. However, it is considered that the basic structure is largely in place. The following sections set out the developments that could be implemented in the future.

a) **Data Collection**

Incomplete Data Sets: The following database files are significantly incomplete and warrant early serious attention:

(i) BBSUNION.DBF — The file contains demographic data from the 1991 census. Reports by district are being published at the rate of 2-3 per month. Data entry should follow as quickly as possible.

(ii) MOUZAS.DBF — Data entry has hardly started owing to the size of the task. The file should (ultimately) contain the geocode, name and total population of every mouza. If the BBS agree to provide data on diskette, then the categories currently being entered at union level should be obtained at mouza level.

(iii) T_AGRIC.DBF — The file contains cultivated areas for 40 major crop types. Data entry is complete for the north-west and (most of the) south-east regions. FAP regional studies may be a good source of compiled data.

(iv) LANDTYPE.DBF — Data are only entered for Rajshahi Division. Additional data may be obtained from WRPO or FAP regional studies.

(v) T_CONTACTS.DBF & Z_CONTACTS — These databases contain the names and contact procedures for important persons at thana and district level. Persons of any rank or organisation may be stored, "national" figures may be recorded under Dhaka District, while persons abroad may be referenced by geocode "0". A particular priority should be the key government officials such as DC's, TNO's, Civil Surgeons and DRRO's. A form, to be sent to each district, is shown in **Table B2.4.** This form should in the future be printed directly from the contacts database, incorporating the existing information. Such a form could be circulated for updating every year as part of the annual drill. In a second phase of data acquisition, similar forms might be distributed to thanas. All personnel referred to in the revised Standing Orders for Flood and Cyclone should be included in the contacts database.

(vi) T_MARKET.DBF — Market availability of products should be focused more on items specifically required for emergency relief. Price monitoring might also be added. To improve this data set, reference should be made to Part II of the Disaster Management Handbook for Bangladesh (Saidur Rahman, 1993) which contains the most complete listing of relief oriented suppliers. All of the information from **Annexures II:F.1 to II:F.5** of this Handbook should be added to the database. The database structure should be expended to include relief categories, in addition to the simple list it currently contains. The classification of materials (with sub-categories if appropriate) should be made compatible with the categories and sub-categories

Administrative Unit	Master File	Population and Census Data	Damage Assessments	Contact Persons	Health Sector	Food and Relief Storage	Transport and Infrastructure
NATIONAL				CONTACTS.DBF	HEALTH.DBF	GODOWNS.DBF	
					Not written		
DISTRICT	ZILAS.DBF	BBSZILA.DBF		Z_CONTCT.DBF	Z_HEALTH.DBF	FODGODWN.DBF	
64 records	BBS geocodes, names and altenative geocodes						
THANA	THANAS.DBF	BBSTHANA.DBF	***see Chapter 3***	T_CONTCT.DBF	T_HEALTH.DBF	FODGODWN.DBF	T_INFRAS.DBF
464 records	BBS geocodes, names and altenative geocodes		DAMAGE.DBF – SOS form DFORM.DBF – Damage form D–2 DCROP.DBF – crop damage DLSTOCK.DBF – livestock damage DFISH.DBF – fisheries damage			T_MARKET.DBF	
UNION	UNIONS.DBF	BBSUNION.DBF		U_CONTCT.DBF	U_HEALTH.DBF		
4,000+ records	BBS geocodes, names, area and total 1991 population	BBS geocodes, names and statistics from community series reports			Health Centres		TRANSPRT.DBF SHELTERS.DBF
MOUZA	MOUZAS.DBF	BBSMOUZA.DBF					
??,000 records	BBS geocodes and names Not complete	no data entred					

Notes

1. The key decision on where to enter data is to determine the natural level of the information. For instance the name of a DRO is entered in Z_contct.dbf, while the PIO of the the Sadar Thana goes into T_contct.dbf.

Figure B2.2 Organisation of Databases of Baseline Data

TABLE B2.4

Key Government Contacts for Diasaster Management

EMERGENCY INFORMATION SHEET

District :		Phone code:

Deputy Commissioner		name :	
Phone (O):1.		Address :	
2.			
Phone (H):		Fax :	Telex:

Asst. Dty Commissioner (General)		name :
Phone (O):		Address :
Phone (H):		

Superintendent of Police	name :
Phone (O):	Address :
Phone (H):	

Civil Surgeon	name :
Phone (O):	Address :
Phone (H):	

District Relief & Rehabilitation Officer	name :
Phone (O):	Address :
Phone (H):	

District Fire Officer	name :
Phone (O):	Address :
Phone (H):	

Give the Following Details for All Thana Nirbahi Officers in the District:

Thana	Name	Phone (O):	Phone (H):

used in the Donor Contribution System (**Chapter 4**) and the categories of 'urgent need' on the 'SOS' damage form. As with other types of lists in the programs, data retrieval should be achieved through picking from lists displayed on the computer screen and not by entry of places or relief categories. Nevertheless, a facility for key word searches for non-standard items should also be included.

(vii) SHELTERS.DBF — The database of cyclone shelters and two storeyed buildings is complete, but will need updating to take account of new shelters as they are constructed.

(viii) T_INFRAS.DBF & TRANSPRT.DBF — In these files, the length of roads and railways is complete, but details of ferry ghats, helipads and BIWTA terminals are only complete for the high risk part of the coastal area.

b) New Data Sets

In addition to upgrading the existing database, there is considerable scope for adding new data sets into the DSS (in addition to be spatially distributed data that would be captured in a Geographic Information System). These additional data sets include, *inter alia*:

(i) **Relief Stores :** The capacity, location and stocks of go-downs belonging to the DoRR. The database would have a similar structure to that already developed for the Food Directorate go-downs. Similar data might also be collected from agencies such as UNICEF and CARE.

(ii) **Medical Facilities :** The existing health sector database should be expanded to take in stocks of medicine, and staff capabilities at thana and union level. When a complete list of unions has been compiled, the locations of all union health centres should be added (as a logical field). Linkages to the MoH Emergency Preparedness and Response Cell at Mohakhali need to be further developed.

(ii) **Nutritional Monitoring :** The Hellen Keller Foundation is carrying out detailed nutritional monitoring in 20 thanas or unions in different parts of the country. The results of their monitoring are being published monthly and copies are being received by DMB/DCMU. If maintained, these data will provide valuable guides to underlying trends in the health status (ie. vulnerability) of the population in various regions. Database (are for site details and are for time series data) should be established for regular updating of this information.

(iv) **Livestock and Fisheries :** These data would complement the census and agricultural data in providing a better insight into the pre-existing economic patterns of rural areas, and also in advising on appropriate rehabilitation measures. Raw data should be available from the relevant departments of the Ministry of Agriculture, while compiled fisheries data may become available through FAP:17.

(v) **Transport Facilities :** Major expansion of the scope of the transport and infrastructure database is required. Currently they contain no information on the number of boats or

trucks, and their geographical distribution. Such data may be obtained from the BRTC, the Army (but may be security problems), private haulage contractors (which will be time consuming) and agencies such as WFP, UNICEF and CARE. With regards to haulage contractors, particular attention should be given to the availability of trucks and boats for hire. A preliminary listing of road and river carrying contractors can be found in **Annexure II:H.1 and II:H.2** of the **Disaster Management Handbook for Bangladesh**. The capacities of jetties and ferry terminals should be ascertained from BIWTA for all river and coastal ports. The maximum take-off length and weights for all airports and landing strips should be obtained from the Civil Aviation Authority. The Roads and Highways Department might also be able to provide lists of vulnerable and critical bridges.

(vi) **Pharmaceutical Industries :** The district health database already contains the number of factories and number of products produces by district. This should be expanded into a complete inventory.

(vii) **Drinking Water :** Although valuable information is available from the 1991 census about sources of drinking water, further information should be available from DPHE which is preparing information on the appropriate tubewell technology for each union of the country. This report was requested through the Ministry in September but is not complete. The report should be pursued and then compiled into a union level database.

(viii) **Spatial Data :** Information such as road networks, river and coastal embankments, and electricity lines are ideally presented in a GIS. However, there would be short to medium term benefits in obtaining simple statistical data on these facilities, and this might have the additional benefit of smoothing the path of acquisition of the more complex information required for the GIS.

(ix) **Unstructured Knowledge :** There is enormous scope for linking "unstructured" information (basically text) into the database so that past experience can be utilised at the appropriate time. This could include methodologies, logistical advice, public information sheets or key sections of standing orders. Two examples of such information are included under the "knowledge" menu option. When this body of information (which should probably be stored in 'memo' fields) becomes large it should be cross referenced and accessed, through key words for subject and location. The database structure would also include a short description of the contents of the memo field which could be scrolled through a pop-up menu, with an option to zoom into the memo.

c) Data Verification

The initial activities of the DMB/DCMU have concentrated on the collection of data. At this stage, it is appropriate to begin a systematic programme to check the validity and accuracy of the data. Data verification comprises a wide variety of activities, which include:

- data sets which have been typed in should be checked against source data sets either at random or by structured sampling. Data sets such as the 1991 census data that were entered at a low level (i.e. union) may be summed and checked against published totals (i.e. thana and district data).

- Computerised databases are ideally suited to logical checks such as testing cropped ares against the total land areas. Testing that ratios of parameters fall within certain ranges also helps to find errors. Indexing on numerical fields and checking the extreme values is another useful technique.

- Data sets from sources whose accuracy is uncertain should be checked by random field checking.

- The other basic technique to test or improve the quality of information is to 'use the data'. Data should be published in reports or specially prepared to meet the needs of agencies (Government or non-Government) and distributed to field level workers. The price of providing data ought perhaps be not financial but rather to receive feed-back on its accuracy and utility.

d) Program Applications

The programming potential of the DSS is virtually unexplored because of the greater attention given to establishing the databases. The emphasis should now begin to switch towards analysis. The DSS, as it currently exists, may be viewed as a skeleton waiting to be fleshed out, as was expressed conceptually in **Figure B2.1.** Users may notice that certain options (such as choosing a country, or defining a subject filter) serve no purpose at present. This is not a design fault, but rather a statement of the intended scope of the programs.

The present "Applications" menu currently produces simple tabular reports on broad topics such as health, agriculture and population. Only a little imagination is required to see how each menu item might open out into a range of sub-disciplinary options; population might be subdivided into analysis of population density, literacy and water supply.

Beyond this "linear" expansion, future applications should exploit the geocoded linkages between databases. A first step has been taken in linking hazard mapping with population and area to generate risk indices (see **Table B2.1).** A logical development of this would be correlate the risk evaluation with the provision of mitigatory measures such as construction of cyclone shelters on embankments.

The linkages between:

- baseline data and damage assessments
- damage assessments and needs assessments
- needs assessments and donor contributions
- damage assessments and rehabilitation needs

might also be expanded.

Figure B2.1
Classification of Database Files

System Management	Name	Nr of records	Contents
for database management purposes	Disaster .dbf	8	list of disaster types
	Dishist .dbf	7	list of historical disasters
Directory:	district .dbf	20	Names, geocodes by Greater District (20)
c:\dcmu\database	zilas .dbf	64	Names, geocodes by New District (64)
	thanas .dbf	464	Names, geocodes by Thana (see below)
	unions .dbf	3501	Names, geocodes by Union
	mouzas .dbf	5	Names, geocodes by Mouza
	foreign .dbf	13	International names and codes
	Sheltype .dbf	13	Description of shelter types
	Shlt_use .dbf	17	Codes for normal use of shelters
	Tel_inst .dbf	15	Telecommunications institutions
	Tel_type .dbf	13	Telecommunication system types

Preparedness	Name	Nr of records	Contents
baseline / decision support information	BBSthana .dbf	0	BBS 1991 census statistics by thana
thana level data	thanas .dbf	464	Demography, area, hazard indices
•	T_contct .dbf	464	Contact names by thana
•	T_health .dbf	464	Health facilites by thana
•	T_infras .dbf	464	Roads, railways, bridges, jetties etc
•	T_agric .dbf	464	Agricultural data by thana
•	T_irri91 .dbf	464	Irrigation facilities by thana
•	T_market .dbf	499	Products from commercial markets
•	Landtype .dbf	464	Land type (flooding) classification
district level data	BBSzila .dbf	0	As above by (new) district
•	Z_contct .dbf	194	As above by (new) district
•	Z_health .dbf	64	As above by (new) district
union level data	BBSunion .dbf	578	As above by union
•	U_contct .dbf	0	As above by union
•	U_health .dbf	0	As above by union
mouza level data	BBSmouza.dbf	0	As above by union
data at multiple administrative levels	Shelters .dbf	1616	Cyclone shelters & 2 storyed buildings
•	Transprt .dbf	52	Details of jetties, terminals, helipads etc
•	tel_ntwk .dbf	1018	Telecommunications network
•	fodgodwn .dbf	605	Food go-downs (LSD, CSD & silos)

Emergency and Rehabilitation	Name	Nr of records	Contents
operational datases for ongoing disaster	Damage .dbf	n.a.	SOS form returns
Directory:	Dform .dbf	n.a.	D-2 form returns
c:\dcmu\damage	Dcrop .dbf	n.a.	Crop damage
	Dlstock .dbf	n.a.	Damage to livestock
	Dfish .dbf	n.a.	Damage to fisheries
Directory:	Contribu .dbf	53	Details of donor agencies
c:\dcmu\donor	Committ .dbf	n.a.	List of aid commitments
	Cat .dbf	8	Codes for aid categories
	Subcat .dbf	8	Codes for aid sub-categories

Note : The operational databases from past disasters become part of the preparedness information for future disasters. All 'preparedness' databasese are stored in the directory C:\DCMU\DATABASE

B.3 DAMAGE AND NEEDS ASSESSMENT

B.3.1 Background and Objectives

The development of computerised information systems and the refinement of data collection forms and procedures must proceed hand-in-hand. It was considered a principal objective of the MIS activities to develop a computerised processing system for the damage assessment forms. As for as possible, the MIS builds on existing forms, however, some revisions and one completely new form have been made and developed. [3]. Copies of the data collection forms used in this system are included in **Appendix-D.**

The forms used are very similar to previous forms, and have been developed from the use of the old 'D form' and the experience of the Zonal Relief Coordinator for Chittagong during Operation Sheba. The organisation of the computer programs is a direct reflection of the forms. What is radically new about these forms is the introduction of the element of time. It is recognised that the volume of information returned from the field increases with time, following a disaster strike. The speed of computers for data processing makes sensible evaluation of the data possible as it is received. The 'SOS' form is a brief form to be compiled by Deputy Commissioners within 24-48 hours of a disaster occurring. The D-2 forms are more comprehensive and are completed a week to a month after the disaster.

B.3.2 Operation

The damage and needs assessment are primarily intended to be used in the Control Room of the Ministry of Relief, where information will be by received radio, telephone, fax or messenger in a standard format, and almost immediately entered into the computer.

During all activities it is essential that a disaster event and type are entered, and these should be entered by picking a numeric code from a list. This step is essential to prevent the loss or duplication of data, and cannot be by-passed.

In the program structure, the type of activity (e.g. editing or reporting) is specified before the subject matter of the form. The damage assessment program may be accessed from the main MIS menu (**Figure B1.2**) or by any batch operation that executes the command "Runtime Dnas" in the directory C:\DMB\DAMAGE. This will activate a pop-up menu with the options:

- Add Menu
- Report Menu
- Edit Menu
- Delete Menu
- Housekeeping Menu
- Relief Allocation
- Quit

The meanings are clear, although in all menus a message bar at the bottom of the screen given a fuller explanation of what the particular option will do. The 'Relief Allocation' option is described separately later. Use the "up" and "down" cursor keys to move between options, and

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3 The 'SOS' form is a brief form to be compiled by Deputy Commissioners within 24-48 hours of a disaster occurring.

< ENTER > to select. A second pop-up menu will appear, from which any item may be selected in the same way. To return to a previous menu, either press <ESC> on the "left" or "right" cursor keys. On the second menu, the user will be asked what type of damage to add, edit or delete :

- 'SOS' Forms
- 'D' Forms
- Crop Damage
- Livestock Damage
- Fisheries

Each of the items listed above relates to a particular form. Before proceeding to the actual data entry, the user will be asked to specify (by choosing a code number from a displayed list) a disaster event, and a thana name [4]. The user then proceeds to a data entry screen with the same format as the relevant data collection form.

On completing data entry for from a particular form, the user may use the "Reporting Option", or continue adding data from a different damage report form.

The "Edit" options basically repeat the procedures for entering new data, but with the obvious difference that the user is not expected to re-enter all data, only press <ENTER> to accept the displayed data, except where he/she wishes to change it.

The "Delete" option is for removing unwanted data from database permanently. Before deletion it should show you all the data you want to delete. If you change mind, you can recall data. When finally decided and confirmed that you want to delete data, remove that data from database permanently. Once removed permanently it will not be possible to recall that data again.

Housekeeing function is perform useful function like saving the contents of the complete database on a diskette or rebuild all index files.

The "Relief Allocation" option can only be used after "SOS" data have been entered. A disaster event and either a district on thana must be specified. The programs retrieve the numbers of people affected and urgent needs, and combine these with guideline allocation per family (taken from OXFAM'S experience during the 1991 cyclone) to produce suggested allocations[5] for each thana. However, it is left for the "relief controller" to type in what allocations will actually be sent, depending on available stocks and transport. It is important to note that this "relief allocation" program has no official status within the Ministry of Relief's operations, but is included here as a demonstration of what might be done in the future.

Examples of the data entry screens and report formats are shown in **Figures B3.1 and 3.2**.

B.3.3 Data Specification

The 'SOS' forms should be sent directly by the Deputy Commissioners to the MoR Control

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4 The entering of a thana name will shortly be replaced by a procedure to pick from a geocoded list, as with the Decision Support System

5 These could be revised on the basis of the newly published Disaster management Handbook for Bangladesh.

Figure B3.1

Sample Computer Screens from the Damage and Needs Assessment System - I

SOS form data entry procedure

Date: 21/11/92

Disaster Code: 1 Name: Cyclone Location: Cox's Bazar

Thana Name: TEKNAF

Data Collection Date : 02/02/93

Affected Union (no) : 10

Affected population (no): 4000

House destroyed (%) : 20

Death (no) : 23 0

SOS form data entry procedure

Date: 21/11/92

Disaster Code: 1 Name: Cyclone Location: Cox's Bazar

Urgent Need

Search & rescue : N

First aid : N

Drinking water : N

Prepared food : N

Clothing : N

Emergency shelter: N

Figure B3.2

Sample Computer Screens from the Damage and Needs Assessment System - II

Detailed Damage Data Entry Screen

Date: 30/04/91

Disaster Code: 1 Name: Cyclone Location: Cox's Bazar

Thana:	A F F E C T E D Union	Area(Acre)	(%)	AFFECTED POPULATION (no) Worst	Badly	Partially
KUTUBDIA	5	2000	5	3000	2000	4500

N U M B E R O F Dead	Buried	Injured	AFFECTED FAMILY (no) Worst	Badly	Partially	H O U S E (no) Destroyed	Damage
50	40	3400	1000	1400	1200	300	500

L O S S O F (no) Cattle	Poultry	C R O P (Tk) Destroyed	Damage	SALT PAN DAMAGE Acre	Taka(Thou)	SHRIMP DAMAGE Acre	Taka(Thou)
1400	300	3000	2500	30	450	250	3000

All input correct ? N

Detailed Damage Data Entry Screen

Date: 30/04/91

Disaster Code: 1 Name: Cyclone Location: Cox's Bazar

Destroyed School/ College Madresha	Damage School/ College Madresha	MOSQUE Damage	ROAD DESTROYED Pacca	Kucha	DAMAGE (km) Pacca	Kucha
20	12	50	20	2	200	300	300	200

Bridge/Culvt Badly	Slight	Embankment km	Forestry Tk	Power Tk	Industry No	Tk	Fisheries Tk
12	30	50	3000	5400	2	3000	5000

Tubewells DTW	STW	HTW	Ponds Tank (no)	Trawlers Boat (Tk)	Net (Tk)	Loom (Tk)	T & T (Tk)
20	4	0	10	3000	4500	300	5000

Data collection date: 02/02/93

Room (with an additional copy sent through the chain of command to the Cabinet Division). The data will be provided to the DC by the TNO's, who will have probably spoken to some but perhaps not all of the Union Chairmen. This is acceptable shortly after a disaster, when speed of response is essential. The only information reported is:

- number of unions affected
- population (number) affected
- number of deaths
- percentage of houses destroyed
- categories of assistance urgently required, chosen from a list comprising;
  - search and rescue
  - first aid
  - water
  - food
  - clothing
  - shelter

The comprehensive damage forms (D-2) contain data on all aspects of damage including:

- human resources	-	number dead
	-	number injured
	-	number homeless
- infrastructure	-	roads, bridges and culverts
	-	embankments
	-	railways, jetties and ghats damaged
- agriculture		crop damage
		livestock and poultry lost
		fisheries and tackles
- industry	-	factories damaged or destroyed
	-	salt pans damaged

The forms would be compiled by the TNO's office, but would require the cooperation of all line ministries. They would be forwarded to the MoR Control Room either by messenger or fax.

