Consultant Report CR/3

June 8, 2006

CDMP DMIC Needs Assessment

SSA 05-17049

UNOPS Project No. BGD/01/004

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Acronyms

AE	Assistant Engineer
AFD	Armed Forced Division
ALOS	Advanced Land Observing Satellite
AM	Amplitude Modulated
ASA	Association for Social Advancement
ATN	A TV channel
BADC	Bangladesh Agricultural Development Corporation
BAF	Bangladesh Air Force
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BARL	Bangladesh Amateur Radio League
BBoS	Bangladesh Bureau of Statistics
BBS	Bangladesh Bureau of Statistics
BCHEPR	Bangladesh Centre for Health Emergency Preparedness and Response
BD	Bangladesh
BDPC	Bangladesh Disaster Preparedness Centre
BDR	Bangladesh Rifles
BES	Bangladesh Earthquake Society
BIWTA	Bangladesh Inland Water Transport Authority
BIWTC	Bangladesh Inland Water Transport Corporation
BMD	Bangladesh Meteorological Department
BR	Bangladesh Railway
BRA	Bangladesh Railway Authority
BRAC	Bangladesh Rural Advancement Committee
BRCS	Bangladesh Red Crescent Society
BRDB	Bangladesh Rural Development Board
BRHD	Bangladesh Roads And Highways Division
BRRI	Bangladesh Rice Research Institute
BRTA	Bangladesh Road Transport Authority
BSS	Bangladesh Sangbad Sangstha
BST	Bangladesh Standard Time
BTRC	Bangladesh Telecommunication Regulatory Commission
BTTB	Bangladesh Telegraph and Telephone Board
BTV	Bangladesh Television
BUET	Bangladesh University of Engineering and Technology
BURO, Tangail	an NGO
BW	bandwidth
BWDB	Bangladesh Water Development Board
CARE	an NGO
CARITAS	an NGO
CBT	Computer-Based Training
CCC	Chittagong City Corporation
CD	Compact Disc
CDA	Chittagong Development Authority
CDMP	Comprehensive Disaster Management Program
CE	Chief Engineer
CEGIS	Center for Environmental and Geographic Information Services
CEO	Chief Executive Officer
CHT	Chittagong Hill Tracts
CPP	Cyclone Preparedness Program
CPPIB	CCP Implementation Board
CR	Consultant Report

CRA	Community Risk Assessment
CRB	Chittagong Railway Building
CRMIS	Central Relief Management Information System
CS	Civil Surgeon
CSD	Central Supply Depot
CSDDWS	Committee for Speedy Dissemination of Disaster Related Warning/Signals
CSTE	Chief Signal and Telecommunication Engineer
CTG	Chittagong
CUET	Chittagong University of Engineering and Technology
DAE	Department of Agriculture Extension
DC	Deputy Commissioner
DCC	Dhaka City Corporation
DD	Deputy Director
DDN	Digital Data Network
DER	Disaster Emergency Response
DFID	Department for International Development
DG	Director General
DGPS	digital geographical positioning system
DM	Disaster Management
DMB	Disaster Management Bureau
DMC	Disaster Management Committee
DMIC	Disaster Management Information Centre
DMTATF	Disaster Management Training and Public Awareness Building Task Force
DOE	Department of Environment
DoF	Department of Fisheries
DoH	Directorate of Health
DoL	Department of Livestock
DoMC	Department of Mass Communication
DoS	Depaertment of Shipping
DRR	Directorate of Relief and Rehabilitation
DRRO	District Relief and Rehabilitation Office
DSE	Deputy Superintending Engineer
DWAO	District Women Affairs Office
EC	European Commission
ECFC	Empowering Community Fishermen Committee
ECHO	European Commission Humanitarian Aid Office
EDP	Emergency and Disaster Preparedness
EMIN	Environmental Monitoring Information Network
EOC	Emergency Operations Centre
ERD	Economic Relations Division
ESC	Emergency Support Corps
ESM	Emergency Service Monitoring
FAO	Food and Agricultural Organisation
FFWC	Flood Forecasting and Warning Centre
FPOCG	Focal Point Operation Coordination Group
GDACS	Global Disaster Alert and Coordination System
GIS	Geographic Information System
GM	General Manager
GMDSS	Global Maritime Distressed Safety System
GoB	Government of Bangladesh
GPS	geographical positioning system
GSB	Geological Survey of Bangladesh
GSO	General Officer Commanding
HAU	Health and Orphan Unit
HF	high frequency
HQ	Headquarters