B.3.4 File Specifications

All programs and databases are written in dBASE IV and are stored in the Directory C:\DMB\DAMAGE. Full details of the database file structures and the meanings of field names are given in **Appendix E.**

As the system is set up, any number of disasters may be added to the main database file, identified by a unique combination of disaster event and disaster type code which are appended to each record. This is not likely to be a problem in the short to medium term. However, it will result in very large and cumbersome files in the long run, and at the appropriate time, all records of disasters before a certain date should be marked, copied to a separate file for archiving, and then deleted from the main file.

The structure of the database files should be changed only with caution, because they are also accessed by the Decision Support System.

B.3.5 Future Developments

The system as it stands is operational, and could be put into operation immediately if needed. Nevertheless, no system is perfect, and this system could be refined in the following areas:

- logical checking of the damage data could be introduced, both in terms of comparing quantities with baseline data and checking the 'reasonableness' of valuations where both quantity and cost are reported. The checking process should take place in two stages, gross (presumably typing) errors may be trapped during data entry and corrected immediately, while 'probable' errors might be highlighted by running a post-entry program.

- The programs should be modified to avoid direct entry of thana names or diaster events and dates (except by the System Manager), and must include error trapping.

- An increased number of reporting programs should be developed to meet the geographical, organisational and subject matter needs of the various agencies.

- Much action oriented research remains to be done in converting the compiled damage reports into an assessment of needs, and ultimately guiding the allocation of relief and rehabilitation.

B.4 DONOR CONTRIBUTION SYSTEM

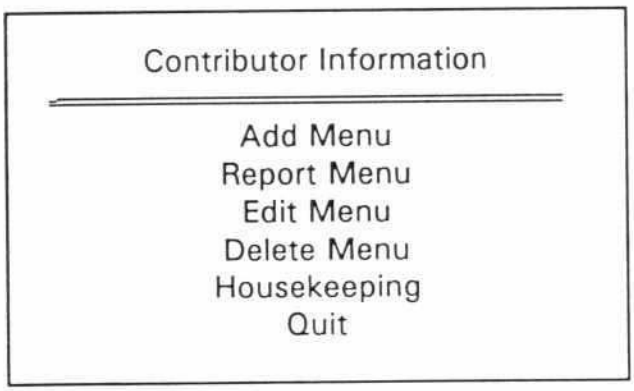
B.4.1 Background and Objectives

The Donor Contribution System (DCS) was written to keep track of contributions and pledges being made by both national and international donor agencies. The programs are aimed to benefit both Government and the donor community. The data collection forms used in the DCS are used in **Appendix F**. The detailed procedure has not yet been formally established, however, it is anticipated that the forms would be held at a variety of locations including the MoR Control Room, the Prime Minister's Office and the Foreign Ministry. During a 'disaster' the forms would be sent daily to Ministry of Relief for entry onto the computer and production of a consolidated contributions report prepared daily. Contribution forms might also be deposited with the some of the major donors in order to simplify matters.

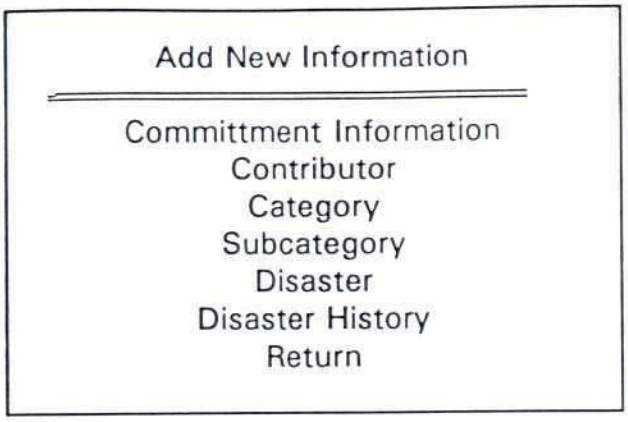
Although the programs also focus on donors, they do not conflict or overlap with the donor focused Disaster Preparedness Information System (DPIS) developed by PACT/PRIP (see **Chapter 6**). The DCS helps in strategic planning, coordination and management of incoming relief, whereas the DPIS provides specific tactical advice to donors wishing to channel relief through NGOs.

B.4.2 Operation

The donor contributions programs may be accessed from the main MIS menu (**Figure B1.2**) or by any batch operation that executes the command "Runtime dcs_menu" in the directory C:\DMB\DONOR. This activates a pop-menu with the options:



The 'up' and 'down' cursor keys allow the user to move between options, and <ENTER> to select an option. A message about each option is displayed at the bottom of the screen, giving the user advance information about what that option will do. Selections from the main menu will activate another pop-menu with more choices. In every case, the user may go back to a higher menu by selecting the 'Return' option or by pressing <ESC>. Normally, the user will 'Add' first, in which case the following options appear:



Examples of the data entry screens and report formats are shown in **Figures B4.1 and B4.2.**

B.4.3 Data Specification

The basic categories of relief included are:

- Food
- Health
- Water
- Shelter
- Clothing

This is list is not likely to change. However, each of these categories is divided into a number of sub-categories which are liable to be changed quite frequently in the light of experience.

Each international donor is assigned a numeric code, which is the IDD telephone code for the respective country.

In order to reduce complication during data entry, it is possible to enter the currency unit along with the value of the goods.

B.4.4 File Specification

Database file structures for the DCS are given in **Appendix G**. There are less files than in the other systems, however, a complex referencing system is required which includes:

- donor code
- country code
- data input station code
- port of arrival
- expected date of arrival
- disaster type
- disaster event
- relief category and sub-category

Figure B4.1

Sample Computer Screens from the Donor Contribution System - I

BGD/91/021 : ASSISTANCE TO MINISTRY OF RELIEF IN CYCLONE REHABILITATION
RELIEF CATEGORY NAME LISTING

Code	Name
08	Cash-unspecifi
07	Communication
01	Food
02	Health
05	Relief
04	Shelter
06	Transportation
03	Water

Contribution Entry

Date: 30/04/91

Disaster Code: 1 Name: Cyclone Location: Cox's Bazar

Contributor Name: UNDP Name : 01 Food

Item Name : Rice

Quantity: 200 Unit: Tonne

Value: 43000 Currency: $

Local Purchase: F Estimated Arrival Dt02/05/93

Actual Arrival Date: / / Port of Arrival: Unknown

Source of Information: MOR Data Collection Date: 02/01/93

Remarks:

All input correct ? Y

Figure B4.2

Sample Computer Screens from the Donor Contribution System - II

CONTRIBUTOR INFORMATION

Name Contact person Designation	Address Phone Telex Fax
AUSTRALIA	184 Gulshan Avenue
BELGIUM	22 Gulshan Avenue, Gulshan 600138 604678 604249 642394 BEL BJ
BHUTAN	house 58, Road 3, Dhanmondi
BRUNEI	
CANADA	House 16A, Road 48, Gulshan
CHINA	House NE(L)6, Road 83, Gulshan 601058
DENMARK	House NW(H)1, Road 51, Gulshan 603563 601282
EEC	House CS(E)19,Road 128,Gulshan 883118
EGYPT	
FAO	House 37, Road 8, Dhanmondi
FINLAND	
FRANCE	House 18, Road 108, Gulshan 607084

B.4.5 Future Developments

As with the Damage Assessment programs, the system is potentially operational immediately if required. However, there is scope for improvement in the following areas:

i) With the entry of 'receipt of contribution' information at several sites, consideration should be given to remote data entry, with work stations ultimately connected on a wide area network (WAN) and in the short to medium term with daily diskette updates. In these circumstances, it would be necessary to have a site specific serial code at each 'entry' location.

ii) The entry of new disaster types and events needs to be strictly controlled, and should not be allowed from normal editing menus as permitted at present.

iii) Information on relief categories and sub-categories need to be kept compatible, both in real terms and in computer coding, with market information in the Decision Support System, and with the categories of 'urgent need' on the 'SOS' damage form.

iv) Through action oriented research, the Donor Contribution System must be turned into a two way information exchange process between donors and government; telling government what donors are willing or able to give, and telling donors what the government needs; and at the same time the DCS must be kept functionally compatible with the development of a needs assessment system.

v) The DCS should develop to monitor the arrival of pledged relief materials into storage and into the distribution system of the Ministries, NGOs etc. so that the knowledge can rapidly and effectively to assist the 'relief coordinators' in allocating materials to the affected areas.

v) Minor refinements are needed in the incorporation of, and error trapping in, country, relief and administrative codes.

vi) A utility program should be prepared to convert the value of relief goods donated to any standard currency format. A small database file containing up to date exchange rates will be required for this purpose.

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B.5 GEOGRAPHIC INFORMATION SYSTEMS

B.5.1 General

There is a belief that Geographic Information Systems (GIS) have an important role to play in support of disaster management activities. **Figure B2.1** shows conceptually how a GIS would relate to the statistical databases described in **Chapters 2** to **4**. GIS applications are still in their infancy in Bangladesh, and this inevitably inhibits the rapid development of disaster management applications. During Project BGD/91/021, a GIS planning document was prepared, the hardware and software for a single GIS workstation procured, and a GIS pilot study initiated.

B.5.2 GIS Pilot Study with FAP:19

BGD/91/021 will collaborate with FAP:19, (Geographic Information Systems) to combine its expertise in Geographic Information Systems (GISs) and hardware support with the DMB/DCMU's knowledge of disaster management. The pilot study is intended to feed back into the long term development of the DMB, to provide a clear perspective of the realistic potential for GIS. Given the exploratory nature of the study, only base terms of reference have been produced, thus allowing the investigators to revise the programs according to the results. However, the scope of the work will comprise, but not be limited:

i) The main study area will be the Chittagong Coastal Plan (the districts of Chittagong and Cox's Bazar). This area has been chosen as:

- there are many reports and a 'fresh memory' of damage from the April 1991 cyclone.
- digital mapping (in AUTOCAD DXF format) is available from the Multi-purpose Cyclone Shelter Programme.
- the area coincides with the ongoing disaster preparedness programme of CARE, and therefore offers the possibility for sharing resources.

ii) The application will be developed in PC ARC/INFO using dBASE database files. The study will provide initial training and experience in digital mapping and spatial analysis. The pilot study will also collaborate on an informal basis with the field based programmes of CARE, who will test the relevance and accuracy of maps and statistical data.

iii) The specific outputs of the pilot study are likely to include :

- digital mapping in ARC/INFO of one of the most disaster prone area of the country.
- linkage of digital mapping to the geocoded statistical data in the DMB's Decision Support System and a range of hazard, vulnerability and risk maps.
- a Graphical User Interface (GUI) for the Decision Support System that will allow the DSS to operate in an ARC/VIEW environment.

- Depending on the progress of the above, the analysis may be extended to cover the prediction of damage for synthetic cyclone/storm surge events, and possible to examine the role of GIS analysis in transportation/relief distribution and management.

iv) Hazard, vulnerability and risk mapping would begin with the indices described in **Chapter 2** of this report. Presently, vulnerability has been measured in a crude way in terms of population density. Improved measures of vulnerability might be produced which take account of the existing provision of cyclone shelters or the accessibility of food godowns after a cyclone. Some indices might relate to the potential need for specific types of relief, such as where water supplies are taken from ponds and rivers and hence are especially vulnerable to storm surges.

v) A Graphical User Interface (GUI) might be built around FAP:19's existing thana level mapping of the country. A mouse driven "point and shoot" approach would be used to retrieve information, as an alternative "front end" to the present hierarchical, code driven style of the DSS. A GUI would help to enhance the perception of spatial analysis among staff of the DMB, and also provide a rapid, high quality map printing facility.

iv) Attempts will made to incorporate the GIS results into CARE's (as yet only partly formulated) procedures for drawing up disaster "contingency plans" for each thana. It is expected that the cooperation with CARE will generate additional, valuable data on the state of preparedness in each thana that will be both useful in itself and as a model for data collection/compilation in other areas.

B.6 NGO ACTIVITIES

B.6.1 Disaster Preparedness Information System

The Disaster Preparedness Information System (DPIS) is a computer program developed by the American NGO, PACT/PRIP to inform potential donors of the experience and capability of NGOs in carrying out relief and rehabilitation work. DPIS meets the perceived needs of donors for guidance in funding NGO relief programmes during emergencies. The program and databases currently contain details of about 151 NGOs[6] and ere written in R:BASE and supplied to PACT/PRIP as compiled code only, hence neither the programs nor the data files can be directly incorporated into the DMB's Decision Support System[7]. However, because of its relevance to the MIS, the DPIS has been included as an external option. Full details of the system are given in PACT/PRIP's manual. PACT/PRIP is continuously updating the DPIS, which includes the following general categories of information:

- Names, addresses, phone numbers and contact persons of all NGOs
- Types of relief and rehabilitation works undertaken by district
- Source and quantity of funds received
- Total number of staff
- List of evaluations of relief programmes

B.6.2 Disaster Response Tracking System

This program also developed for PACT/PRIP by the same software company as DPIS. The purpose of DRTS is track (for NGOs) "who is doing what, where, to whom, and with whose funds ?" In isolation, the DRTS is of limited benefit except to the particular NGOs concerned, but it becomes of major importance (assuming that it can be maintained accurately) when combined with systems for damage assessments and for the relief provided through official channels. Then, a balanced statement of needs and total allocation could be produced. For these reasons, it is particularly unfortunate that (as with DPIS) the software developers provided neither source codes for the programs nor the facility to export the data to a dBASE compatible format. Thus, at present, to incorporate the data from DRTS within Ministry of Relief's programs it would be necessary to re-type the printed outputs.

PACT/PRIP have produced a manual for DRTS. It is not envisaged that the DMB would ever use DRTS for data entry, but rather would obtain regular updates of the reports from ADAB or PACT/PRIP during emergencies.

---

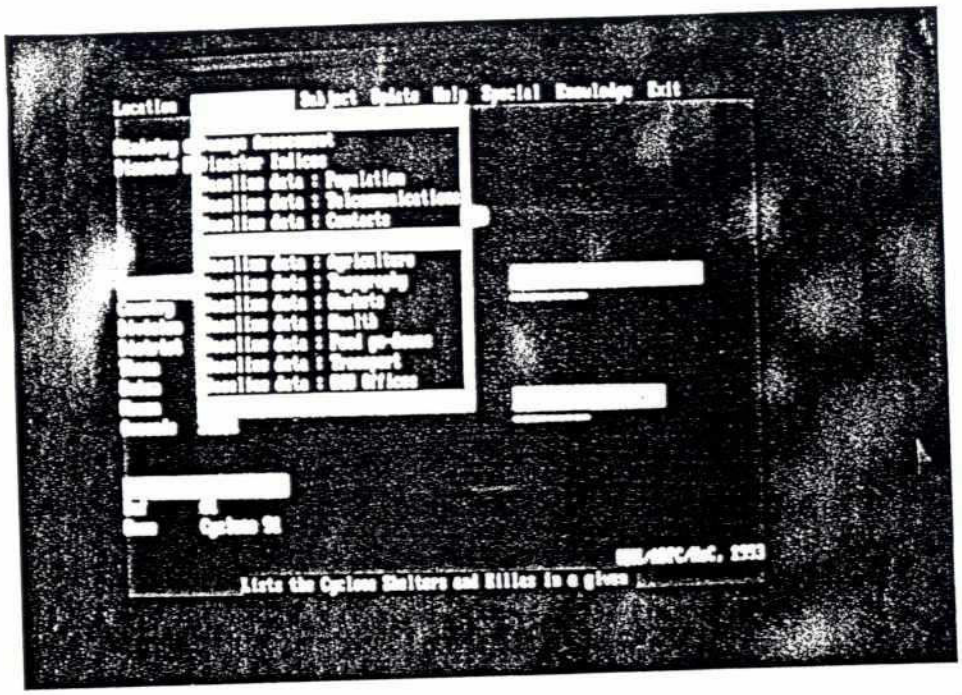
6 The program requires about 6MB of free hard disk space.

7 Excepting the capture of a list of the names and addresses of all NGOs

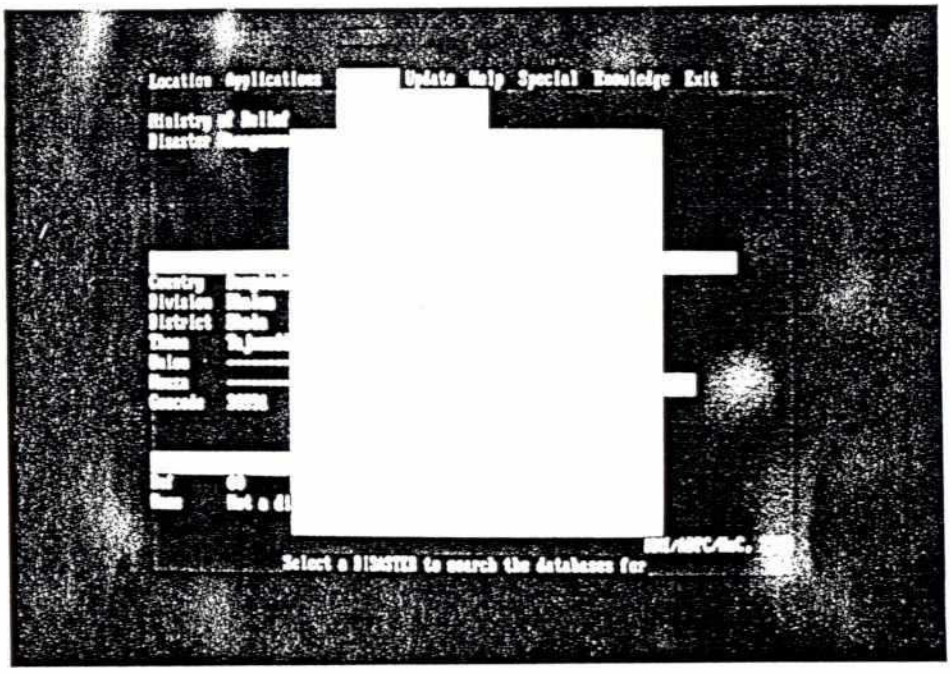
APPENDIX A

PHOTOGRAPHS OF THE MANAGEMENT INFORMATION SYSTEM

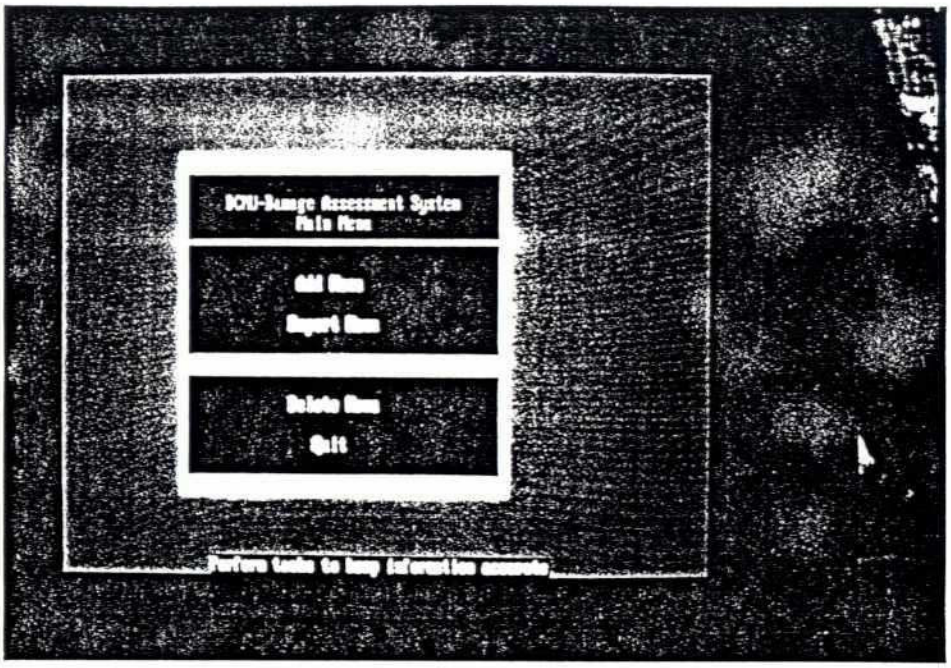
Main menu for the Decision Support System, showing the 'Applications' pop-up



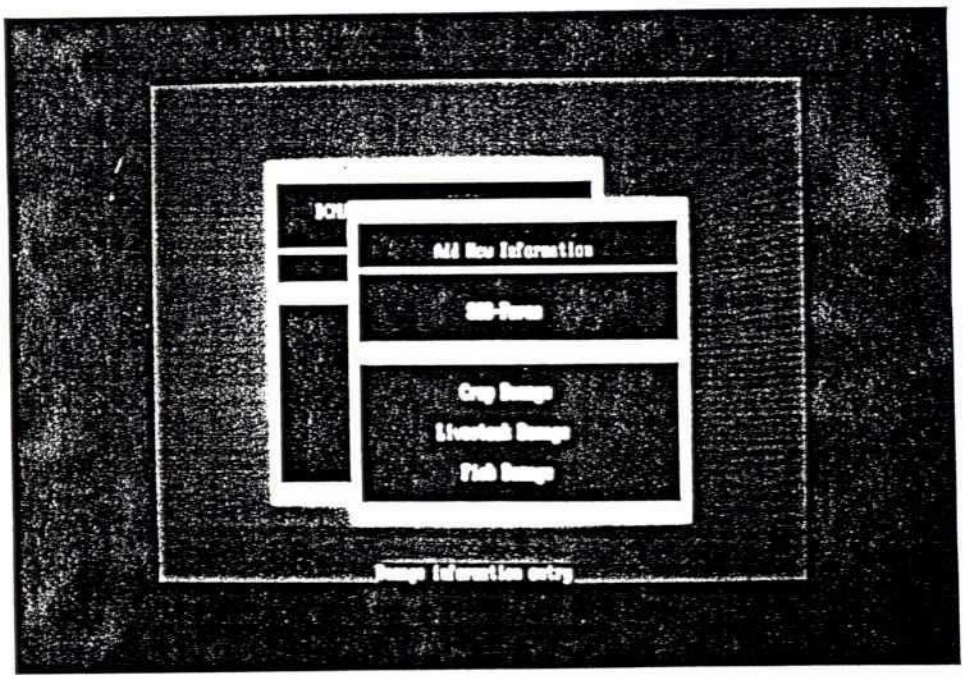
Main Menu for the Decision Support System, showing the 'Subject' pop-up, and 'Select a Disaster' window



Main Pop-up Menu for the Damage Assessment System



Second Pop-up Menu for the Donor Contribution System, showing the 'Add Menu' Option



APPENDIX B

SAMPLE OUTPUT OF DECISION SUPPORT SYSTEM

Population Report (by Thana)

District : COX'S BAZAR Thana : TEKNAF 1991 Census

Union	Population	Literacy(%)	Households	Pucca(%)	Safe water(%)
Baharchhara	16,948	9.1%	2,399	0.2%	39.8%
Nhilda	26,080	27.8%	4,063	1.0%	39.5%
St. Martin Dwip	3,315	7.6%	490	0.2%	98.8%
Sabrang	31,991	11.2%	4,882	0.6%	88.6%
Teknaf Sadar	43,391	21.0%	7,194	4.0%	47.3%
Whykong	30,832	11.0%	4,647	0.3%	49.4%
Total / average	152,557	14.6	23,675	1.6%	55.2%

Do you a want a print out (Y/N) ?