IARU	International Amateur Radio Union
ICDDR	Centre for Health and Population Research, Bangladesh
ICT	Information and Communication Technology
ID	identification
IEC	International Electro technical Commission
IEDCR	Institute of Epidemiology, Disease Control and Research
IMD	Indian Meteorological Department
IMDMCC	Inter-Ministerial Disaster Management Coordination Committee
INMARSAT	International Marine/Maritime Satellite
IR	Islamic Relief
ISP	Internet Service Provider
IT	Information Technology
IVR	Interactive Voice Response
IWFM	Institute of Water and Flood Management
IWM	Institute of Water Modeling
JRC	Joint Rivers Commission
LAN	Local Area Network
LDRRF	Local Disaster Risk Reduction Fund
LGED	Local Government Engineering Department
LSD	Local Supply Depot
MC	Mass Casualties
METEOSAT	Meteorological Satellite
MIM	Monitoring and Information Management
MIS	Management of Information Systems
MM	Maritime Mobile
MoA	Ministry of Agriculture
MoD	Ministry of Defense
MoEF	Ministry of Environment and Forests
MoFDM	Ministry of Food and Disaster Management
MoFL	Ministry of Fisheries and Livestock
MoH	Ministry of Health
MoHA	Ministry of Home Affairs
MoHFW	Ministry of Health and Family Welfare
MoI	Ministry of Information
MoS	Ministry of Shipping
MOU	Memorandum of Understanding
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
NDMAC	National Disaster Management Advisory Council
NDMC	National Disaster Management Council
NGO	Non-Government Organisation
NGOCC	NGO Coordination Committee on Disaster Management
NIPSOM	National Institute of Preventive and Social Medicine
NIRAPAD	Network for Information Response and Preparedness Activities on Disaster
NOAA	National Oceanic and Atmospheric Administration
NPD	National Program Director
NWRD	National Water Resources Database
O&M	Operations and Maintenance
OCHA	United Nations Office for the Coordination of Human Affairs
OFC	Optical Fiber Cable
OXFAM	an NGO
PABX	Private Automatic Branch Exchange
PBX	Private Branch eXchange
PC	Personal Computer
PDB	Power Development Board
PDMER	Program Development, Monitoring, Evaluation and Research

PIO	project implementation officer
PM	Prime Minister
PMO	Prime Minister's Office
POPI	People's Oriented Program Implementation
PPPDU	Policy Program and Partnershiip Development Unit
PROSHIKA	an NGO
PSTN	Public Switched Telephone Network
R&HD	Roads and Highways Department
RAB	Rapid Action Battalion
RAJUK	Rajdhani Unnayan Kartripakkha
RDCD	Rural Development and Cooperatives Division
RDEC	Research and Development Center
RDRS	an NGO
RHD	Roads and Highways Division
RSU	Remote Switching Unit
SAARC	South Asian Association for Regional Cooperation
SAE	Sub-Assistant Engineer
SAR	Synthetic Aperture Radar
SARS	Severe Acute Respiratory Syndrome
SCC	Sylhet City Corporation
SDH	Synchronous Digital Hierarchy
SDNP	Sustainable Development Networking Program
SE	Superintending Engineer
SEMP	Sustainable Environment Management Programme
SMS	Short Messaging Service
SoB	Survey of Bangladesh
SOD	Standing Orders on Disaster
SODM	Standing Orders on Disaster Management
SPARRSO	Space Research and Remote Sensing Organization
SRDI	Soil Resource Development Institute
SSA	Special Service Agreement
STIFP	Secondary Towns Integrated Flood Protection
STM	a transmission standard unit
T&T	Telephone and Telegraph
TDM	Time Division Multiplex
TMSS	Thengamara Mohila Sabuj Sangha
TOR	terms of reference
TV	Television
UCC	Uniform Commercial Code
UHF	Ultra-High Frequency
UK	United Kingdom
UN	United Nations
UNB	United News of Bangladesh
UNDP	United Nations Development Programme
UNICEF	United Nations International Children Fund
UNO	Upazila Nirbahi Officer
UNOPS	United Nations Office for Project Services
UP	Union Parishad
UZ	Upazila
VDP	Village Defence Party
VGF	Vulnerable Group Feeding
VHF	Very High Frequency
VP	Vice-President
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WAP	Wireless Access Protocol

WARPO	Water Resources Planning Organization
WASA	Water and Sewage Authority
WFP	World Food Programme
WL	Water Level

Acknowledgements

This document is a product of the team effort of many people.