Population Report (by Union)

District : BHOLA Thana : TAJUMUDDIN 1991 Census

Geo-Code 3099176 Union : SONAPUR

Area : 20,079 acres

House Holds : 3,594

Population : 18,873 M:52.2% F:47.8%

Literacy : 19.6% M: 23% F: 16%

Construction			
Straw/bamboo	:	2,886	81%
Tile / CI sheet	:	673	19%
Cement	:	9	0%
Owner Occupier	:	1,722	48%
Electricity	:	10	0%

Drinking Water & Sanitation			
Piped supply	:	0	0%
Tubewell	:	2,501	70%
Open well	:	4	0%
Pond	:	370	10%
River	:	693	19%
Sanitary toilet	:	49	1%
Non-sanitary toilet	:	3,330	93%
No toilet	:	189	5%

Do you a want a print out (Y/N) ?

20F

Agriculture Report

```
District : Nilphamari          Thana : SAIDPUR
1987 BBS Crop Statistics       NCA                : 10,688
(all areas in hectares)        Cropping Intensity: 147%
Geocode : 47385                (% of NCA)

HYV Aman    :  4,998   HYV boro    :  1,012
Pajam Aman  :  2,551   Pajam boro  :     11
B Aman      :    291   Local boro  :     24

HYV aus     :  1,012   HYV wheat   :  1,502
Pajam aus   :      0   Local wheat :      0
Local aus   :  2,833

        0         50          100% (of NCA)

Aman    XXXXXXXXXXXXXX
Boro    X
Aus     XXXXXXX
Wheat   XX
Pulses

OTHER CROPS :
Jute          :  2,259
Tobacco       :      0
Sugar cane    :    293
Potato        :      4
Sweet potato  :      1
Ground nut    :      1
Mustard       :     93
Pulses
  Gram        :     54
  Arhar       :      1
  Mung        :     40
  Masur       :     45
  Khesari     :      6
  Motor       :      8
  Chillies    :      6
Onion         :     20
Garlic        :     24
Ginger        :     30
Turmeric      :     67
Vegetables    :     36
Orchards      :      3

Do you a want a print out (Y/N) ?
```

Minor Irrigation Report

Nilphamari District

AST 1991 Minor Irrigation Statistics - Thana : SAIDPUR

Irrigation Mode	Nr Operating	Irrigated Area (ha)
Deep Tubewells	39	500
Shallow Tubewells		
- surface set	341	1,465
- deep set	0	0
Manual Tubewells	354	142
Low Lift Pumps		
- < 1 cusec	2	11
- 1 cusec	5	43
- 2 cusec	12	150
- 3 cusec	0	0
Traditional Methods		126
Total Irrigated Area	2,395	Percent of NCA 9%

Do you a want a print out (Y/N) ?

Telecommunications Report

Tele-Communication Links with : TEKNAF Thana Date : 20/02/93

From : Dhaka	To :Teknaf
METEOROLOGICAL DEPT.	HF/SSB RADIO-TELEPHONE NETWORK
Optd:24 Hrs	HF/SSB RADIO T
	Freq: 2324, 2505, 3363, 8814 kH

Operated once in ever 3 Hrs for collecting MET data from all stations
Contact: M.H. Khan Choudhury : Director Meteorology Phone: 02 -311032/318 917

From : Dhaka	To :Teknaf
RED CRESCENT CPP	HF/SSB RADIO-TELEPHONE NETWORK
Optd:1000-1030,1430-1500,	HF/SSB RADIO T
1500-1530	Freq: 6991.5, 3798, 7003 kHz

Contact: Emdad Hossain : Director CPP Phone: 02 -416169/

From : Teknaf	To :St. Martin Island
RED CRESCENT CPP	VHF/FM VOICE COMMUNICATION NET
Optd:11.30-11.50	VHF/FM RADIO T
	Freq: 86.850 MHz

Contact: Emdad Hossain : Director CPP Phone: 02 -416169/

Press any key to continue...

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Cyclone Shelters Report for Teknaf

Teknaf Thana — Date : 24/02/93

Union	Shelter Name	Type	Capacity	Normal Use
Baharchara	Family Welfare Centre	Other Buil	562	Office
Baharchhara	Baharchhara	CCC	500	Community C
Nhila	Nhila	CCC	500	Community C
Sabrang	Chandali Para	BDRCS	1,000	
Sabrang	Aliar Deil	BDRCS	1,000	
Sabrang	Katabunia	BDRCS	1,000	
Sabrang	Sabrang	CCC	500	Community C
Sabrang	Shah Pradwip	CCC	500	Community C
St. Martin's Isla	St. Martin's Island	PWD	1,510	
Teknaf	Teknaf	CCC	500	Community C
Teknaf	Thana Head Office New (U.T.D	Other Buil	1,823	Staff Quart
Teknaf	Thana Trading & Development C	Other Buil	1,688	Staff Quart
Teknaf	Thana Staff Quarter 1 Nos	Other Buil	1,500	Mosque
Teknaf	Thana Staff Quarter 6 Nos	Other Buil	1,000	Mosque
Teknaf	Dormitory Building	Other Buil	1,200	Mosque
Teknaf	U. N. O Quarter	Other Buil	250	Mosque
Teknaf	Thana Chairman Quarter	Other Buil	500	Mosque
Teknaf	Power Development Board	Other Buil	600	Staff Quart
Teknaf	Fisheri Office	Other Buil	700	Staff Quart
Teknaf	Fisheri Staff Quater 3 Nos	Other Buil	500	Mosque
Teknaf	Custom Office	Other Buil	1,000	Staff Quart
Teknaf	Jamia Islamia Teknaf Madrasa	Other Buil	5,000	Madrasa
Teknaf	Teknaf Police Station	Other Buil	1,000	Staff Quart
Teknaf	Abdul Mannan Building	Other Buil	1,500	Private Off
Teknaf	Hazikabmia Building	Other Buil	750	Others Publ
Teknaf	Hazikabmia House	Other Buil	1,250	Private Res
Teknaf	Hotel Samrat	Other Buil	2,400	Private Hot
Teknaf	Hotel Naf	Other Buil	4,500	Private Hot
Teknaf	Hotel National	Other Buil	3,000	Private Hot
Teknaf	Hotel Niribili	Other Buil	2,500	Private Hot
Teknaf	Sayed Ahamed's House	Other Buil	800	Private Res
Teknaf	Maheskhali Para Building	Other Buil	473	Staff Quart
Whykong	Whykong	CCC	500	Community C
Whykong	Whykong	SCCC	0	

Total Capacity	42,006
Total Population (1991)	152,557

Transport and Infrastructure (Part 1)

Transport Links in Bhola District : Part 1

Thana	Railway km	Roads (km) Pucca	Katcha	Bridges& Culverts	Aircraft Landing	Jetty	IWTA Term.	Electr-icity
Bhola	0	40	57	240	Helipad		2	Pwr Stn
Burhanuddin	0	15	1,840	38	Helipad			
Char fasson	0	9	386	180	Helipad		2	
Daulatkhan	0	5	96	75	Helipad			
Lalmohan	0	2	298	111	Helipad		1	
Monpura	0	2	42	20	Helipad		1	
Tajumuddin	0	2	36	86	Helipad		1	

Source : BBS Upazila Statistics (1988)
DCMU Working Paper Nr 7 (1992)

Press any key to continue...

Transport and Infrastructure (Part 2)

Transport Links in Bhola District : Part 2

Thana	Type	Location
Bhola	BIWTA Terminal	
Bhola	BIWTA Terminal	Ilshaghat
Bhola	Helipad	
Burhanuddin	Raised helipad	
Char fasson	BIWTA Terminal	Char Madras
Char fasson	BIWTA Terminal	Ghosherhat
Char fasson	Raised helipad	
Daulatkhan	Raised helipad	
Lalmohan	BIWTA Terminal	
Lalmohan	Helipad	
Monpura	BIWTA Terminal	
Monpura	Helipad	
Tajumuddin	BIWTA Terminal	
Tajumuddin	Helipad	

DCMU Working Paper Nr 7 (1992)

Press any key to continue...

Food Go-downs

Food Go-down Capacities (metric tons) in Cox's bazar District

Thana	Local S.D. Name	Local S.D. Capacity	Central S.D. Name	Central S.D. Capacity	Silo Capacity	Total Capacity
Chakaria	Chiringa	2,500		0	0	2,500
Chakaria	Badarkhal	1,500		0	0	1,500
Cox's bazar	Cox's Baz	2,500		0	0	2,500
Cox's bazar	Jilanja	8,000		0	0	8,000
Kutubdia	Baragoup	2,000		0	0	2,000
Moheshkhali	K.M. Char	1,000		0	0	1,000
Moheshkhali	Gorakghat	1,500		0	0	1,500
Ramu	Ramu	2,000		0	0	2,000
Teknaf	Teknaf	1,000		0	0	1,000
Ukhia	Ukhia	1,500		0	0	1,500
Total		23,500		0	0	23,500

Source : Storage Facilities under Food Directorate
MIS & Monitoring Division. D.G. Food. 1992.

Press any key to continue...

Commercial Markets

Important Trade Centres in Chittagong District

Thana	Market	Products
	Dhoom	rice
Hathazari	Hathazari	rice
Dohazari	Dohazari	bamboo, tobacco, vegetables.
Metro	Metro	rice, jute, timber, pulses, hides & skin
Chittagong	Hathazari Road	cooking utensils, plastic cutlery
Chittagong	Mirzapol	cooking utensils, plastic cutlery
Chittagong	Firing bazar	puli bamboo
Mirsharai	Mirsharai	rice
Mirsharai	Korer Hat	muli bamboo
Patia	Patia	salt, rice.
Sandwip	Sandwip	rice, pulses.
Satkania	Satkania	rice

Press any key to continue...

Transport and Infrastructure (Part 1)

Transport Links in Bhola District : Part 1

Thana	Railway km	Roads (km) Pucca	Roads (km) Katcha	Bridges& Culverts	Aircraft Landing	Jetty IWTA Term.	Electr-icity
Bhola	0	40	57	240	Helipad	2	Pwr Stn
Burhanuddin	0	15	1,840	38	Helipad		
Char fasson	0	9	386	180	Helipad	2	
Daulatkhan	0	5	96	75	Helipad		
Lalmohan	0	2	298	111	Helipad	1	
Monpura	0	2	42	20	Helipad	1	
Tajumuddin	0	2	36	86	Helipad	1	

Source : BBS Upazila Statistics (1988)
DCMU Working Paper Nr 7 (1992)

Press any key to continue...

Transport and Infrastructure (Part 2)

Transport Links in Bhola District : Part 2

Thana	Type	Location
Bhola	BIWTA Terminal	
Bhola	BIWTA Terminal	Ilshaghat
Bhola	Helipad	
Burhanuddin	Raised helipad	
Char fasson	BIWTA Terminal	Char Madras
Char fasson	BIWTA Terminal	Ghosherhat
Char fasson	Raised helipad	
Daulatkhan	Raised helipad	
Lalmohan	BIWTA Terminal	
Lalmohan	Helipad	
Monpura	BIWTA Terminal	
Monpura	Helipad	
Tajumuddin	BIWTA Terminal	
Tajumuddin	Helipad	

DCMU Working Paper Nr 7 (1992)

Press any key to continue...

Health Facilities Report

Health Facilities in CHITTAGONG District

1. There are 18 pharmacetical factories producing 359 products
2. There are 800 beds in the General Hospitals
3. There are 21 NGO operated hospitals with 292 beds
4. The following special facilities also exist:
Medical College, Infectious Diseases(20),
TB hospital(100),

Thana Health Centres are located at:

Thana	Nr of beds
Anwara	31
Banskhali	31
Boalkhali	31
Chandanais	31
Fatikchari	31
Hathazari	31
Metro	0
Lohagara	0
Mirsharai	31
Patia	0
Rangunia	31

Press any key to continue...

Health Facilities in CHITTAGONG District

Thana Health Centres are located at:

Thana	Nr of beds
Rauzan	31
Sandwip	31
Satkania	31
Sitakunda	31

Source : Bangladesh Health Services Report (1989)

Press any key to continue...

APPENDIX C

DATABASE FILE STRUCTURES OF THE DECISION SUPPORT SYSTEM

Function : Master File for Districts

Structure for database : C:\DCMU\DATABASE\ZILAS.DBF
Number of data records : 64

Field Name	Type	Width	Dec	Index	Explanation
ZILA	Character	16		N	District name
GEOCODE	Character	3		Y	BBS geocode
OLDGEOCODE	Character	3		Y	BBS geocode by greater district
ALT_CODE	Numeric	2		Y	SPARRSO district code

Function : Master File for Thanas

Structure for database : C:\DCMU\DATABASE\THANAS.DBF
Number of data records : 464

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	BBS geocode
OLDGEOCODE	Character	3		N	
ALT_CODE	Numeric	3		N	SPARRSO Thana name
THANA	Character	16		N	Thana name
ZILA	Character	16		N	District name
POPULATE81	Numeric	6		N	Total Population (BBS, 1981)
POPULATE91	Numeric	6		N	Total Population (BBS, 1991)
AREA_HECT	Numeric	5		N	Total Area (hectares)
FLOOD	Numeric	1		N	Hazard index for flood
CYCLONE	Numeric	1		N	Hazard index for cyclone
EROSION	Numeric	1		N	Hazard index for erosion
DROUGHT	Numeric	1		N	Hazard index for drought
DISAST_NDX	Numeric	1		N	Risk index

Function : Master File for Unions

Structure for database : C:\DCMU\DATABASE\UNIONS
Number of data records : 3501

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	7		Y	BBS geocode
UNION	Character	17		N	Union name
THANA	Character	16		N	Thana name
POPULATE91	Numeric	9		N	Total Population reported by 1991 census
AREA_ACRES	Numeric	6		N	

Function : 1991 BBS Census Data

Structure for database : C:\DCMU\DATABASE\BBSUNION.DBF
Number of data records : 578

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	7		Y	BBS geocode
UNION	Character	17		N	Union name
POPULATED91	Numeric	9		N	Total population
AREA_ACRES	Numeric	6		N	
TL_H_HOLD	Numeric	5		N	Number of households
TOT_MATERL	Numeric	5		N	Number of household where construction is known
STRAW_BAMB	Numeric	9		N	Houses built of straw or bamboos
TILE_CI_ST	Numeric	9		N	Houses with CI sheet or tiled roof
CEMENT	Numeric	9		N	Houses built of concrete or brick
POP_MALE	Numeric	9		N	Total male population
POP_FEMALE	Numeric	9		N	Total Female population
TOT_LITERA	Numeric	9	2	N	Literacy (7 yrs+) as %
LITCY_MALE	Numeric	9	2	N	Male literacy (7 yrs+) as %
LITCY_FEMA	Numeric	9	2	N	Female literacy (7 yrs+) as %
TAP	Numeric	8		N	Houses with piped water supply
TUBEWELL	Numeric	9		N	Houses with tubewell water supply
WELL	Numeric	6		N	House with open well water supply
POND	Numeric	7		N	Houses with pond water supply
RIVER	Numeric	7		N	Houses with river water supply
SANITARY	Numeric	10		N	Houses with sanitary toilet
TOILET_OTH	Numeric	9		N	Houses with other type of toilet
TOILET_NO	Numeric	6		N	Houses with no toilet
ELECTRICIT	Numeric	12		N	House with electricity
OWN_LAND	Numeric	5		N	Houses where the land is owned by the occupant
N_OWN_LAND	Numeric	9		N	Houses where the land is not by the occupant

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Function : Reference for Disaster Types

Structure for database : C:\DCMU\DATABASE\DISASTER.DBF
Number of data records : 8

Field Name	Type	Width	Dec	Index	Explanation
DCODE	Character	1		Y	BBS geocode
DNAME	Character	16		N	Name for disaster type
INTNL_CODE (1)	Character	10		N	International equivalent of code
INTL_NAME	Character	20		N	International equivalent of name

(1) Note international codes are cross references to the International Emergency Readiness and Response System (IERR

Function : Index of Disaster Events

Structure for database : C:\DCMU\DATABASE\DISHIST.DBF
Number of data records : 7

Field Name	Type	Width	Dec	Index	Explanation
SL_NO	Character	2		N	Serial number
DCODE	Character	1		N	Code for disaster type
DATE	Date	8		N	Onset date for disaster
DISAST_NAM	Character	15		N	Disaster name
LOCATION	Character	20		N	Area of occrrence
DESCRIPTIN	Memo	10		N	General description of disaster

Function : 1991 Minor Irrigation Census Results

Structure for database : C:\DCMU\DATABASE\T_IRRI91.DBF
Number of data records : 464
Date of last update : 02/02/93

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Numeric	5		Y	BBS Geocode
ALT_CODE	Numeric	3		N	
UPAZILA	Numeric	16		N	Thana Name
IRRIGATION	Numeric	6		N	Total area under irrigation
STW_NR	Numeric	4		N	Number of STWs operating in 1991
STW_ACRE	Numeric	6		N	Area irrigated by STWs (ac)
DSSTW_NR	Numeric	4		N	Number of Deep set STWs
DSSTW_ACRE	Numeric	6		N	
DTW_2CS_NR	Numeric	4		N	Number of DTWs≤2 cusec
DTW_2CS_AC	Numeric	6		N	
DTW_MT2_NR	Numeric	4		N	Number of operating DTWs >2 cusec
DTW_MT2_AC	Numeric	6		N	
LLP_LT1_NR	Numeric	4		N	Number of LLPs of <1 cusec capacity
LLP_LT1_AC	Numeric	6		N	
LLP_1CS_NR	Numeric	4		N	Number of 1 cusec LLPs
LLP_1CS_AC	Numeric	6		N	
LLP_2CS_NR	Numeric	4		N	Number of 2 cusec LLPs
LLP_2CS_AC	Numeric	6		N	
LLP_3CS_NR	Numeric	4		N	Number of 3 cusec LLPs
LLP_3CS_AC	Numeric	6		N	
MANUAL_NR	Numeric	5		N	Number of Manual tubewells opeating
MANUAL_AC	Numeric	6		N	
TRADITION	Numeric	6		N	Area irrigated by Manual tubewells