Sidney Tupper, International Consultant, planned and directed the work, conducted national level consultations, analyzed the national level needs and edited the document.

Dr. Mustafa Alam, National Consultant, planned the local level consultations, managed the Field Researchers, analyzed the local level needs and conducted national level consultations.

Nizam Uddin Ahmed Chowdhury, National Consultant, conducted national level consultations and analyzed national and local level ICT capacity.

Md. Abu Saddique, Director of Monitoring and Management of Information Systems, Disaster Management Bureau, supported the work in many ways, including arranging meetings with GoB disaster management stakeholders.

The Field Researchers traveled throughout the country consulting local level stakeholders, and documented their findings. They are:

Farhana Akther
Md. Abu Bakar Siddique Bhuyan
Abu Nayeem Md. Al-Muzahidul Islam
Md. Shofiqul Islam
Md. Nahid Hossain Khan
Md. Parvez Reza
Nishit Kumar Saha
SM Khalid Shaifullah
Md. Wali Ullah

Finally, the work could not have been done without the generous contributions of time and interest of the many officials of the Government of Bangladesh and NGOs, and community persons, who offered their views for this report.

Executive Summary

Purpose

This Disaster Management Information Centre (DMIC) Needs Assessment reports on consultations with national, local and community stakeholders in disaster management held during the period February 1 to May 31 2006, for the purpose of understanding their needs for disaster management information, their willingness to share the information they have, and their Information Communication Technology (ICT) capacity to receive, use and send information.

Scope

Although the scope of the Comprehensive Disaster Management plan includes all hazards, to keep the scope of the assessment feasible, the report focuses on five important classes which present the majority of risk in Bangladesh: cyclone, flood, earthquake, erosion and drought. Similarly, the sampled subset of stakeholders consulted includes the Ministry of Food and Disaster Management (MoFDM), Directorate General of Food (DGoF), Directorate of Relief and Rehabilitation (DRR), Disaster Management Bureau (DMB) and CDMP component managers. It also includes primary data providers, donors, Government of Bangladesh (GoB) agencies with roles and responsibilities in the Standing Orders on Disaster (SOD), major Non-Government Organizations (NGOs) and other users of disaster management information. The assessment examines stakeholders' risk reduction, emergency response and long-term recovery activities for their information needs.

National level information needs assessment

Information needs at the national level reflect many priorities, which in general map to disaster phases, sectors and hazards. Disaster management specialists in, for example, MoFDM, CDMP, city corporations and the Cyclone Preparedness Program (CPP), want tools and information to understand the vulnerability of elements of the population and the nature of the hazards they face, so that they can prepare action plans to reduce the risk of negative impact of hazards. They need demographic, topographic, infrastructural and hazard incidence information with localized granularity fine enough to optimize risk reduction implementations. Agencies in the agricultural, transport, health and public safety sectors want training resources and other means to increase the awareness of their staff, operational partners and community people of hazards, preparation they should make to reduce disaster risk and best coping practices in the event of a hazard. All stakeholders want early warning of hazards, often with much more lead time than is currently possible. City corporations, some of which are especially at risk to earthquakes, need vulnerability maps, emergency equipment resource inventories, localized shelter/water/food/medical resource identification and volunteer network coordination media. During and after an emergency, all stakeholders want situation reports to help them to understand current conditions and react best to them. The DRR and other institutions including the Department of Agriculture (DoA), CPP and Disaster and Emergency Response (DER) Sub-group want reports of casualties, losses and damage. The MoFDM with its Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) and NGO Coordination Committee on Disaster Management (NGOCCDM) want prediction of hazard severity, onset and duration; real-time situation reports from all actors; and localized reports of relief materials inventories.

The SOD requires many action plans, updates and periodic status reports from the GoB agencies with disaster management roles and responsibilities specified in it. This information is essential for maintaining a common understanding of the current disaster management environment and consequent reduction of neglected issues and reducndant efforts, and should be available to all stakeholders.

National level information sharing
The Bangladesh Meteorological Department (BMD), Flood Forecasting and Warning Center (FFWC) and Bangladesh Bureau of Statistics (BBoS) are the main sources of information, for cyclone warnings, flood warnings and socio-economic data respectively. As methodologies for hazard prediction and vulnerability analysis improve, other institutions will supply information also; for example, the Centre for Environmental and Geographic Information Services (CEGIS) and the Institute of Water Modeling (IWM) are developing approaches for drought, erosion and flood plain water level modeling.

Information needs at local levels
Local level institutions with disaster management roles include divisional (Divisional Commissioner), district (Deputy Commissioner, upazila (Upazila Nirbahi Officer) and union (Union Parishad Chairman) administration offices, the network of district, upazila and union Disaster Management Committees (DMC) connected to the DMB and DRR through the DMIC, GoB agencies such as Local Government Engineering Departments (LGED), Civil Surgeon, Department of Agriculture Extension, Roads and Highways Department and many others. They all need hazard awareness development, information to support risk reduction actions, hazard early warnings, emergency situation reports, damage and loss reports and relief and recover resource inventories.

Community members need information to develop their awareness of hazards, understand their vulnerability and take action to reduce disaster risk. They need timely, accurate and understandable early warning of hazards. During emergencies they want to know what the authorities are doing to relieve their hardship and where relief resources are available. They need information to expedite their recovery from disaster, particularly about availability of credit, building supplies, medical attention and livelihood alternatives.

Information products
Users have suggested DMIC information products and media to support their disaster management objectives:

Hazard	Information products	media
cyclone	• cyclone shelter locations and capacities • relief material inventory • early warning map with probable storm path and vulnerable upazilas • damage reports • rehabilitation resource inventory	• web • web • web, email, fax, TV • email, fax, courier • web
flood	• flood shelter locations and capacities • relief material inventories • early warning water level predictions • damage reports • rehabilitation resource inventory	• web • web • web, email, fax, TV • email, fax, courier • web

Hazard	Information products	media
earthquake	• vulnerability maps • building quality assessment database • emergency equipment status • situation and damage reports • rehabilitation resource inventory	• web • web • web • email, fax, courier • web
erosion	vulnerability maps of infrastructure and probable bank line movement.	web, email, courieir
drought	computer model that analyzes location variables including rain forecasts, irrigation resources, soil types and crop requirements for water, to predict drought	web, off-line computer
general	• disaster management knowledge base • training materials • resource directories • emergency response coordination tools • early warning/alert subscription	• web • SMS, email, IVR

ICT capacities and gaps

National level institutions vary greatly in their capacity to use the proposed information sharing facilities of the DMIC, and in general, in their progress to implement the e-governance objectives of the Government. Some, like CEGIS, IWM and major NGOs, have large Local Area Networks (LAN), high speed internet connectivity and ICT-aware staff. Most GoB agencies, on the other hand, have primitive ICT environments and rely on traditional office technology that does not support effective sharing of information. Their internet connectivity is mainly dial-up and available to few staff. They need significant cultural adjustment, more computers and networks, more training and always-on internet. The recent connection of a high-speed undersea cable will encourage domestic internet development and lower costs.

Local level institutions in general suffer from more severe ICT capacity limitations. The internet is penetrating the rural areas on the back of the expanding BTTB network and Internet Service Provider (ISP) market but is still beyond the budgets of many agencies. At the district level, fax remains the main medium for information exchange. Upazila centres rarely have fax and rely on letters and telephone. Union centres are relatively isolated from any but mass media and courier/postal delivery. The mobile networks which cover most areas in Bangladesh provide rapid communication but mobile media have low information-carrying capacity. However, SMS is ideal for timely localized alerts. The DMIC will equip all 64 District Relief and Rehabilitation Officers (DRRO) and 235 upazila Project Implementation Officers (PIO) with computers and data connections to the DMIC in Mohakhali by December 2006.