Structure for database : C:\DCMU\DATABASE\LANDTYPE.DBF
Number of data records : 464
Date of last update : 02/02/93

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
OLDGECODE	Character	5		N	
THANA	Character	16		N	
MPO_CODE	Numeric	3		N	MPO's THANA CODE
AREA_HEC	Numeric	9		N	
NCA_HEC	Numeric	9		N	Net cultivated area (hectare)
FO_HEC	Numeric	9		N	Area of High land (hectare)
F1_HEC	Numeric	9		N	Area of Medium-high land (hectare)
F2_HEC	Numeric	9		N	Area of Medium-low land (hectare)
F3_HEC	Numeric	9		N	Area of low land (hectare)
F4_HEC	Numeric	9		N	Area of very low land (hectare)
W_BODY	Numeric	9		N	Area of very low land (hectare)
HOME	Numeric	9		N	Area of very low land (hectare)
URBAN	Numeric	9		N	Area of very low land (hectare)
WATER	Numeric	9		N	Area of water bodes
H_WATER	Numeric	9		N	Area of homesteads
H_WATER	Numeric	9		N	Urban Area

Function : Telecommunications Network
Structure for database : C:\DCMU\DATABASE\TEL_NTWK.DBF
Number of data records : 1018

Field Name	Type	Width	Dec	Index	Explanation
INSTCODE	Character	2		Y	Code for institution name
TYPE_CODE	Character	2		Y	Code for telecommunications type
DEST1	Character	20		N	"From" destination
GEOCODE1	Character	5		Y	Geocode for above
DEST2	Character	25		Y	"TO" destination
GEOCODE2	Character	7		Y	Geocode for above
OP_TIME	Character	50		N	Operating hours
FREQ	Character	25		N	
REMARKS	Character	135		N	

Function : Details of Institutions with Telecommunications Network
Structure for database : C:\DCMU\DATABASE\TEL_INST.DBF
Number of data records : 15

Field Name	Type	Width	Dec	Index	Explanation
INSTCODE	Character	2		Y	Code for institution name
INAME	Character	30		Y	Name of institution
GEOCODE	Character	1		Y	Divisional Geocode
C_PERSON	Character	25		Y	Name of contact person at source
DESIG	Character	25		Y	Designation of contact person at source
PHONE_CODE	Character	4		N	Regional code for telephone
PHONE1	Character	11		N	1st telephone number for contact person
PHONE2	Character	11		N	2nd telephone number for contact person

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Function : Type of Telecommunications Network
Structure for database : C:\DCMU\DATABASE\TEL_TYPE.DBF
Number of data records : 13

Field Name	Type	Width	Dec	Index	Explanation
TTYPE_CODE	Character	2		Y	Code for network type
TYPE_NETWK	Character	33		N	Description of retwork type
MODE_OP	Character	14		N	Mode of Operation

Function : Thana level contacts
Structure for database : C:\DCMU\DATABASE\T_CONTCT.DBF
Number of data records : 464

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
NAME	Character	20		N	
DESIGNATIO	Character	15		N	
AGENCY	Character	10		N	
ADDRESS1	Character	15		N	
ADDRESS2	Character	15		N	
PHONE_CODE	Character	4		N	
PHONE1	Character	6		N	
PHONE2	Character	6		N	
FAX_NR	Character	6		N	
KEYWORD1	Character	15		N	Special expertise or activity
KEYWORD2	Character	15		N	" " "

Function : District Level Contacts
Structure for database : C:\DCMU\DATABASE\Z_CONTCT.DBF
Number of data records : 194

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	3		Y	
NAME	Character	20		N	
DESIGNATIO	Character	18		N	
AGENCY	Character	10		N	
ADDRESS1	Character	20		N	
ADDRESS2	Character	20		N	
PHONE_CODE	Character	4		N	
PHONE1	Character	6		N	
PHONE2	Character	6		N	
FAX_NR	Character	6		N	
KEYWORD1	Character	15		N	
KEYWORD2	Character	15		N	
TELEX	Character	6		N	
HOME_PHONE	Character	6		N	

Structure for database : C:\DCMU\DATABASE\FOODGODWN.DBF
Go-downs Operated by D.G. Food
Number of data records : 605

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	5			Y	
THANA	16			N	
LSD_NAME	12			N	Local Storage Depot
LSD_CPCTY	7			N	Capacity in metric tons
CSD_NAME	12			N	Central Storage Depot
CSD-CPCTY	7			N	
SILO_NAME	12			N	
SILO_CPCTY	7			N	
CAPACITY	7			N	Total capacity (metrict tons)

Structure for database : C:\DCMU\DATABASE\T_MARKET.DBF
Go-downs Operated by D.G. Food
Number of data records : 487

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
THANA	Character	16		N	
MARKET	Character	20		N	Name of market place
PRODUCTS	Character	40		N	Principal products

Function : Agricultural Cropping Pattersns
Structure for database : C:\DCMU\TEMP\T_AGRIC.DBF
Number of data records : 465

Field Name	Type	Width		Dec	Index	Explanation
GEOCODE	Character	5	15		Y	
THANA	Character		9		N	
AREACOR	Numeric		9		N	Total area (hectare)
NCACOR	Numeric		9		N	Net cultivated area (hectare)
L_AUS	Numeric		9		N	Local aus rice (ha)
H_AUS	Numeric		9		N	HYV aus rice (ha)
PJM_AUS	Numeric		9		N	Pajam aus rice (ha)
LT-AMAN	Numeric		9		N	Transplanted aman rice, local varities
H_AMAN	Numeric		9		N	Transplanted aman rice, HYV
PJM_AMAN	Numeric		9		N	Transplanted aman rice, Pajam
B_AMAN	Numeric		9		N	Broadcast aman rice
L_BORO	Numeric		9		N	Boro rice, local varities
H_BORO	Numeric		9		N	Boro rice, HYV
PJM_BORO	Numeric		9		N	Boro rice, local varities
L_WHEAT	Numeric		9		N	Wheat, local varieties
H_WHEAT	Numeric		9		N	Wheat, HYV
JUTE	Numeric		9		N	
TOBACCO	Numeric		9		N	
S_CANE	Numeric		9		N	Sugar cane
POTATO	Numeric		9		N	
S_POTATO	Numeric		9		N	Sweet potato
GR_NUT	Numeric		9		N	Ground nut
MUSTARD	Numeric		9		N	
GRAM	Numeric		9		N	
ARJAR	Numeric		9		N	
MUNG	Numeric		9		N	

MASUR	Numeric	9	N	
KHESARI	Numeric	9	N	
MOTOR	Numeric	9	N	
CHILLIES	Numeric	9	N	
ONION	Numeric	9	N	
GARLIC	Numeric	9	N	
GINGER	Numeric	9	N	
TURMERIC	Numeric	9	N	
VEGETABLES	Numeric	9	N	
ORCHARD	Numeric	9	N	
CROPSUM	Numeric	9	N	Total cropped area (ha)
CROPINT	Numeric	9	N	Cropping intensity

Function : Individual transport link (air ports, jetties etc)
Structure for database : C:\DCMU\DATABASE\TRANSPRT.DBF
Number of data records : 465

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
ZILA	Character	15		N	
THANA	Character	15		N	
HRA	Logical	1		N	If in cyclone high risk area
TRSPT_NAME	Character	14		N	Name of facility
TRSPT_TYPE	Character	20		N	Type of facility

Function : Thana Level infrastructure
Structure for database : C:\DCMU\DATABASE\TRANSPRT.DBF
Number of data records : 464

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
ZILA	Character	16		N	
THANA	Character	16		N	
RAILWAY	Numeric	4		N	Length of railway in Thana (km)
PUCCA_ROAD	Numeric	4		N	Length of pucca road in Thana (km)
KACHA_ROAD	Numeric	4		N	Length of katcha road in Thana (km)
BRDG_CULVT	Numeric	4		N	Number of bridges and culverts in thana
JETTIES	Numeric	4		N	Number of jetties and culverts in thana
BIWTA_TERM	Numeric	1		N	Number of BIWTA terminal
AIR_STRIP	Logical	1		N	If thana has an airport
AIR_STRIP	Logical	1		N	If thana has an landing strip
HELIPADS	Numeric	1		N	Numer of helipads
POWER_STN	Numeric	1		N	Number of power stations
GRID_STN	Numeric	1		N	Number of electricity grid stations

Function : District Level Health Faciliteis
Structure for database : C:\DCMU\DATABASE\Z_HEALTH.DBF
Number of data records : 64

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
ZILA	Character	16		N	
G_HOSPBEDS	Character	16		N	Number of General Hospital Beds
NGO_HOSPS	Numeric	4		N	Number of NGO run hospitals
NGO_BEDS	Numeric	4		N	Number of beds in NGO hospitals
PHARM_INDS	Numeric	4		N	Number of pharmaceutical factoreis
PHARMPRODS	Numeric	4		N	Number of products produced
SPECIAL1	Character	20		N	TB or infectious disease hospitals special facilities
SPECIAL2	Character	20		N	TB or infectious disease hospitals special facilities

Function : Thana Level Health Facilities
Structure for database : C:\DCMU\DATABASE\T_HEALTH.DBF
Nummber of data records : 464

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		Y	
THANA	Character	16		N	
ALT_CODE	Character	16		N	
HLTH_CENTR	Numeric	4		N	If thana has a health centre
HOSP_BEDS	Numeric	4		N	Number of beds in health centre

Function : Inventory of Cyclone Shelters
Structure for database : C:\DCMU\DATABASE\SHELTERS.DBF
Nummber of data records : 766

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	10		Y	
SHELT_TYPE	Character	14		N	Type of cyclone shelter
UNION	Character	17		N	Name of cyclone shelter
UNI_CODE	Character	2		N	BBS code
MOUZA	Character	17		N	
MOUZA_CODE	Character	3		N	BBS code
NORMAL USE	Numeric	2		N	Code for normal use of building
CAPACITY	Character	4		N	Capacity as shelter
NR_STOREY	Numeric	1		N	Number of storey
MANAGEMENT	Character	8		N	Public or Private management

Function : Look up table for normal use of shelters
Structure for database : C:\DCMU\DATABASE\SHELT_USE
Number of data records : 17

Field Name	Type	Width	Dec	Index	Explanation
NORM_CODE	Numeric	2		Y	Code for normal
NORMAL_USE	Character	23			

Function : Look up table for details of shelter type
Structure for database : C:\DCMU\DATABASE\SHELTYPE.DBF
Number of data records : 9

Field Name	Type	Width	Dec	Index	Explanation
SHELT_TYPE	14			Y	
SHELT_NAME	30			N	Full name for shelter type
CAPACITY	4			N	Shelter capacity
DESCRIPTIO	10			N	Detailed description of shelter type

Function : Stores 'SOS' Damage Reports
Structure for database : C:\DCMU\DAMAGE\DAMAGE.DBF

Field Name	Type	Width	Dec	Index	Explanation
GEO_CODE	Character	5		N	BBS geocode
SL_NO	Character	2		N	Code for disaster event
DA_CN_DATE	Date	8		N	Data collection date
AUNION	Numeric	2		N	Number of affected unions
SKEREA	Numeric	4		N	Affected area (acres)
APOPU	Numeric	7		N	Affected Population (nr)
HDEST	Numeric	3		N	Houses destroyed
DEALTH	Numeric	5		N	Number of dead
SR	Numeric	1		N	Urgent Need : Search and Reserve
F_AID	Character	1		N	Urgent Need : First Aid
WATER	Character	1		N	Urgent Need : Drinking water
FOOD	Character	1		N	Urgent Need : food
CLOTH	Character	1		N	Urgent Need : Clothing
SHELTER	Character	1		N	Urgent Need : Shelter

APPENDIX D

DATA COLLECTION FORMS FOR DAMAGE ASSESSMENTS

'SOS' Form

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

URGENT NEED

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

DAMAGE ASSESSMENT FORM (D-FORM #2/2.1)

Thana Name	Affected Unions (No)	Affected Area (sq. km)	Prop. Affected Area (%)	Affected Population (No)			Death No	Buried No	Injured No	Family Affected (No)			House Destroyed (No)	House Partially Damaged (No)
				Worst	Badly	Partially				Worst	Badly	Partially		

DAMAGE ASSESSMENT FORM (D-FORM #2/2.2)

Mosque Damaged	Roads Destroy (Km)		Roads Damaged (Km)		Bridges/Culvert Damaged		Embank-ment	Foresty Tk	Power Tk	T&T Tk	Industries Damaged		Fisheries Tk.	Tubewells Damag (Nos)			Ponds/ Tanks	Boats/ Trawlers	Net (Tk)	Loom (Tk)
(No)	Pucca	Kucha	Pucca	Kucha	Badly	Slidely		(Thou)	(Thou)	(Thou)	Nos.	Tk. (Thou)	(Thou)	DTW	STW	HTW	(Nos)	Tk.(Million)	Primary	Others

DAMAGE ASSESSMENT FORM (D-FORM #2/2.3)

Mosque Damaged	Roads Destroy (Km)		Roads Damaged (Km)		Bridges/Culvert Damaged		Embank-ment	Foresty Tk	Power Tk	T&T Tk	Industries Damaged		Fisheries Tk.	Tubewells Damag (Nos)			Ponds/ Tanks	Boats/ Trawlers	Net (Tk)	Loom (Tk)
(No)	Pucca	Kucha	Pucca	Kucha	Badly	Slidely		(Thou)	(Thou)	(Thou)	Nos.	Tk. (Thou)	(Thou)	DTW	STW	HTW	(Nos)	Tk.(Million)	Primary	Others

APPENDIX E

DATABASE FILE STRUCTURES FOR DAMAGE ASSESSMENT

Function : Crop Damage Reports
Structure for database : C:\DCMU\DAMAGE\DCROP.DBF

Note : All areas in acres

Field Name	Type	Width	Dec	Index	Explanation
GEO_CODE	Character	5		N	
SL_NO		2		N	
DA_CN_DATE		8		N	
AUNION		2		N	
BLOCK		2		N	Number of blocks affected
CROP		2		N	Code for crop
CAREA		25		N	Total area for given crop (acres)
DAREA		7		N	Damaged area for given crop (acres)
FDAREA		5		N	Full damaged area for given crop (acres)
PDAREA		5		N	Partly damaged area for given crop (acres)
EPD		2		N	Extent of partial damage (%)
PDCFDA		4		N	Partly damaged area converted to fully damaged areas
TAD		5		N	Equivalent area of fully damaged crop
DCACTL		5		N	Expected yield per acre (maunds)
EYPA		5		N	Lost production (maunds)
L;OSSPRO		6		N	Lost production (maunds)
PRICE		5		N	Expected selling price of crop (Tk)
VALUE		8		N	Value of lost productioin (Tk)
CASE		2		N	Crop age (weeks)
REMARKS		25		N	

Function : Detailed Damage Reports
Structure for database : C:\DCMU\DAMAGE\DFORM.DBF

Field Name	Type	Width	Dec	Index	Explanation
GEO_CODE	Character	5		N	
SL_NO	Character	2		N	
DA_CN_DATE	Date	8		N	
AUNION	Numeric	2		N	
SKAREA	Numeric	5		N	
PAREA	Numeric	2		N	
APOPU	Numeric	5		N	
HDEST	Numeric	3		N	
DEATH	Numeric	6		N	
BURIED	Numeric	5		N	

P66

INJURED	Numeric	6	N	
W_A_POPU	Numeric	5	N	Worst affected population
B_A_POPU	Numeric	5	N	Badly affected population
P_A_POPU	Numeric	5	N	Partly affected population
W_A_FAMILY	Numeric	4	N	Worst affected familes
B-A_FAMILY	Numeric	4	N	
P_A_FAMILY	Numeric	4	N	
F_D_HOUSE	Numeric	4	N	Fully damaged houses
P_D_HOUSE	Numeric	4	N	Partially damaged houses
L_CATTLE	Numeric	4	N	Cattle lost
L_POULTRY	Numeric	4	N	Poultry lost
F_D_CROP	Numeric	5	N	
P_D_CROP	Numeric	5	N	
C_VALUE	Numeric	4	N	
D_SALT	Numeric	4	N	Area of salt pans damaged
V_D_SALT	Numeric	4	N	Value of salt pans damaged
D_SHRIMP	Numeric	4	N	Shrimp fisheries damaged
F_D_P_EDN	Numeric	4	N	Fully damaged schools, madrasas and college
P_D_OT_EDN	Numeric	4	N	
MOSQUE	Numeric	4	N	
F_D_P_ROAD	Numeric	4	N	Fully damaged pucca road
P_D_P_ROAD	Numeric	4	N	Partially damaged pucca road
F_D_C_ROAD	Numeric	4	N	Fully damaged katcha road
P_D_C_ROAD	Numeric	4	N	Partially damaged katcha road
F_BRIG_CLT	Numeric	4	N	Fully damaged bridges and culverts
P_BRIG_CLT	Numeric	4	N	Partially damaged bridges and culverts
D_EMBANK	Numeric	4	N	Embankment (km) damaged
D_FORESTRY	Numeric	4	N	Forestry ('000 Tk)
POWER	Numeric	4	N	Power sector damage ('000 Tk)
NO_INDUST	Numeric	4	N	Number of factories damaged
V_INDUST	Numeric	4	N	Industrial damage (Tk)
FISHERIES	Numeric	4	N	Fisheries damage (Tk)
DTW	Numeric	4	N	}
STW	Numeric	4	N	} Nr. damaged
HTW	Numeric	4	N	}
PONDS	Numeric	4	N	}
BOATS	Numeric	3	N	Damaged in Tk
NET	Numeric	5	N	Damaged in Tk
LOOM	Numeric	5	N	Damaged in Tk
V_T_T	Numeric	3	N	Damage reported by T&T (Tk)

Function : Fisheries Damage Reports
Structure for database : C:\DCMU\DAMAGE\DFISH.DBF

Field Name	Type	Width	Dec	Index	Explanation
GEOCODE	Character	5		N	
SL_N	Character	2		N	
DA_CN_DATE	Date	8		N	
UNION	Numeric	2		N	
VILLAGE	Numeric	2		N	Number of Villages affected
POND	Numeric	3		N	Number of Ponds affected
FISH	Numeric	2		N	
CAREA	Numeric	5		N	Area of fisheries
DAREA	Numeric	7		N	Area of Fisheries damaged
FDAREA	Numeric	5		N	Area of Fisheries fully damaged
PDAREA	Numeric	5		N	Area of Fisheries partially damaged
EPD	Numeric	2		N	}
PDACFDA	Numeric	4		N	}
TAD	Numeric	5		N	} As crop damage file
DCACTL	Numeric	5	2	N	}
EYPA	Numeric	5	2	N	}
LOSSPRO	Numeric	6	2	N	}
PRICE	Numeric	5		N	}
VALUE	Numeric	8		N	}
EQUIP_CAT	Character	2		N	Equipment category
EQUIP_COST	Numeric	8		N	Vaue of equipment lost
tL_VALUE	Numeric	8		N	
REMARKS	Character	25		N	

Function : Emergency Relief Allocated
Structure for database : C:\DCMU\DAMAGE\ERELIEF.DBF

Field Name	Type	Width	Dec	Index	Explanation
GEO_CODE	Character	5		N	
DCODE	Character	1		N	
SL_NO	Character	2		N	
EDATE	Date	8		N	Relief Allocatioin Date
BISCUIT	Numeric	5		N	Quantity of relief sanctioned (Kg)
CHIRA	Numeric	5		N	" " " " "
CHAPATI	Numeric	5		N	" " " " "
COOKFOOD	Numeric	5		N	" " " " "
GUR	Numeric	6		N	" " " " "
WPT	Numeric	6		N	" " " " "
JERICAN	Numeric	6		N	Number of water purifying tablets
MULTIBAMBOO	Numeric	6		N	Pieces of muli bamboo
PLASTICST	Numeric	6		N	Number of plastic sheets allocated
SAREE	Numeric	6		N	Number of sarees allocated
LUNGEE	Numeric	5		N	Number of lungees allocated
C_GARMENT	Numeric	5		N	Number of childrens garments allocated
P_JUR	Numeric	4		N	Number of plastic jugs allocated
P_MUG	Numeric	4		N	Number of plastic mugs allocated
P_BOWL	Numeric	4		N	Number of plastic bowls allocated

APPENDIX F

DATA COLLECTION FORMS FOR DONOR CONTRIBUTION SYSTEM

Donor Contribution Entry Form

Disaster Name :	
Disaster Date:	
Contributor Name:	
Item Name:	
Quantity:	
Unit:	
Value:	
Currency:	
Local Purchase:	
Estimated Arrival Date:	
Actual Arrival Date:	
Port of Arrival:	
Source of Information:	
Remarks:	

Disaster Name :	
Disaster Date:	
Contributor Name:	
Item Name:	
Quantity:	
Unit:	
Value:	
Currency:	
Local Purchase:	
Estimated Arrival Date:	
Actual Arrival Date:	
Port of Arrival:	
Source of Information:	
Remarks:	

Donor Information L

Contibutor Name	Address	City	State	Zip	Country	Country Code	City Code	Phone Number	Fax Number	Telex Number	Contact Person	Designation

APPENDIX G

DATABASE FILE STRUCTURES OF THE DONOR CONTRIBUTION SYSTEM

Function : Register of Donors
Structure for database : C:\DCMU\DONOR\CONTRIBU.DBF

Field Name	Type	Width	Dec	Index	Explanation
CODE	Character	3		Y	Serial number for donors
TYPE	Character	2		Y	Donor type (e.g. bilateral)
NAME	Character	11		Y	Donor's abbreviation
LNAME	Character	55		N	Full name of donor
ADD	Character	30		N	Donor's address in home country
CITY	Character	10		N	Ditto
STATE	Character	10		N	Ditto
ZIP	Character	10		N	Post Code
COUNTRY	Character	12		N	Country code (telephone)
CCODE	Character	3		N	
CITYCODE	Character	3		N	
TELE1	Character	8		N	Telephone number in home country
TELE2	Character	8		N	Telephone number in home country
TELE3	Character	8		N	Telephone number in home country
TELEX	Character	10		N	Telex number in home country
FAX	Character	10		N	Fax number in home country
CNT_PERSON	Character	20		N	Contact person in home country
DESIG	Character	20		N	Designation of contact person
BADD	Character	45		N	Bangladesh address of donor
BCITY	Character	10		N	City
BAREACODE	Character	4		N	Regional telephone code
BCODE	Character	4		N	
BTELE1	Character	6		N	Telephone number in Bangladesh
BTELE2	Character	6		N	Telephone number in Bangladesh
BTELE3	Character	6		N	Telephone number in Bangladesh
BTELEX	Character	15		N	Telex number in Bangladesh
BFAX	Character	12		N	Fax number in Bangladesh
B_CNT-PSN	Character	20		N	Contact person in Bangladesh
B_DESIG	Character	20		N	Designation of contact person in Bangladesh

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Function : List of Contributions and Committments
Structure for database : C:\DCMU\DONOR\COMMITT.DBF
Number of data records: 64

Field Name	Type	Width	Dec	Index	Explanation
SL_NO	Character	2		N	Serial number for event
CODE	Character	3		N	Donor Code
CATCPDE	Character	2		N	Code for relief category
SUBCATCODE	Numric	3		N	Code for sub-category of relief
DATE	Date	8		N	Date of information received
QTY	Numeric	6		N	Quantity of relief goods
UNIT	Character	8		N	Units for the above
VALUE	Numeric	6		N	Value of the relief
CURRENCY	Character	6		N	Currency for the above
L_PURCH	Logical	1		N	If locally purchased
ES_ARV_DT	Date	8		N	Esimated date of arrival
AC_ARV_DT	Date	8		N	Actual date of arrival
PORT_ARVL	Character	10		N	Port of arrival
INFOSOURCE	Character	15		N	Source of information
REMARK	Character	20		N	

APPENDIX H

LIST OF THANAS, GEOCODES, HAZARD AND RISK INDICES

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
10304	Bandarban	Alikadam	27	1	0
10314	Bandarban	Bandarbon	76	1	0
10351	Bandarban	Lama	93	1	0
10373	Bandarban	Nakhyangchari	75	1	0
10389	Bandarban	Rowangachari	46	1	0
10391	Bandarban	Ruma	49	1	0
10395	Bandarban	Thanchi	18	1	0
11202	Brahmanbaria	Akhaura	1,484	1	5
11204	Brahmanbaria	Bancharampur	1,315	3	12
11213	Brahmanbaria	Brahmanbaria	1,251	1	4
11263	Brahmanbaria	Kasba	1,177	1	4
11285	Brahmanbaria	Nabinagar	1,232	3	11
11290	Brahmanbaria	Nasirnagar	810	1	3
11294	Brahmanbaria	Sarail	1,073	3	10
11322	Chandpur	Chandpur	1,416	3	13
11345	Chandpur	Faridganj	1,748	4	22
11347	Chandpur	Haimchar	736	6	14
11349	Chandpur	Hajiganj	1,512	3	14
11358	Chandpur	Kachua	1,324	2	8
11376	Chandpur	Matlab	1,437	5	22
11395	Chandpur	Shahrasti	1,316	2	8
11504	Chittagong	Anwara	1,604	5	25
11508	Chittagong	Banskhali	942	5	15
11512	Chittagong	Boalkhali	1,718	3	16
11518	Chittagong	Chandanais	1,002	1	3
11533	Chittagong	Fatikchari	555	1	2
11537	Chittagong	Hathazari	1,522	1	5
11541	Chittagong	Metro	34,488	5	530
11547	Chittagong	Lohagara	826	1	3
11553	Chittagong	Mirsharai	825	5	13
11561	Chittagong	Patia	1,361	3	13
11570	Chittagong	Rangunia	917	1	3
11574	Chittagong	Rauzan	1,425	1	4
11578	Chittagong	Sandwip	450	7	10
11582	Chittagong	Satkania	1,174	1	4
11586	Chittagong	Sitakunda	635	5	10
11909	Comilla	Barura	1,362	2	8
11915	Comilla	Brahmanpara	1,269	2	8
11918	Comilla	Burichang	1,523	3	14
11927	Comilla	Chandina	1,377	3	13
11931	Comilla	Chauddagram	1,767	2	11
11936	Comilla	Daudkandi	1,430	3	13
11940	Comilla	Debidwar	1,500	3	14
11951	Comilla	Homna	1,440	4	18
11967	Comilla	Comilla	1,930	2	12
11972	Comilla	Laksam	1,584	3	15
11981	Comilla	Muradnagar	1,432	2	9
11987	Comilla	Nangalkot	1,197	2	7
12216	Cox's bazar	Chakaria	646	5	10
12224	Cox's bazar	Cox's bazar	1,134	5	17
12245	Cox's bazar	Kutubdia	626	5	10
12249	Cox's bazar	Moheshkhali	616	6	11
12266	Cox's bazar	Ramu	414	1	1
12290	Cox's bazar	Teknaf	363	3	3
12294	Cox's bazar	Ukhia	443	3	4
13014	Feni	Chhagalnaiya	1,336	1	4
13025	Feni	Daganbhuiya	1,474	1	5
13029	Feni	Feni	1,658	1	5
13051	Feni	Parshuram	933	1	3

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
13094	Feni	Sonagazi	958	6	18
13602	Habiganj	Ajmiriganj	449	4	6
13605	Habiganj	Bahubal	604	0	0
13611	Habiganj	Baniyachang	532	4	7
13626	Habiganj	Chunarughat	527	0	0
13644	Habiganj	Habiganj	923	2	6
13668	Habiganj	Lakhai	616	2	4
13671	Habiganj	Madhabpur	1,139	0	0
13677	Habiganj	Nabiganj	640	3	6
14643	Khagrachari	Dighinala	88	1	0
14649	Khagrachari	Khagrachari	177	1	1
14661	Khagrachari	Laksmichari	69	1	0
14665	Khagrachari	Mohalchari	118	2	1
14667	Khagrachari	Manikchari	320	1	1
14670	Khagrachari	Matiranga	147	1	1
14677	Khagrachari	Panchari	146	1	0
14680	Khagrachari	Ramgar	204	1	1
15143	Laksmipur	Laksmipur	1,314	3	12
15158	Laksmipur	Raipur	1,296	3	12
15165	Laksmipur	Ramganj	1,512	1	5
15173	Laksmipur	Ramgati	541	5	8
15814	Moulvi Bazar	Barlekha	439	0	0
15856	Moulvi Bazar	Kamalganj	451	0	0
15865	Moulvi Bazar	Kulaura	561	1	2
15874	Moulvi Bazar	Moulvibazar	770	3	7
15880	Moulvi Bazar	Rajnagar	592	1	2
15883	Moulvi Bazar	Srimangal	523	0	0
17507	Noakhali	Begumganj	1,851	1	6
17510	Noakhali	Chatkhil	1,753	1	5
17521	Noakhali	Companiganj	422	6	8
17536	Noakhali	Hatiya	305	6	6
17580	Noakhali	Senbag	1,713	5	26
17587	Noakhali	Noakhali	662	1	2
18407	Rangamati	Baghaichari	36	1	0
18421	Rangamati	Barkal	32	1	0
18425	Rangamati	Kawkhali	113	1	0
18429	Rangamati	Belaichari	25	1	0
18436	Rangamati	Kaptai	426	1	1
18447	Rangamati	Juracharí	23	1	0
18458	Rangamati	Langadu	127	1	0
18475	Rangamati	Nannerchari	82	1	0
18478	Rangamati	Rajasthali	106	1	0
18487	Rangamati	Rangamati	136	1	0
19018	Sunamganj	Bishambarpur	749	3	7
19023	Sunamganj	Chatak	705	1	2
19029	Sunamganj	Dirai	500	2	3
19032	Sunamganj	Dharmapasha	377	3	4
19033	Sunamganj	Dwarabazar	574	2	4
19047	Sunamganj	Jagannathpur	543	3	5
19050	Sunamganj	Jamalganj	401	3	4
19086	Sunamganj	Sulla	349	2	2
19089	Sunamganj	Sunamganj	528	3	5
19092	Sunamganj	Tahirpur	458	2	3
19108	Sylhet	Balaganj	655	3	6
19117	Sylhet	Beani bazar	776	3	7
19118	Sylhet	Biswanath	890	2	6
19121	Sylhet	Companiganj	238	2	2
19135	Sylhet	Fenchuganj	756	3	7
19138	Sylhet	Golapganj	907	3	8
19141	Sylhet	Gowainghat	368	2	2

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
19153	Sylhet	Jaintapur	351	2	2
19159	Sylhet	Kanairghat	461	1	1
19162	Sylhet	Sylhet	1,155	3	11
19194	Sylhet	Zakiganj	738	3	7
22610	Dhaka	Metro	114,126	0	0
22614	Dhaka	Dhamrai	1,124	0	0
22618	Dhaka	Dohar	1,299	3	12
22638	Dhaka	Keraniganj	2,812	1	9
22662	Dhaka	Nawabganj	1,229	3	11
22672	Dhaka	Savar	1,191	0	0
22903	Faridpur	Alfadanga	406	0	0
22910	Faridpur	Bhanga	1,169	3	11
22918	Faridpur	Boalmari	1,533	1	5
22921	Faridpur	Char bhadrasan	508	4	6
22947	Faridpur	Faridpur	927	3	9
22956	Faridpur	Madhukhali	795	1	2
22962	Faridpur	Nagarkanda	799	1	3
22984	Faridpur	Sadarpur	702	4	9
23330	Gazipur	Gazipur	738	0	0
23332	Gazipur	Kaliakoir	690	2	4
23334	Gazipur	Kaliganj	1,090	0	0
23336	Gazipur	Kapasia	924	2	6
23386	Gazipur	Sreepur	667	1	2
23407	Rajbari	Baliakandi	1,022	0	0
23429	Rajbari	Goalundo	674	4	8
23473	Rajbari	Pangsa	756	2	5
23476	Rajbari	Rajbari	934	4	12
23632	Gopalganj	Gopalganj	934	4	12
23643	Gopalganj	Kasiani	880	3	8
23651	Gopalganj	Kotalipara	645	3	6
23658	Gopalganj	Muksudpur	1,036	3	10
23691	Gopalganj	Tungipara	789	4	10
23907	Jamalpur	Bakshiganj		4	0
23915	Jamalpur	Dewanganj	1,170	4	14
23929	Jamalpur	Islampur	786	4	10
23936	Jamalpur	Jamalpur	1,126	3	10
23958	Jamalpur	Madarganj	941	4	12
23961	Jamalpur	Melandaha	1,121	0	0
23985	Jamalpur	Sharishabari	1,088	4	13
24802	Kishorganj	Astogram	452	2	3
24806	Kishorganj	Bajitpur	1,087	2	7
24811	Kishorganj	Bhairab	1,727	1	5
24827	Kishorganj	Hossainpur	1,424	0	0
24833	Kishorganj	Itna	408	3	4
24842	Kishorganj	Karimganj	1,325	2	8
24845	Kishorganj	Katiadi	1,250	2	8
24849	Kishorganj	Kishorganj	1,668	2	10
24854	Kishorganj	Kuliarchar	1,424	2	9
24859	Kishorganj	Mithamoin		3	0
24876	Kishorganj	Nikli	597	3	6
24879	Kishorganj	Pakundia	1,250	2	8
24892	Kishorganj	Tarail	1,016	3	9
25440	Madaripur	Kalkini	1,052	3	10
25454	Madaripur	Madaripur	1,227	1	4
25480	Madaripur	Rajoir	997	1	3
25487	Madaripur	Sibchar	1,043	4	13
25610	Manikganj	Daulatpur	829	5	13
25622	Manikganj	Ghior	984	4	12
25628	Manikganj	Harirampur	853	5	13
25646	Manikganj	Manikganj	1,313	3	12

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
25670	Manikganj	Saturia	1,109	3	10
25678	Manikganj	Shivalaya	773	4	10
25682	Manikganj	Singair	1,208	3	11
25924	Munshiganj	Gazaria	1,089	3	10
25944	Munshiganj	Lohajang	1,484	4	18
25956	Munshiganj	Munshiganj	1,813	2	11
25974	Munshiganj	Serajdikhan	1,424	3	13
25984	Munshiganj	Sreenagar	1,222	4	15
25994	Munshiganj	Tangibari	1,520	3	14
26113	Mymensingh	Bhaluka	633	0	0
26120	Mymensingh	Fulbaria	1,065	1	3
26122	Mymensingh	Gaffargaon	1,056	2	7
26123	Mymensingh	Gouripur	1,039	1	3
26124	Mymensingh	Haluaghat	712	1	2
26131	Mymensingh	Ishwarganj	1,272	1	4
26152	Mymensingh	Mymensingh	1,573	2	10
26165	Mymensingh	Muktagacha	1,065	2	7
26172	Mymensingh	Nandail	1,138	1	4
26181	Mymensingh	Phulpur	898	1	3
26194	Mymensingh	Trishal	842	1	3
26702	Narayanganj	Araihazar	1,591	2	10
26704	Narayanganj	Sonargaon	1,591	2	10
26706	Narayanganj	Bandar	4,486	0	0
26758	Narayanganj	Narayanganj	13,517	2	83
26768	Narayanganj	Rupganj	1,509	2	9
26807	Narsingdi	Belabo	1,306	2	8
26852	Narsingdi	Monohardi	1,628	1	5
26860	Narsingdi	Narsinghdi	2,000	3	18
26863	Narsingdi	Palash	1,814	3	17
26864	Narsingdi	Raipura	1,873	3	17
26876	Narsingdi	Shibpur	1,218	1	4
27204	Netrakona	Atpara	715	1	2
27209	Netrakona	Barhatta	680	3	6
27216	Netrakona	Dhubaura	632	0	0
27218	Netrakona	Durgapur	629	3	6
27238	Netrakona	Khaliajuri	307	3	3
27240	Netrakona	Kalmakanda	590	1	2
27247	Netrakona	Kendua	925	1	3
27256	Netrakona	Modan	597	2	4
27263	Netrakona	Mohanganj	594	2	4
27274	Netrakona	Netrakona	971	2	6
27283	Netrakona	Purbadhala	809	1	3
28614	Shariyatpur	Bhedarganj	810	4	10
28625	Shariyatpur	Damudya	1,302	3	12
28636	Shariyatpur	Goshairhat	742	3	7
28665	Shariyatpur	Naria	1,025	4	13
28669	Shariyatpur	Shariyatpur	1,099	3	10
28694	Shariyatpur	Janjira	839	4	10
28937	Sherpur	Jhinaigati	707	0	0
28967	Sherpur	Nakla	1,011	0	0
28970	Sherpur	Nalitabir	671	1	2
28988	Sherpur	Sherpur	1,106	0	0
28990	Sherpur	Sribardi	1,208	0	0
29309	Tangail	Basail	1,145	1	4
29319	Tangail	Bhuapur	789	5	12
29323	Tangail	Delduar	1,077	3	10
29328	Tangail	Ghatail	760	0	0
29338	Tangail	Gopalpur	1,167	3	11
29347	Tangail	Kalihati	1,260	2	8
29357	Tangail	Madhupur	713	0	0

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
29366	Tangail	Mirzapur	1,042	3	10
29376	Tangail	Nagarpur	1,063	5	16
29385	Tangail	Shakhipur	512	0	0
29395	Tangail	Tangail	1,262	4	16
30108	Bagerhat	Bagerhat	991	3	9
30114	Bagerhat	Chitalmari	711	1	2
30134	Bagerhat	Fakirhat	824	2	5
30138	Bagerhat	Kachua	816	2	5
30156	Bagerhat	Mollahat	701	2	4
30158	Bagerhat	Mongla	90	4	1
30160	Bagerhat	Morelganj	792	3	7
30173	Bagerhat	Rampal	954	5	15
30177	Bagerhat	Sarankhola	150	7	3
30409	Barguna	Amtali	375	6	7
30419	Barguna	Bamna	810	6	15
30428	Barguna	Borguna	651	1	2
30447	Barguna	Betagi	857	6	16
30485	Barguna	Patharghata	491	6	9
30602	Barisal	Agailjhara	1,138	2	7
30603	Barisal	Babuganj	1,072	2	7
30607	Barisal	Bakerganj	982	5	15
30632	Barisal	Gaurnadi	2,715	2	17
30636	Barisal	Hizla	446	4	6
30651	Barisal	Barisal	1,477	4	18
30662	Barisal	Mehendiganj	838	4	10
30669	Barisal	Muladi	751	2	5
30694	Barisal	Ujirpur	1,100	2	7
30918	Bhola	Bhola	872	6	16
30921	Bhola	Burhanuddin	822	6	15
30925	Bhola	Char fasson	357	5	6
30929	Bhola	Daulatkhan	571	6	11
30954	Bhola	Lalmohan	642	5	10
30965	Bhola	Monpura	160	5	3
30991	Bhola	Tajumuddin	193	6	4
31807	Chuadanga	Alamdanga	729	1	2
31823	Chuadanga	Chuadanga	814	1	3
31831	Chuadanga	Damurhuda	725	1	2
31855	Chuadanga	Jiban nagar	638	0	0
34104	Jessore	Abhaynagar	927	0	0
34109	Jessore	Bagherpara	683	1	2
34111	Jessore	Chaugacha	682	0	0
34123	Jessore	Jhikargacha	803	0	0
34138	Jessore	Keshabpur	861	0	0
34147	Jessore	Jessore	1,244	1	4
34161	Jessore	Manirampur	811	0	0
34190	Jessore	Sarsa	744	1	2
34240	Jhalakati	Jhalakati	1,169	3	11
34243	Jhalakati	Kathalia	863	1	3
34273	Jhalakati	Nalchiti	983	3	9
34284	Jhalakati	Rajapur	972	1	3
34414	Jhenaidah	Harinakundu	725	1	2
34419	Jhenaidah	Jhenaidah	756	1	2
34433	Jhenaidah	Kaliganj	747	1	2
34442	Jhenaidah	Kotchandpur	724	1	2
34471	Jhenaidah	Maheshpur	590	1	2
34480	Jhenaidah	Sailkupa	881	0	0
34712	Khulna	Batiaghata	556	1	2
34717	Khulna	Dacope	145	4	2
34721	Khulna	Daulatpur	4,646	1	14
34730	Khulna	Dumuria	644	1	2

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
34751	Khulna	Khulna	19,280	1	59
34753	Khulna	Koyra	91	4	1
34764	Khulna	Paikgacha	555	2	3
34769	Khulna	Phultala	1,578	1	5
34775	Khulna	Rupsa	1,829	1	6
34794	Khulna	Terakhada	689	1	2
35015	Kushtia	Bheramara	936	1	3
35021	Kushtia	Daulatpur	804	1	3
35063	Kushtia	Khoksa	1,072	4	13
35071	Kushtia	Kumarkhali	1,140	4	14
35079	Kushtia	Kushtia	1,260	4	16
35094	Kushtia	Mirpur	873	1	3
35557	Magura	Magura	759	1	2
35566	Magura	Mohammadpur	801	1	3
35585	Magura	Salikha	629	1	2
35595	Magura	Sripur	908	1	3
35747	Meherpur	Gangni	714	1	2
35787	Meherpur	Meherpur	747	1	2
36528	Narail	Kalia	783	1	2
36552	Narail	Lohagara	779	0	0
36576	Narail	Narail	748	0	0
37838	Patuakhali	Bauphal	711	4	9
37852	Patuakhali	Dashmina	455	5	7
37857	Patuakhali	Galachipa	274	5	4
37866	Patuakhali	Kalapara	388	5	6
37876	Patuakhali	Mirzaganj	810	1	3
37895	Patuakhali	Patuakhali	908	1	3
37910	Pirojpur	Banaripara	1,255	2	8
37914	Pirojpur	Bhandaria	1,033	4	13
37947	Pirojpur	Kawkhali	1,104	3	10
37958	Pirojpur	Mathbaria	814	3	8
37976	Pirojpur	Nazirpur	842	3	8
37980	Pirojpur	Pirojpur	966	3	9
37987	Pirojpur	Sarupkati	1,194	3	11
38704	Satkhira	Asasuni	707	2	4
38725	Satkhira	Debhata	582	3	5
38743	Satkhira	Kalaroa	846	2	5
38747	Satkhira	Kaliganj	810	3	8
38782	Satkhira	Satkhira	872	3	8
38786	Satkhira	Shyamnagar	156	4	2
38790	Satkhira	Tala	851	2	5
41006	Bogra	Adamdighi	1,008	1	3
41020	Bogra	Bogra	1,403	1	4
41027	Bogra	Dhunot	1,089	3	10
41033	Bogra	Dupchachia	937	1	3
41040	Bogra	Gabtali	1,194	1	4
41054	Bogra	Kahalu	762	1	2
41067	Bogra	Nandigram	92	1	0
41081	Bogra	Shariakandi	524	5	8
41088	Bogra	Sherpur	750	3	7
41094	Bogra	Shibganj	1,034	1	3
41095	Bogra	Sonatola	1,335	2	8
42710	Dinajpur	Birampur	640	1	2
42712	Dinajpur	Birganj	574	1	2
42717	Dinajpur	Biral	605	2	4
42721	Dinajpur	Bochaganj	584	1	2
42730	Dinajpur	Chirirbandar	765	2	5
42738	Dinajpur	Fulbari	612	1	2
42743	Dinajpur	Ghoraghat	601	1	2
42747	Dinajpur	Hakimpur	759	2	5

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^2)	Hazard Index	Risk Index
42756	Dinajpur	Kaharol	585	1	2
42760	Dinajpur	Khansama	725	0	0
42764	Dinajpur	Dinajpur	1,017	2	6
42769	Dinajpur	Nawabganj	549	1	2
42777	Dinajpur	Parbatipur	720	2	4
43224	Gaibandha	Gaibandha	470	5	7
43230	Gaibandha	Gabindaganj	805	1	3
43261	Gaibandha	Fulchari	1,332	3	12
43267	Gaibandha	Palasbari	1,150	0	0
43282	Gaibandha	Sadullapur	1,111	1	3
43288	Gaibandha	Shaghata	976	0	0
43291	Gaibandha	Sandarganj	959	5	15
43813	Jaipurhat	Akkelpur	932	1	3
43847	Jaipurhat	Jaipurhat	1,057	2	7
43858	Jaipurhat	Kalai	773	1	2
43861	Jaipurhat	Khetlal	661	1	2
43874	Jaipurhat	Panchbibi	709	2	4
44906	Kurigram	Bhurungamari	842	3	8
44908	Kurigram	Razibpur	355	5	6
44909	Kurigram	Chilmari	1,276	5	20
44918	Kurigram	Fulbari	824	3	8
44952	Kurigram	Kurigram	824	4	10
44971	Kurigram	Nageswari	733	4	9
44977	Kurigram	Razarhat	949	2	6
44979	Kurigram	Rahumari	569	3	5
44994	Kurigram	Ulipur	775	3	7
45202	Lalmonirhat	Aditmari	899	1	3
45233	Lalmonirhat	Hatibanda	629	3	6
45239	Lalmonirhat	Kaliganj	856	3	8
45255	Lalmonirhat	Lalmonirhat	975	0	0
45270	Lalmonirhat	Patgram	614	2	4
46403	Naogaon	Atrai	703	3	7
46406	Naogaon	Badalgachhi	973	1	3
46428	Naogaon	Dhamoirhat	521	2	3
46447	Naogaon	Manda	775	2	5
46450	Naogaon	Mohadebpur	659	2	4
46460	Naogaon	Naogaon	1,185	2	7
46469	Naogaon	Niamatpur	439	2	3
46475	Naogaon	Patnitala	531	2	3
46479	Naogaon	Porsha	405	2	3
46485	Naogaon	Raninagar	629	2	4
46486	Naogaon	Shapahar	449	2	3
46909	Natore	Bagatipara	806	3	7
46915	Natore	Baraigram	545	3	5
46941	Natore	Gurudaspur	874	3	8
46944	Natore	Lalpur	969	2	6
46963	Natore	Nator	877	3	8
46991	Natore	Singra	552	3	5
47018	Chapai Nawabganj	Bholahat	570	4	7
47037	Chapai Nawabganj	Gomastapur	627	4	8
47056	Chapai Nawabganj	Nachol	332	5	5
47066	Chapai Nawabganj	Nawabganj	846	2	5
47088	Chapai Nawabganj	Shibganj	809	3	8
47312	Nilphamari	Dimla	632	0	0
47315	Nilphamari	Domar	787	0	0
47336	Nilphamari	Jaldhaka	786	1	2
47345	Nilphamari	Kishorganj	992	1	3
47364	Nilphamari	Nilphamari	906	1	3
47385	Nilphamari	Saidpur	2,093	0	0
47605	Pabna	Atgharia	729	3	7

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

Geocode	District	Thana	Population Density (km^{-2})	Hazard Index	Risk Index
47616	Pabna	Bera	794	4	10
47619	Pabna	Bhangura	690	3	6
47622	Pabna	Chatmohar	839	3	8
47633	Pabna	Faridpur	1,153	2	7
47639	Pabna	Ishardi	987	1	3
47655	Pabna	Pabna	1,210	3	11
47672	Pabna	Santhia	836	2	5
47683	Pabna	Sujanagar	637	3	6
47704	Panchagar	Atwari	517	0	0
47725	Panchagar	Boda	547	0	0
47734	Panchagar	Debiganj	576	0	0
47773	Panchagar	Panchagar	570	0	0
47790	Panchagar	Tetulia	457	1	1
48110	Rajshahi	Bagha	804	1	3
48112	Rajshahi	Bagmara	819	2	5
48122	Rajshahi	Boalia	2,089	1	6
48125	Rajshahi	Charghat	1,049	1	3
48131	Rajshahi	Durgapur	738	2	5
48134	Rajshahi	Godagari	495	4	6
48153	Rajshahi	Mohanpur	800	2	5
48172	Rajshahi	Paba	1,389	2	9
48182	Rajshahi	Puthia	849	1	3
48194	Rajshahi	Tanor	478	2	3
48503	Rangpur	Badarganj	749	2	5
48527	Rangpur	Gangachara	903	2	6
48542	Rangpur	Kaunia	1,180	2	7
48549	Rangpur	Rangpur	1,567	0	0
48558	Rangpur	Mithapukur	824	0	0
48573	Rangpur	Pirgachha	1,024	0	0
48576	Rangpur	Pirganj	754	0	0
48592	Rangpur	Taraganj	837	0	0
48811	Sirajganj	Belkuchi	1,566	5	24
48827	Sirajganj	Chauhali	626	5	10
48844	Sirajganj	Kamarkhanda	1,191	4	15
48850	Sirajganj	Kazipur	750	5	12
48861	Sirajganj	Raiganj	882	2	5
48867	Sirajganj	Shahzadpur	1,360	3	13
48878	Sirajganj	Sirajganj	1,397	5	22
48889	Sirajganj	Taras	469	3	4
48894	Sirajganj	Ullapara	982	2	6
49408	Thakurgaon	Baliadangi	539	0	0
49451	Thakurgaon	Haripur	511	1	2
49482	Thakurgaon	Pirganj	555	2	3
49486	Thakurgaon	Ranisonkail	561	1	2
49494	Thakurgaon	Thakurgaon	661	1	2

nb: 1993 thana populations were inflated from 1981 figures at 2.2% a year.

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

FINAL REPORT

VOLUME III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

Part 3 : Public Sector Accounting

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ACRONYMS AND ABBREVIATIONS

DCMU	Disaster Co-ordination and Monitoring Unit
ECNEC	Executive Committee of National Economic Council
ERD	Economic Relations Division, Ministry of Finance
GOB	Government of Bangladesh
IMED	Implementation Monitoring and Evaluation Division, Ministry of Planning
LGEB	Local Government Engineering Bureau
LGED	Local Government Engineering Department
MOCA	Ministry of Civil Aviation
MOD	Ministry of Defence
MOF	Ministry of Finance
MOFA	Ministry of Foreign Affairs
MOHA	Ministry of Home Affairs
MOI	Ministry of Information
MOR	Ministry of Relief
NBR	National Board of Revenue
NGO	Non-Government Organisation
PDB	Power Development Board
REB	Rural Electrification Board
SMEC	Snowy Mountain Engineering Co. Ltd.
TK	Taka, the Bangladeshi unit of Currency
TNO	Thana Nirbahi Officer

FINAL REPORT

VOLUME III

ORGANISATION AND SYSTEMS FOR DISASTER MANAGEMENT IN BANGLADESH

PART 1 : PUBLIC SECTOR ACCOUNTING

CHAPTER 1

INTRODUCTION

1.1 Background

Because of its the geographical location, Bangladesh is extremely vulnerable to natural disasters, as has been demonstrated by many occurrences in the past and more recently by the floods of 1987 and 1988 and the cyclone of 29 April 1991.

Major objectives of UNDP Project BGD/91/021 are to assist the Ministry of Relief in co-ordinating efforts to repair and rehabilitate areas affected by the cyclone of April 1991 and to strengthen the Ministry by establishing a control unit which would be:-

i) capable of effective monitoring, reporting, and evaluation; and

ii) able to co-ordinate and assist agencies involved in disaster related activities.

The Project would also prepare the way for a longer term disaster management programme.

Following the 1991 cyclone numerous donors pledged support to assist Bangladesh to return to normal as quickly as possible. Pledges were made in terms of material, cash and credit.

Both relief and short and long term rehabilitation works were put in hand, but the total expenditure on these activities and the proportion which came from GOB's own resources is not known.

When Bangladesh falls victim to a major natural disaster, it is not clear to what extent the 'normal' rules of business relating to Revenue and Development budget operations are followed.

This report contains the findings of a one month study to look into the above issues which was carried out in the period September/October 1992.

1.2 Terms of Reference

The terms of reference for the study were:

i) to determine through discussion with donor and **NGO representatives** and GOB officers **(ERD, Bangladesh Bank, NGO Affairs Bureau** etc.) when assistance pledged following cyclone 1991 arrived in Bangladesh,

ii) from discussion and a review of reports, to 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) to prepare an outline of the main stages in the GOB budgeting and expenditure process for both Revenue and Development budgets;

iv) to highlight any special steps taken or which could be taken to reduce processing time at times of disasters;

v) to 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) to prepare a summary report of findings

1.3 Report Format

In conformity, with the terms of reference (para 1.2(vi) above), this report comprises six Chapters each addressing a particular aspect.

Chapter 2 deals with the donor pledges committed and received following the 1991 Cyclone by various agencies.

Chapter 3 shows the value of total damage, their repairs, source of funds and outstanding work.

Chapter 4 outlines the main stages of the GOB budgeting process for both revenue and development budgets.

Chapter 5 highlights the special steps that could be taken to reduce processing times at time of disasters.

Chapter 6 considers what further investigations might be required in the context of a longer term Disaster Management Project.

CHAPTER 2

PLEDGES COMMITTED AND RECEIVED

2.1 Introduction

Following the 1991 cyclone numerous donors pledged assistance to Bangladesh to enable its population to return to normal as quickly as possible. Pledges took the form of material, cash and credit. In this Chapter, the committed pledges are compared with the actual resources received.

2.2 Methodology

In order to find out what was pledged and what actually arrived Bangladesh the following approach was adopted:

i) a list of pledges was obtained from UNDP, who acted as the disaster coordinator for the donor community;

ii) the arrival of such pledges was verified by contacting:

- Economic Relations Division (ERD) through which all external assistance to Bangladesh should be channelled of the Ministry of Finance
- Embassies/High Commissions
- GOB Officials/Organisations.
- NGOs

The persons consulted are listed in **Appendix-A**.

2.3 Pledge Data

Pledge data were collected from UNDP and ERD. The total pledges reported by UNDP, as at 16 July 1991, amounted to US$ 299 million[1]. Details are given on **Table 2.1.**

According to ERD, the total amount received in cash and kind following the cyclone, at November 17, 1991, four months later than the date of the UNDP report was US$ 522 million[2]. Details are given in **Table 2.2**.

2.4 Contacts with Donors

An explanatory letter (see **Appendix B**) was sent to a random sample of large, medium and small donors. This was followed up by personal visit. All the persons met were co-operative and supplied the information required.

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1 *Data received from UNDP Assistant Resident Representative (K.A. Hafiz) on 22 March 1992.*

2 *Summary Statement of Foreign Aid on Cyclone 1991 as on 17 November, 1991 released by ERD.*

TABLE 2.1
Donor Pledges following 1991 Cyclone

(US$ '000)

Agency	Amount Committed	Amount Received	Date Through
1. PM Relief Fund			
Australia	25		
India	5,150		
Pakistan	3,748		
Total	**8,923**		
2. Cash (Unspecified)			
Belgium	325		
Bhutan	100		
Brunei	150		
Japan	2,000		
Luxembaurg	428		
Nepal	200		
Newzeland	29		
Norway	438		
Sri Lanka	250		
Thailand	80		
USA	25		
Sub–Total	**4,025**		
UNDP	50		
UNDRO	50		
Sub–Total	**100**		
Total	**4,125**		
3. Red Crescent			
China	48		
Denmark	1,207		
Germany	247		
India	800		
Total	**2,302**		
4. NGO's (Foreign)			
Australia	1,575		
Canada	4,250		
France	700		
Germany	4,817		
Ireland	119		
Narway	84		
USA	3,464		
Total	**15,009**		
5. NGO's (Local)			
Australia	408		
Canada	500		
Denmark	43		
France	600		
Germany	667		
India	100		
Japan	520		
USA	745		
Total	**3,583**		

Continued

(US$ '000)

Agency	Amount Committed	Amount Received	Date	Through
6. Relief Materials				
China	2,384			
Denmark	43			
Egypt	1,000			
France	7,380			
Germany	5,000			
Indonesia	100			
Iran	100			
Italy	900			
Malaysia	370			
Mayanmar	150			
Norway	4,500			
Pakistan	600			
Singapore	25			
South Korea	2,110			
Switzerland	499			
Thailand	1,695			
UK	2,393			
USA	28,539			
Sub–Total	**57,788**			
UNDRO	1,813			
UNICEF	2,389			
WFP	4,200			
WHO	210			
Sub–Total	**8,612**			
EEC	10,000			
SAARC	7,500			
Sub–Total	**17,500**			
Red Cross	3,523			
Total	**87,423**			
7. UN Agencies				
Canada	2,609			
Finland	85			
Sweden	3,000	3,000 C		UNICEF
Total	**5,694**			
8. Special Allocations				
Germany	20,000			
Japan	7,500			
Saudi Arabia	106,500			
UK	9,400			
USA	366			
Sub–Total	**143,766**			
FAO	800			
UNDP	1,100			
Sub–Total	**1,900**			
Total	**145,666**			
9. Unspecified				
Finland	525			
Netherland	9,357			
Spain	602			
Sweden	3,350	3,350 C	June 9/91	SIDA/STOCK
UK	10,011			
Sub–total	**23,845**			
EEC	2,500			
Total	**26,345**			
Grand–Total	**299,070**			

Source : Data received for UNDP Assistant Resident Representative (K.A. Hafiz) on 22 March 1992.
Note : C = Confirmation received

TABLE 2.2
Resources Recorded as Received following 1991 Cyclone by ERD

Description		Amount (US$ '000)
Food Aid		50,350
Cash Aid		62,149
Relief Materials		79,542
Reconstruction Funds		329,795
	Total	**521,836**
Channelled through		
GOB		473,173
NGOs		41,200
Red Crescent/Red Cross		7,463
	Total	**521,836**

Source : "Summary Statement of Foreign Aid on Cyclone 1991" as on 17 November 1991 issued by GOB, Ministry of Finance, Economic Relations Division, Dhaka.

A:\VK-89\Tab2-2.Dwp

During the course of the visits it was noted that:

i) the amounts received were much larger than the pledges recorded by UNDP;

ii) in particular UNDP records did not include some of the resources pledged for long term rehabilitation;

iii) One of the donors expressed extreme dissatisfaction with the bureaucratic formalities required to clear relief materials from the port of Chittagong, in particular, the time involved; and

iv) One of the donors emphasised the need to send appropriate materials, particularly foodstuffs which conform with the eating habits of the affected people and which could be eaten without special preparation.

2.5 Contact with NGO Affairs Bureau

Data on 'commitments' and 'disbursements' following the 1991 cyclone held by the NGO Affairs Bureau were reviewed. It was found that the data contained gross errors both plus and minus in 'commitment' and the 'disbursement' figures. It appears no attempt was made to check 'batch totals' at time of input.

The data held by the Bureau were quite different to those obtained from NGOs themselves.

2.6 Contacts with NGOs

The NGOs visited kept reasonable records of their relief efforts following the 1991 cyclone and subsequently issued reports and newsletters giving details of their fund sources and the use to which such funds were put.

2.7 Recommendations

On the basis of the investigations carried out, it is considered that the Disaster Management Bureau should be responsible, following a disaster, for tracking pledges and in particular for:

i) the preparation of a list of pledges (cash and kind) by liaison with GoB officials, donors, diplomatic missions and NGOs;

ii) liaison with 'donors' and 'receivers' to ensure timely arrival of pledged resources;

iii) recording the arrival of 'pledges';

iv) ensuring that relief related materials are cleared from ports and airports as quickly as possible;

v) ensuring that all materials received can be used effectively in Bangladesh; and

vi) preparing and issuing regular reports of pledges : commitment, receipt and disbursement.

Six months after a disaster a consolidated report should be prepared. This report, apart from bringing together the data from the disaster time reports, should include a detailed inventory of all materials (based upon on physical checks) held in stores and storage areas. On the basis of this inventory, arrangements should be made to remove, relocate, or dispose of any materials of a perishable nature. All materials with a long 'shelf life' should as far as possible be held in a Central Warehouse for both safe custody and ready dispatch to any part of the country.

CHAPTER 3

DAMAGE CAUSED BY 1991 CYCLONE

3.1 Introduction

In the absence of a central coordinating organisation within Government it proved difficult to obtain a reliable overall estimate of the damage caused by the cyclone of April 1991. Different reports quoted damage varying between US$2.0 billion to more than US$4.5 billion.

The World Bank assumed a coordinating role with respect of damage to physical infrastructure in the immediate aftermath of the disaster up to 5th September 1992. Thereafter, ERD handled such coordination in the normal manner.

In **Volume IV** of this Report, the damage caused by the cyclone and its assessment is discussed in more detail.

In this **Chapter,** the results of extensive discussion with numerous GoB line agencies are presented together with data published by the United Nations Centre for Regional Development, based in Nagoya, Japan and Consultants Snowy Mountains Engineering Co. Ltd. of Australia who were engaged to assess damage on behalf of World Bank.

3.2. Initial Damage Reporting

Project investigations were undertaken some 15 months after the April 1991 cyclone struck. Hence, much of the information collected in the absence of authoritive reports can only be regarded as hear say. Many reports focusing mainly on human suffering were made by the civil administration through Union Chairman, Thana Nirbahi Officer and Deputy Commissioner to the Cabinet and Ministry of Relief. Other early reports come from NGOs and volunteers who visited particular affected areas.

There were delays is reporting caused by telephone and radio systems being damaged. There were many areas that were unaccessible in the immediate aftermath of the cyclone strike and hence the damage is such areas could not be determined. There is a pervasive belief that damage assessment overstates the true position in an attempt to obtain more assistance.

The most comprehensive report on damage and other issues, is probably that prepared by the Zonal Relief Coordinator (Mr. Mokammel Haque) in Chittagong. Relief activities there were code named 'Operation Sheba'.

3.3 Damage to Physical Infrastructure

Relevant GoB line agencies undertook damage assessment surveys once conditions in the affected areas improved and many looked to donors to assist with major repair and rehabilitation works.

World Bank engaged engineering consultants Snowy Mountains Engineering Consultants of Australia in association with local consultants to undertake surveys to assess damage and related costs to repair and rehabilitate most of the physical infrastructure.

Table 3.1 summarises the costs of repair determined either by the agency itself or by the consultants mentioned above. These data were obtained from the World Bank Resident Mission in Dhaka.

As at September 1991 of the $235 million required to repair and rehabilitate the damage $161 million had been pledged leaving a balance of $74 million still to be committed (**Table 3.2**).

3.4 Overall Value of Damage

Few reports were found which gave an overall assessment of the value of damage caused by the 1991 cyclone, most were sector specific. The most widely quoted overall figures were found to be those of UNCRD (**Table 3.3**). The damage given for industry in this report is rather difficult to believe.

3.5 Progress of Damage Repairs

Detailed studies were carried out under the project to determine the progress of repair works. Full details are published in **Volume IV** of this **Final Report.**

3.6 Recommendations

Based on the findings the following recommendations are made:

i) The Disaster Management Bureau should devise ways and means to :

- determine realistic estimates of damage of all sectors and the economy following a disaster;
- provide necessary instructions/circulars/guidance to officials in all disaster prone areas to assist them to report all damage within a prescribed time frame;
- collect, tabulate, review and consolidate all reports from disaster affected areas based on reports and submit a full and comprehensive report to the higher authorities within a specified time limit;
- ensure damage data reported are reliable by conducting workshops, seminars, briefings prior to a disaster involving personnel responsible for reporting the data;
- formulate an executive summary for submission to Higher authorities for seeking donor pledges for relief cash and kind distinguishing between emergency, short term and long term requirements;

TABLE 3.1

Cyclone 1991: Costs for Damage Repairs and Donor Commitments

Sl. No.	Sector	Repair Costs (US $ million)	Source of Finacing	Pledged Amount (US $ Million)
01.	BWDB Embankments	83.00	SFD	13.30
			IDA	23.00
			Japanese	20.00
			EEC (TA)	3.00
			GOB	2.70
			WFP1	15.00
			Total	**77.00**
02.	General Infrastructure			
	– Major Roads, Bridges, Culverts, equipment	50.54	ADB	37.00
			Japanese	3.50
			Netherlands	5.00
			Total	**45.50**
	– LGEB	52.17	ADB	15.00
			FP	4.00
			Total	**19.00**
	– Chittagong City pavement bridge, equipment, local Govt. facilities	12.73		
	– Chittagong Water Supply	0.29		
	– Inland Water Transport	10.45		
	– Education Bldgs., facilities	94.70	ADB	25.00
			UNICEF	6.00
			IDA	6.00
			Sweden	4.00
			EEC	10.70
			Germany	20.00
			Saudi Fund	49.00
			Total	**120.70**
	– Health Facilities	5.01	Japan	2.00
			UNICEF	2.00
			Total	**4.00**
	– Electricity Supply (PDB & REB)	23.79	ADB	10.00
			Canada	1.00
			IDA	6.00
			Japan	5.00
			Saudi Fund	6.00
			Total	**28.00**
	– Railway	3.76	ADB	3.50
			Canada	0.05
			Total	**3.55**
03.	After Infrastructure			
	– Rural drinking water, supply & sanitation	1.00		
	– Air Traffic Control Systems	0.35	Japan	0.35
	– Telecommunication	3.60	Saudi Fund	3.60
			Total	**1,673.65**
04.	Chittagong Port	16.50	Netherlands	5.00
			IDA	7.00
			Total	**12.00**

Source : World Bank Resident Mission, September 1991

TABLE 3.2

Funds to be Secured

US$ million

Sl. No.	Sector	Repair Costs	Funds Pledged	Outstanding Amount
01.	Embankment Work	83.00	77.00	6.00
02.	General Infrastructure			
	– Major Roads, Bridges, Culverts	50.54	45.50	5.04
	equipment			
	– LGEB	52.17	19.00	33.17
	– Chittagong City pavement, bridges, equipment, local Govt. facilities	12.73		12.73
	– Chittagong Water Supply	0.29		0.29
	– Inland Water Transport	10.45		10.45
	– Health facilities	5.01	4.00	1.01
	– Railway	3.76	3.55	0.21
03.	Other Infrastructure			
	– Rural drinking water, supply & sanitation	1.00		1.00
	– Chittagong Port	16.50	12.00	4.50
	Total :	235.45	161.05	74.40

Source : World Bank Resident Mission, September 1991.

TABLE 3.3

Value of Total Damage

Sl.No.	Sector	Estimated Value of Damage (Tk. million)	(US$ million)
01.	Agriculture	16,535	413
02.	Industry	112,970	2,824
03.	Transport and Communication	8,856	221
04.	Scoio-Economic Infrastructure	9,358	234
50	Enbankments and related Structures	3,634	91
06.	Others	200	5
	Total	151,553	3,788

Source : 'Cyclone Damage in Bangladesh' United Nations Centre for Regional Development, Nagoya, Japan, December, 1991.

- ensure that pledges from donors are obtained for reconstruction and rehabilitation of specific damage following a disaster-this will enable to obtain a program for reconstructing and rehabilitating a major portion if not all the damage following a disaster;

ii) it is recommended that following a disaster a detailed report should be prepared which i.a. should include comprehensive estimate of the damage.

ii) The extent of damage, as soon as they are established, should be immediately publicised through the available media such as T.V., radio, newspapers, diplomatic missions abroad and specific assistance sought both locally and internationally.

CHAPTER 4

STAGES IN THE GOB BUDGETING PROCESS

4.1 Introduction

Before the start of each financial year which runs from 1st July to 30th June, Government places a budget before Parliament for approval. At this meeting, the current year's budget revisions are usually discussed first. This is followed by consideration of the next financial year's budget.

The National Budget comprises three component budgets:

- Annual Development
- Revenue Expenditure
- Revenue Income

MoF plays the pivotal role in the preparation of the National Budget.

The Annual Development budget covers capital expenditure, that is expenditure incurred in acquiring assets which will add to the National Wealth such as irrigation and drainage schemes, roads, fertilizer factories etc.

The Revenue Expenditure budget includes routine running costs of such assists and other costs that are regular and of a permanent recurring nature such as salaries and benefits of Government staff.

The Revenue Income budget includes income which the Government would expect to receive from taxes, customs duties and the like.

4.2 Annual Budget Cycle

Table 4.1 summarises the main stages in the budget preparation cycle.

Before 1st March each year, all Government institutions are expected to prepare and forward estimates of their Revenue Expenditure in the next financial year. Prescribed forms and policy guidelines from the MoF are provided to assist the institutions in this connection. While estimating expenditures for the next financial year, institutions depend heavily on the actual expenditures that have incurred to date in the current year. Hence, the budget projections for the next financial year are soundly based.

Once the MoF receives the budget proposals, a series of meetings are held between MoF offices and the institutions concerned to discuss the proposals. By April, the meetings at the Deputy Secretary/Joint Secretary level are completed. MoF then consolidates the data and prepares a draft Revenue Expenditure budget for Government.

Revenue Income data one monitored by the NBR one of whose tasks is to prepare the Revenue Income budget each year. While drawing up the Revenue Income budget, policy guidelines are given by the MoF on such matters as whether any new taxes are to be

imposed, whether tax bases are to be re-defined etc. The overall objective is generate as much internal revenue as possible to bridge the gap between Revenue Expenditure and Revenue Income.

The Development Budget covers all development projects in the Annual Development Programme (ADP), which have been approved by the Planning Commission for implementation. Once the projects are included in the ADP, Development Budget funds are allocated for them.

In December of each year, IMED requests all institutions to report the amounts spent on each of their projects. This information is passed to the Planning and Finance Ministries. Planning Ministry then requests all institutions to send returns in prescribed forms showing the estimated amounts that are likely to be expended during the current financial year, together with projections for the next financial year, in respect of each on going project and each project likely to be included in the following years ADP.

In April of each year, Member (Programming) Planning Commission, holds meetings with all on going project 'owners' and new project 'proposers' which result in an outline ADP and related Development Budget for the next year. These budgets are then reviewed by Planning Commission/ ECNEC who make a final selection of the on-going projects and proposed projects based on national priorities for the draft final budget. These draft ADP figures are submitted to the MoF.

MoF consolidates the three Component Budgets into the National Budget. In May, the budget speech is drafted. It is presented in Parliament in June as the Budget Proposals/Finance Bill. After debate, deliberation and as agreed modification, the budget will be 'passed' as the Finance Bill for the next financial year.

4.3 Periodic Budget Reviews

Government institutions can only expend money in accordance with approved budgets. Periodical checks are made by the MoF in the form of quarterly reports at which time it is checked how actual expenditure compares budget figures. All institutions are required to submit such reports. By December of each year, a six monthly report of expenditure incurred by all institutions is collated into a position statement to ensure that there are no unusual variances/deviations.

TABLE 4.1

GoB Budget Cycle

Month	Activity
July	Start of Financial year
August	
September	
October	Quarterly budget review
November	
December	MoP (IMED) requests expenditure status from all project 'owners'
January	Half yearly bugdet review; MoP requests expenditure predictions for current FY and next FY from all project 'owners'
February	All proposals for Revenue Expenditure from Government Institutions to MoF by 28 February
March	
April	Quarterly budget review; Member (Programme) PC, holds meetings with all project 'owners'
May	Draft budget prepared, together with Budget Speech
June	Budget speech

CHAPTER 5

ACTION TO REDUCE BUREAUCRATIC PROCESSES AT TIME OF DISASTERS

5.1 Overall Considerations

Bureaucratic processes are required to more both men and materials.

Processing is involved:

- to obtain relief and other assistance from Donors overseas
- to allow entry of aid in kind cash and/or kind into the country
- to arrange storage of aid in kind
- to record the aid received
- to distribute the aid
- to facilitate arrival of specialists/volunteers/medical teams
- to provide local support to foreign disaster relief personnel to assist in the relief operations
- to provide effective communications both in country and with the international community.

A key question is who controls these processing measures and under whose authority they operate

Ministries	Procedures affect/relate to:
MoFA	Embassies/High Commissions
MoR	Relief Materials
Prime Minister's Secretariat	Relief Materials, NGO Operations
MoHA	Entry of Foreigners
MoD	Experts
MoF (ERD)	Donors
MoI	Media/TV, public relations
MoC (T&T)	Communication
MoF (BR)	Relief Materials
MoH	Relief Medicine Supplies

Upon the declaration of a natural disaster by GoB, the following measures should be immediately activated:-

a) **MoFA**

Upon receipt of information on the extent of damage, MoFA should immediately advise their overseas diplomatic missions:-

- to notify host countries as to the occurrence of a disaster and indicate the extent of preliminary damage and seek any assistance required, in terms of men and material.

- to issue visas/landing permit to individuals/agencies who plan to visit Bangladesh to assist in the relief operations.

- to report back to MoFA as to the nature of assistance pledged by host countries and their agencies.

b) **MoR**

MoR through the DMB should prepare a short report on the extent of damage and specific areas of assistance needed, especially emergency assistance. MoR should send this to MoFA/MoF who would in turn contact the overseas missions as suggested above.

MoR Should

i) notify:

- Prime Minister's Secretariat
- MoHA
- MoC
- NBR

regarding the issue of the necessary orders to their respective Departments to waive all **normal** procedural barriers to facilitate the arrival/entry of foreigners/relief materials in connection with the disaster;

ii) log all relief materials that arrives on prescribed forms/computer input forms stating a value as per documentation of Donor countries/Agencies, such forms should be sent on a daily basis to DMB;

iii) open a special bank accounts to deposit all cash received and copies of deposit slips should be sent to DMB for recording on computer file;

iv) issue instructions to nominated warehouses and storage facilities to receive relief materials from whatever sources after recording in a prescribed form; on a daily basis such forms to be sent to DMB for recording on computer file;

v) formulate a well planned policy to initiate immediate delivery of relief materials from the warehouses/storage facilities. Prior to the occurrence of the disaster, Incorporated in such a policy would be defined procedures that ought to be followed so that minimum time is lost in releasing the relief materials from distribution centres. Prescribed forms would be used to record all materials that are being distributed and forms would be sent to the DMB to record on computer files.

CHAPTER 6

FURTHER INVESTIGATIONS REQUIRED IN THE CONTEXT OF A LONGER TERM DISASTER MANAGEMENT PROJECT

6.1 Points which should be considered

i) Find out how quickly the donors were notified by GOB/Diplomatic Missions following a disaster occurrence,

ii) How were damage and loss assessed ?

iii) What were the priorities set forth by GOB, if any, as to the type of aid/help/assistance requested ?

iv) To substantiate GOB claim of losses/damages, what proof was sent to donors ?

v) Creation an inventory of relief materials available in country, in the pipeline, by description, quantity, value and location.

vi) Verify existence of such items by making physical checks at which time the quality of such materials and an estimate their useful life should be made,

vii) All cash/bank accounts pertaining to cyclone '91 relief, wherever located, should be inventoried. Names of banks, addresses, names of operators should be determined and balances verified by direct communication with banks or physical verification of cash with holders of such cash.

viii) Upon a disaster strike, what is actually affected:

- communications
- housing
- health
- industry
- agriculture
- fisheries
- livestock
- transportation
- roads, bridges, culverts, embankments.

Concentrate on the Risk/High Risk areas and estimate the likely extent of damage in future disaster scenarios based upon previous occurrence of similar disasters such as floods and cyclones,

ix) Build up computer files of such information and make appropriate provisions in a planned manner through internal/external resource mobilisation. Differentiate between emergency, short-term, medium term and long-term requirements. The objective is to restore conditions to the pre-disaster level in the shortest possible time and to sustain the economy as far as practical.

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x) A complete inventory should be made and kept updated of the cyclone and flood proof buildings that are:

- in existence
- under construction
- planned.

The condition of the buildings should be evaluated as to their usability at time of disaster. What financial provisions are available for their regular maintenance ? Under whose control/authority they fall?

xi) As stated in (v), once an inventory is taken of the materials, this should be related to the requirements of (ix) and any short-fall should be made-up, so that in case of a disaster the materials can be quickly mobilised.

xii) An inventory should be prepared and updated of the warehouse and open storage facilities that are:

- available
- under construction
- planned.

For each facility the following information is be required :

- size of storage area
- type of construction - Pucca, Tinshed, etc.
- year built
- item/Items normally stored
- exact location
- accessible by - truck, boat, helicopter etc.
- as supplying information
- provision for expansion, if any.
- as supplementary information
  : was this used during last disaster e.g. 1991 cyclone
  : what items were stored then ?
  : what were the quantities involved ?
  : owned by whom ? GOB, NGO, Locals ?

xiii) Arrange with insurance companies to take out coverage for homesteads, livestock, assets, crops etc. to minimise GOB contribution/Donor assistance and develop the concept of 'self-reliance'.

xiv) Evaluate and if necessary propose modification of, the present rules for relief material distribution as prescribed by the GOB following disasters.

xv) Evaluate the problems that were encountered at the time of distribution of relief materials during the 1991 cyclone by interviewing concerned people, e.g., Relief Commissioner, UNO, NGOs, Volunteers, MOR Officials.

xvi) Rectify such problems for future by drafting new rules/regulations/ orders/memos for all concerned agencies/GOB departments.

xvii) Prepare input data forms/proformas/ prescribed forms to record:

- cash received in connection with a Disaster.
- cash disbursed
- relief materials received
- relief materials used/distributed
- damage after a disaster
- estimates for reconstruction of the damages.
- pledges from donors.

xviii) Make provisions for periodical internal audits/inspection of the books and records, pertaining to all relief materials - cash and kind for ultimate submission to Parliamentary committees.

xiv) Prepare job responsibilities for personnel concerned with:-

- processing of arrival of relief materials from abroad.
- receiving relief materials - cash and kind from internal/external sources.
- establishing damages after a disaster.
- publicizing a disaster to ensure maximum impact to obtain relief materials, both internal and external.
- estimating extent of damage and its monetary value.
- storage of relief materials.
- the distribution of relief materials.
- overseeing relief operations.
- reconstruction work after a disaster.
- carrying out periodic inspections.

APPENDIX A

TERMS OF REFERENCE FOR VISITING CONSULTANT PUBLIC SECTOR ACCOUNTING CONSULTANT(PSAC)

1. 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 form 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.

2. 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

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APPENDIX B

PERSONS CONSULTED

Donor Representatives

Herb Smith	U.S.A.I.D.
M.A. Halim	Delegation of the Commission of the European Communities
Sumanasena Abeywarua	High Commission of Sri Lanka
Geglielmo Colombo	Embassy of Italy
Henri Francois Morand	Embassy of Swizerland
Young Sam Ma	Embassy of the Republic of Korea
Mohammad Ishak	Indonesia Embassy
Bo Sundstrom	Swedish Embassy
Wahida Huq	The World Bank

NGO Representative

Ruben Gomes	CARITAS, Bangladesh
Saiful Islam	Pathfinder International
A.H.M.Mainuddin Ahmed	Enfants du Monde
Rab Choudhury	Bangladesh Rural Advancement Committee (BRAC)
M.G.Nayeem Wahra	OXFAM

GOB Officers

Md. Akhtar-uz-Zaman	Joint Direct, Bangladesh Bank
Mohammad Nazrul Islam	Director, NGO Affairs Bureau
Kamal Ahmed	Programmed, NGO Affairs Bureau
Azizur Rahman	Deputy Chief, ERD, MOF

APPENDIX C

SPECIMEN LETTER SENT TO DONORS FOR VERIFICATION PURPOSES

Re : 5126/Tech/PSA
Date : 22 September 1992

His Excellency,

The Ambassador of the Republic of Korea in Bangladesh
Embassy of the Republic of Korea
House No.6, Road No.7
Baridhara
Dhaka-1212.

Re: **PLEDGE/CONTRIBUTIONS BY EXTERNAL DONORS FOLLOWING CYCLONE, 1991**

Your Excellency,

In connection with the above, as part of our projects TOR we are in the process of gathering information as to when such pledge/contribution **arrived** Bangladesh.

As per UNDP, Dhaka the following contributions were committed by your Government:

		US$
a)	Emergency Relief Assistance worth	100,000
b)	Medical supplies worth	300,000
c)	714 Tons of rice worth	710,000
d)	Miscellaneous Relief Materials	1,000,000
	Total	**US $ 2,110,000**

We should be grateful if you kindly inform us, as of date, how much of the above amounts/articles have reached Bangladesh.

We thank you for your kind co-operation

APPENDIX D

NOTES ON DISCUSSIONS WITH GOB OFFICERS

D.1 : **Bangladesh Bank, Head Office, Dhaka**

Attending : Mr. Akhtar-uz-Zaman (A.Z)
Joint Director
Exchange Control Department (E.C.D.)
Tel : 231248

Mr. M.Uzair Afzal (M.U.A.)
P.S.A.C., DCMU.

Date : 11th October, 1992

REF	DISCUSSION	ACTION
1.	A.Z. was requested to review the UNDP pledges/contributions list and identify any that were processed through Bangladesh Bank.	A.Z.Reviewed the list very minutely.
2.	A.Z. identified following: - Japanese assistance of 12.2 billion Yen	Obtained copy of circular
	- Japanese assistance of US $ 7.5 to MOR for importation of housing materials.	
	- Saudi assistance of SR 400 million (approx US $ 106 million)	- do -
	- EEC assistance of 16 million ECU for supply of cement.	
3.	A.Z. indicated that ERD normally informs the about any assistance. Bangladesh Bank, FCD then prepares circulars for distribution to the authorised dealers(Banks)which details out the procedures to avail the Loan/Grant/Aid.	
4.	A.Z. informed that MOR had availed the US$ 7.5 million that was provided by the Japanese Govt. This amount was utilised to import CI sheets and LC was opened through Sonali Bank,Ramna Branch, Dhaka under authority received from ERD letter No. ERD/JAP-2/23/91/141 dated 28.05.1991.	

D.2 : **ERD, Sher-e-Bangla Nagar, Dhaka**

Attending : Mr. Azizur Rahman (A.R)
Deputy Chief(Coordination Branch)
ERD.

Mr. M.Uzair Afzal (M.U.A)
PSAC, DCMU

Date : October 18, 1992

REF	DISCUSSION	ACTION

1. Since UNDP list of Pledges/Contributions of External Donors dated 29 October, 1991 mentions FAC cell, ERD as a source of information of donors my initial enquiry was to locate that cell, but I was informed that such a cell is formed in times of any disasters or calamities and has a temporary life and the Co-ordination Branch is the focal point of contact at normal times. Mr.Azizur Rahman explained to me the set up of ERD - there were 9 wings headed by a chief, followed by 20 Branches headed by Deputy Chief and then there are 48 sections all under the Secretary - ERD.

   As regards specifics - Cyclone '91 he showed me a list dated 17 November, 1991 titled "Summary Statement of Foreign Aid on Cyclone 1991" prepared by Ministry of Finance, Economic Relations Division (ERD) Dhaka.

   Upon my request to obtain a copy he sought his superior's permission to handover the same after keeping a copy of my letter of credentials issued by Mr. A.Z.M.Hossain Khan. He handed me a copy and I left with a note of thanks.

D.3 NGO Affairs Bureau

The NGO Bureau has generated a Report titled "NGO Bureau Report on: Cyclone '91 Relief & Rehabilitation" based on information received from 104 Registered NGOs out of 125 NGOs who had worked during the Cyclone '91.

This Report shows the amount of Commitment in Cash/Kind, Area covered, particulars, of relief, Amount disbursed, Number of beneficiaries. As per the Report the total Commitment was Tk. 1,020,508,694 ($28,347,464). The amount disbursed has been shown as Tk.1,350,805,628 ($37,522,379). Obviously it indicates that the amount of disbursements were much higher than the commitments Tk. 329,296,934 ($9,147,137).

Upon review of the Report it is noted that the disbursements as reported fell short of the commitments such as in the case of the following:

Sl. No.	Name of NGO	Commitment in Cash/Kind	Disbursement	Difference
01.	Bangladesh Rural Advancement Committee (BRAC)	36,800,200	31,032,913	5,767,287
02.	Caritas - Bangladesh	215,989,000	93,250,991	122,738,009
03.	Heed-Bangladesh	20,000,000	7,452,000	12,548,000
04.	Rangpur Dinajpur Rural Service	72,000,000	46,277,925	25,722,075
	Total :	344,789,200 ($9,577,478)	178,013,829 ($4,944,829)	166,775,371 ($4,632,649)

Note: There are other instances as well, above is only representative.

Instances where disbursements exceeded the Commitments were :

Sl. No.	Name of NGO	Commitment in Cash/Kind	Disbursement	Difference
01.	OXFAM	10,400,000	11,794.467	1,394,467
02.	Resources Integration Centre	1,250,000	21,427,500	20,177,500
03.	Comilla Proshika Centre Donor: SIDA	1,540,000	2,010,781	470,781
04.	Christian Commission for Development in Bangladesh	20,348,500	43,908,085	23,559,585
05.	Care International	14,718,123	63,502,560	48,784,437
	Total :	48,256,623 ($1,340,461)	142,643,393 ($3,962,316)	94,386,770 ($2,621,855)

Conclusion:

Due to the significant divergence in the figures, in my view such figures cannot be relied upon and ought to be investigated, however, this being outside our terms of reference, in our Report this ought to be pointed out that NGO Affairs Bureau should ask for explanations from the respective NGOs in case of significant variations between the committed figure and the disbursed figure.

Exchange rate : US$ 1 = Tk. 36.00

APPENDIX E

Notes on Discussions with Diplomatic Mission

Using UNDP, Dhaka's "List of Pledges/Contributions by External Donors" dated 29, October 1991. I was able to verify the availment/part availment of the following pledges through Bangladesh Bank.

Name of Donor	Type of Contribution	Remarks
Japan	Addl. emergency assistance of US $ 7.5 million purpose to be decided by GOB	See notes of meeting dated October 11, 1992
Saudi Arabia	US $ 106.5 million	- do -

In addition the following two specific Grant/Aid by the donors were mentioned and which do not appear in UNDP's list (mentioned above).

Donor	Type of Contribution	Remarks
EEC	16 million ECU grant for purchase of cement supply	These pertain to cyclone '91 and are being utilized
Japan	12.2 Billion Yen commodity loans	- do -

APPENDIX F

Notes on Discussions with NGOs

F.1 **CARITAS Bangladesh**
2, Outer Circular Road, Shantibagh
Tel: 402407

Attending : Mr. Ruben Gomes, (R.G)
Welfare Director

Mr. M. Uzair Afzal, (M.U.A)
PSAC, DCMU

Date : October 13, 1992

REF	DISCUSSION	ACTION

1. After giving a brief background about DCMU, required about the Relief Activities during the Cyclone '91, as a leading NGO. R.G. produced a Report titled Cyclone '91 IN MEMORIUM' which contained details about the activities of CARITAS during the '91 cyclone. A list of donor's commitments and receipts were also incorporated in the above Publication. R.G. very kindly handed me a Discussion centered around information that NGO Affairs Bureau developed for programming in their computer. I was told that out of 125 NGOs that participated in the relief operations during cyclone '91 they had received information from 104 NGOs to date (as at June 30 '92) these were on prescribed forms developed by NGO Affairs Bureau Computer Department.

2. A Report was generated under the caption "NGO Bureau Report on: Cyclone '91 relief & rehabilitation" He showed me a copy, upon my request to give me a copy I was told by K.A. that permission had to be obtained from DG and as D.G. wasn't available at that time I was told that he would consult with him and I should come the next day. I left with a comment that I would call back on at 2 P.M. (Just before offices closed) to confirm whether I should come the next day.

On 12th October I returned to NGO Affairs and met Mr. Muhammad Nazrul Islam, Director who very kindly handed me over the Report.

F.2 : **ENFANTS DU MONDE (E.D.M)**
House #12, Road 15 (New)
Dhanmondi Residential Area, Dhaka
Telephone : 314133, 316943, 814392

Attending : Mr. A.H.M. Mainuddin Ahmed (M.A)
Dy. Reg.Programme Co-ordinator(DRPC)

Mr. M.Uzair Afzal (M.U.A)
PSAC, DCMU

Date : October 14, 1992

REF **DISCUSSION**

MUA outlined the purpose and activities of DCMU at the outset. MUA referred to the Report generated by NGO Affairs Bureau titled 'NGO Bureau Report on: Cyclone 1991' Relief & Rehabilitation wherein under the disbursements column in name of EDM no amount is mentioned. MA showed me the details which was sent to the NGO Affairs Bureau. Upon review it was noted that no monetary value was placed for the relief and rehabilitation materials and hence the omission. MA expressed the view that NGO Affairs Bureau should have enquired with them regarding this omission but they didn't.

MA handed over to me their Reports for periods January - June 1991, July - December 1991 and January - June, 1992 which has been retained in DCMU library for future use and reference.

MA informed me about the completion of their Housing Project as part of the Cyclone '91 Rehabilitation Programme where they built 4042 houses at an approximate cost of Tk.5.00 crores funded by EDM Geneva and Red Barnet.

When questioned about the Tk. 2,00,00,000/= commitment figure shown in the NGO Affairs Bureau Report he was unable to show me any proof but in his opinion this figure might have been 'estimated' by the NGO Affairs Bureau while inputing. However, he provided me with the following statistics regarding the donor commitment in connection with the 1991 cyclone.

Donor	Amount	Purpose
SDC	SF 33,333 equiv. to Tk.1,000,000/ =(Cash Grant)	Emergency Relief for buying pumps, chemicals, dewatering project.
SDC	Tk.1,000,000	Material Grants (e.g. High Protein biscuits, Medicine, food items) EDM distributed on be half of Swiss Government
EDM/HQ Red Barnen	Tk.50,000,000	Housing

2K3

F.3	:	**Pathfinder International** House #15, Road 13A Dhanmondi Residential Area, Dhaka
Attending	:	Mr. M.Enamul Aziz, Administrative Officer (E.A) Mr. Saiful Islam Programme Manager (S.I)
Date	:	October 13, 1992

REF	DISCUSSION

M.U.A. outlined the purpose and activities of DCMU to the Pathfinder representatives and sought assistance from them in verifying the donor pledges. MUA questioned about the low figure of disbursement (Tk. 507,621) against a commitment of Tk.1,04,95,000 as shown in the NGO Affairs Bureau Report. S.I. produced back-up documents submitted to NGO Affairs Bureau and it was apparent that NGO Affairs Bureau had made a mistake in inputing the figure which should read Tk. 5,070,621 and in support handed me the copy of the papers submitted to NGO Affairs Bureau. To establish the Commitment figure S.I. gave me a copy of their Report titled 'Report on Disaster Relief Activities. Cyclone April, 1991, as submitted to U.S. AID.

MUA left with a note of thanks for the co-operation.

Specimen of Submission of relief provided by NGOs during 1991 cyclone which formed basis of generating a report by NGO Affairs Bureau

Letter Bengali

ফেব্রুয়ারী ২৭, ১৯৯২

জনাব মোহাম্মদ শহীদুল আলম
মহাপরিচালক
এন জি ও ব্যুরো
প্রধানমন্ত্রীর কার্যালয়
[illegible] প্রশাসনিক ভবন ([illegible] তলা)
[illegible]

বিষয়ঃ ত্রাণ প্রতিবেদন

প্রিয় মহোদয়ঃ

উপরোল্লিখিত বিষয়ে আপনার ২৩-২-৯২ তারিখের পত্র এবং তদসঙ্গে সংযুক্ত ছক আমরা পেয়েছি। আমরা এতদসঙ্গে আপনার প্রেরিত ছকটি পূরণ করে পাঠাচ্ছি।

প্রসঙ্গত উল্লেখ করার প্রয়োজন মনে করছি যে, ত্রাণ কার্যের জন্য আমাদের বরাদ্দকৃত যে অর্থ ছিল তার মধ্যে সর্বমোট ৫,০৫০,৬২১ টাকা খরচ হয় এবং ৬,০০৯,৭৭৪ টাকা বি.সি.সি. আই ব্যাংকে আটকা পড়ে। ফলে আমাদের ত্রাণের কাজ সমাপ্ত হলেও পুনর্বাসন পরিকল্পনার পূর্ণ বাস্তবায়ন সম্ভব হয়নি।

শুভেচ্ছে,

ডঃ মোহাম্মদ আলাউদ্দিন
দেশীয় প্রতিনিধি

Specimen of Reporting system of an NGO for funds committed and received from donors pertaining to 1991 cyclone

Schedule of Donation Money Recieved

CYCLONE PROGRAMME-1991

STATEMENT OF DONORS FUND POSITION (FUND COMMITTED/RECEIVED)

AS ON 30/04/1992.

Sl. No.	Name of Donors	Country	COMMITTED				RECEIVED				DUE			
				F. C.	US $	Taka		F. C.	US $	Taka		F. C.	US $	Taka
1	A. C. R.	Australia	A$	314,313	245,246	8,979,260	A$	314,313	245,246	8,979,260	A$	0	0	0
2	Aktion Mission	Germany	DM	20,000	12,057	438,675	DM	20,000	12,057	438,675	DM	0	0	0
3	Andheri Hilfe	Germany	DM	1,200,000	693,018	24,422,700	DM	1,200,000	693,018	24,422,700	DM	0	0	0
4	Aqua Service(French Embassy)	Bangladesh	US$	168,000	168,000	6,000,000	US$	168,000	168,000	6,000,000	US$	0	0	0
5	Aqua Service(Miss Serene)	Bangladesh	US$	3,413	3,413	129,700	US$	3,413	3,413	129,700	US$	0	0	0
6	Bangladesh Students' Asociation	USA	US$	300	300	10,935	US$	300	300	10,935	US$	0	0	0
7	C R S	U S A	US$	450,000	450,000	16,204,415	US$	450,000	450,000	16,204,415	US$	0	0	0
8	CAFOD	England	£	780,909	1,366,590	49,689,240	£	406,899	721,470	26,786,283	£	374,010	645,120	22,902,957
9	Caritas Osaka	Japan	US$	5,000	5,000	188,647	US$	5,000	5,000	188,647	US$	0	0	0
10	Caritas Andorra	USA	US$	18,150	18,150	660,636	US$	18,150	18,150	660,636	US$	0	0	0
11	Caritas Austria	Austria	ASH	46,468,210	3,716,186	140,814,263	ASH	15,686,153	1,363,359	51,717,281	ASH	30,782,057	2,352,827	89,096,982
12	Caritas Brasileira	Brazil	US$	1,000	1,000	35,699	US$	1,000	1,000	35,699	US$	0	0	0
13	Caritas Germany	Germany	DM	2,180,940	1,286,468	45,516,590	DM	1,180,940	696,468	23,981,590	DM	1,000,000	590,000	21,535,000
14	Caritas Hongkong	Hongkong	US$	126,990	126,990	4,538,938	US$	126,990	126,990	4,538,938	US$	0	0	0
15	Caritas Italiana	Italy	US$	11,360,819	11,360,819	430,507,554	US$	1,385,175	1,385,175	52,203,996	US$	9,975,644	9,975,644	378,303,558
16	Caritas Japan	Japan	US$	44,921	44,921	1,630,544	US$	44,921	44,921	1,630,544	US$	0	0	0
17	Caritas Korea	Korea	US$	2,249	2,249	84,559	US$	2,249	2,249	84,559	US$	0	0	0
18	Caritas Koruana	Koryana	US$	39,866	39,866	1,551,151	US$	39,866	39,866	1,551,151				
19	Caritas Macau	Macau	US$	125,931	125,931	4,663,958	US$	125,931	125,931	4,663,958	US$	0	0	0
20	Caritas Malta	Malta	US$	45,015	45,015	1,656,477	US$	45,015	45,015	1,656,477	US$	0	0	0
21	Caritas Mexicana	Mexico	US$	12,700	12,700	459,644	US$	12,700	12,700	459,644	US$	0	0	0
22	Caritas Neerlandica	Netherland	DFL	2,050,000	1,101,999	41,492,525	DFL	2,050,000	1,101,999	41,492,525	DFL	0	0	0
23	Caritas Norway thro C I	Norway	US$	1,400	1,400	53,632	US$	1,400	1,400	53,632	US$	0	0	0
24	Caritas Sherbrooke	Canada	US$	20,150	20,150	721,687	US$	20,150	20,150	721,687	US$	0	0	0
25	Caritas Spain	Spain	US$	79,970	79,970	2,968,797	US$	79,970	79,970	2,968,797	US$	0	0	0
26	Caritas Sweden	Sweden	US$	202,838	202,838	7,626,409	US$	202,838	202,838	7,626,409	US$	0	0	0
27	Caritas Switzerland	Switzerland	SFR	1,400,000	951,007	35,776,899	SFR	1,400,000	951,007	35,776,899	SFR	0	0	0
28	Catholic Kyoto Diocese	Japan	US$	10,000	10,000	356,987	US$	10,000	10,000	356,987	US$	0	0	0
29	Catholique Cen for I P &Dev	Newzealand	US$	153,979	153,979	5,594,943	US$	153,979	153,979	5,594,943	US$	0	0	0
30	CCFD	France	FF	250,000	40,457	1,488,830	FF	250,000	40,457	1,488,830	FF	0	0	0
31	CCODP (Dev & Peace)	Canada	US$	90,909	90,909	3,418,060	US$	90,909	90,909	3,418,060	US$	0	0	0
32	Commission for Social Dev	Taiwan	US$	15,500	15,500	559,757	US$	15,500	15,500	559,757	US$	0	0	0
33	Darmalan College	Australia	US$	1,558	1,558	55,249	US$	1,558	1,558	55,249	US$	0	0	0

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Sl. No.	Name of Donors	Country	COMMITTED				RECEIVED				DUE			
				F. C.	US $	Taka		F. C.	US $	Taka		F. C.	US $	Taka In Lakh
34	Goal Ireland	Ireland	I£	15,000	23,119	825,296	I£	15,000	23,119	825,296	I£	0	0	0
35	Helen D' McFadden	U S A	US$	100	100	3,544	US$	100	100	3,544	US$	0	0	0
36	Holy Cross College Dhaka	Bangladesh	US$	18	18	639	US$	18	18	639	US$	0	0	0
37	Holy Cross Girl's High School	Bangladesh	US$	14	14	500	US$	14	14	500	US$	0	0	0
38	Holy Cross Mission Centre	USA	US$	147,932	147,932	5,280,979	US$	147,932	147,932	5,280,979	US$	0	0	0
39	Holy Cross Sisters Canada through H C S Barisal				10,930	404,340			10,930	404,340		0	0	0
40	Jalchatra Mandhi Co-operative	Bangladesh	US$	29	29	1,000	US$	29	29	1,000	US$	0	0	0
41	Jute Works	Bangladesh	US$	1,428	1,428	50,000	US$	1,428	1,428	50,000	US$	0	0	0
42	MEMISA	Holland	DFL	182,725	91,219	3,261,011	DFL	182,725	91,219	3,261,011	DFL	0	0	0
43	Micheal & Ruth Charley	Bangladesh	US$	20	20	700	US$	20	20	700	US$	0	0	0
44	MISEREOR	Germany	DM	3,350,000	2,000,000	73,000,000	DM	430,000	255,950	9,632,086	US$	2,920,000	1,744,050	63,367,914
45	Missionsschwestern	Austria	DM	600	341	11,998	DM	600	341	11,998	DM	0	0	0
46	Mr James R Ruth	USA	US$	50	50	1,772	US$	50	50	1,772	US$	0	0	0
47	Mr William Amann	USA	US$	50	50	1,772	US$	50	50	1,772	US$	0	0	0
48	Mr John J Engle(GLLHI)	USA	US$	10,000	10,000	370,000	US$	0	0	0	US$	10,000	10,000	370,000
49	N A S S A	Philippines	US$	5,000	5,000	178,494	US$	5,000	5,000	178,494	US$	0	0	0
50	National Office for Hum Dev	Kualalampur	US$	2,000	2,000	70,886	US$	2,000	2,000	70,886	US$	0	0	0
51	P. Robert Haller		DM	500	305	11,454	DM	500	305	11,454	DM	0	0	0
52	Pamela Clifton	Bangladesh	US$	1,428	1,428	50,000	US$	1,428	1,428	50,000	US$	0	0	0
53	R.M Award Foundation	Philippines	US$	1,000	1,000	35,443	US$	1,000	1,000	35,443	US$	0	0	0
54	Rev Charles P Essman	USA	US$	2,000	2,000	73,891	US$	2,000	2,000	73,891	US$	0	0	0
55	Rev Fr Mascarenhas	India	US$	2,000	2,000	71,284	US$	2,000	2,000	71,284	US$	0	0	0
56	RNDM Sisters	Bangladesh	US$	143	143	5,000	US$	143	143	5,000	US$	0	0	0
57	S.C.I.A.F	Scotland	£	58,714	102,750	3,657,048	£	58,714	102,750	3,657,048	US$	0	0	0
58	Secours Catholique	France	FF	19,500,000	3,296,596	119,932,543	FF	7,000,000	1,184,757	42,850,419	FF	12,500,000	2,111,839	77,082,124
59	Secours International	Belgium	US$	167,691	167,691	5,998,189	US$	167,691	167,691	5,998,189	US$	0	0	0
60	St. Rita Church	USA	US$	537	537	19,408	US$	537	537	19,408	US$	0	0	0
61	St.Francis Xavir	Malayasia	US$	3,865	3,865	149,601	US$	3,865	3,865	149,601	US$	0	0	0
62	Staff of Banque Indo-Suez	Bangladesh	US$	435	435	15,228	US$	435	435	15,228	US$	0	0	0
63	Staff of Caritas Dinajpur	Bangladesh	US$	205	205	7,306	US$	205	205	7,306	US$	0	0	0
64	The K.Com of Pakistan	Pakistan	US$	495	495	19,032	US$	495	495	19,032	US$	0	0	0
65	TROCAIRE	Ireland	I£	275,000	417,647	15,018,324	I£	275,000	417,647	15,018,324	I£	0	0	0
66	Vatican Radio	Italy	US$	609	609	22,880	US$	609	609	22,880	US$	0	0	0
	TOTAL				28,683,642	1,066,846,922			11,254,162	414,188,387			17,429,480	652,658,535

Source : Public Cyclone '91 in Memorium

Specimen of Financial Reporting System of an NGO for Funds received and disbursed pertaining to 1991 cyclone

Receipts and Expenditure Statement for the period from May to August 1991

			Amount (Tk)
Receipts			
Donation			31,606,336
Staff, Group members and School Students Contribution			346,739
		Total	31,953,075
Expenditure			
A.	Prepared Food Distribution		
A.1	Bread		43,739
A.2	Pressed rice		359,927
A.3	Molasses		59,064
A.4	Powder milk		1,337,425
		Total of (A)	1,800,155
B.	Food Grain		
B.1	Rice		5,588,727
B.2	Pulses		1,116,839
B.3	Salt		21,371
B.4	Oil		29,472
B.5	Potato		32,160
		Total of (B)	6,788,569
C.	Medicine Supplies		
C.1	ORS Packets		193,265
C.2	Other Medicine		166,054
		Total of (C)	359,319
D.	Water		
D.1	Tubewell		543,777
D.2	Sinking		1,249,047
D.3	Tubewell washing		41,411
D.4	Pond cleaning		62,714
		Total of (D)	1,896,949
E.	Temporary Shelter		
E.1	Polythene		392,864
E.2	Bamboos and ropes		11,050
		Total of (E)	403,914
F.	Utensils		
F.1	Utensils		93,907
F.2	Candle		665
		Total of (F)	94,572
G.	Clothing		
G.1	Saree		1,066,786
G.2	Lungi		425,739
G.3	Baby clothes		375,035
G.4	Blanket		256
		Total of (G)	1,867,809
H.	Travelling and Transportation		2,036,797
I.	Cash Relief		10,423,040
J.	Engine Boat		280,113
K	Latrine		299,097
L.	Tree Plantation		[illegible]
M.	Management and Logistics Expenses		[illegible]
		Total (H)	17,821,626
		Total expenditure	31,032,913
	Balance of fund as on 31st August 199[illegible]		920,162
		Total	31,953,075