1 INTRODUCTION

1.1 Project Background

Bangladesh suffers from devastating natural calamities on a regular basis, due to its geographical location. Bangladesh frequently experiences cyclones, tornadoes, river erosion, floods, drought and other extreme natural events. These adverse phenomena greatly hinder the development of the country in lost lives, assets and infrastructure. The magnitude of poverty, increasing due to rural-to-urban migration and high population density, exacerbates vulnerability to catastrophic episodes that affect lives and livelihoods.

The disaster management community has expressed a need for more effective and better coordinated information management systems, with a goal to improve coordination among agencies at all levels for easy access to appropriate, timely and accurate information before, during and after emergency situations. The Emergency Operations Centre (EOC) of the Ministry of Food and Disaster Management (MoFDM) is the responsible agency but is ill-equipped and lacks adequately skilled professional staff to carry out its required functions. Without modern telecommunication networks and integrated management systems, the EOC depends on district and upazila authorities to report critical information for decision-making using traditional communication methods that delay response. Consequently the Ministry will replace the EOC with a Disaster Management Information Centre (DMIC) to be located on the fifth flood of the Disaster Management and Relief Bhaban. It will be equipped with modern technology to serve updated information to stakeholders during normal and emergency periods, for policy implementation and real-time disaster event management.

1.2 Purpose of Document

This document has the following purposes:

- record the results of the needs assessment
- provide a basis for DMIC systems design
- show milestone achievement

1.3 Glossary

For consistency with other disaster management initiatives, terms will be used as defined here.

hazard	a condition which has potential to cause death, injury or economic losses
risk	a measure of the likelihood and severity of loss
disaster	a hazardous situation which results in many deaths and injuries and/or substantial economic losses
emergency	the aspect of disaster that requires rescue and relief response from authorities and other actors

1.4 Scope of DMIC Needs Assessment

DMIC Goal:

The DMIC will implement effective information sharing among disaster management agencies and communities, for all hazards, in all sectors, in normal times and emergencies, throughout the nation and regionally, to support sustainable risk reduction and emergency response capacity.

Achievement of needs assessment objectives with the available resources required that the scope be carefully chosen from the larger scope of the DMIC goal. An over-ambitious scope would dilute the quality of the work and could lead to schedule slips and failure. The variable dimensions of the DMIC needs assessment scope include:

- hazards managed
- stakeholders served
- disaster management phases handled

1.4.1 Hazards managed

Analysis of historical incidence and outcomes of disasters in Bangladesh provides a basis for choosing a small but effective set of hazards on which to focus in the needs assessment. Table 1-1 lists these hazards. Ultimately the DMIC will support the Ministry's attention to all hazards.

Table 1-1 Hazards managed by the DMIC

Hazard	Nature
cyclone	Extremely high winds in the coastal zone caused by seasonal high water surface temperatures in the Bay of Bengal, in May-June and October-November. Storm surges are a related hazard that result from elevated sea surface due to the coincidence of high tides, wind-driven water mass and low atmospheric pressure characteristic of cyclones.
flood	River flood: Himalayan melt water augmented by regional basin monsoon rain which increases river discharge past its capacity to carry the water within its banks, inundating large areas of Bangladesh. Rain flood: localized flooding due to rain and poor drainage. Flash flood: sudden voluminous discharge in water-courses in hilly areas with heavy rainfall and poor capacity to retain it
earthquake	A violent seismic disturbance that causes buildings to collapse. Tsunami are a related hazard caused by displacement of ocean water resulting from a large and rapid vertical movement of ocean floor which creates a series of high-amplitude ocean surface waves.
erosion	Loss of land, housing and infrastructure to river bank line movement
drought	Soil moisture inadequate to support cultivation of desired crops, resulting from insufficient rainfall and/or failure of irrigation sources.

1.4.2 Stakeholders consulted

The Ministry of Food and Disaster Management (MoFDM) has directed the CDMP to address primarily the needs of government institutions that contribute to disaster management and other stakeholders secondarily. Table 1-2 lists national disaster management stakeholders consulted in this needs assessment. Appendix A contains notes from the consultation meetings.

Table 1-2 DMIC national stakeholders consulted

Institution	Disaster Management Role
Ansar and VDP Directorate	security, search and rescue
Armed Forces Division	security, search and rescue
Bangladesh Agricultural Research Council	agricultural aspects of disaster
Bangladesh Amateur Radio League	emergency communications
Bangladesh Bureau of Statistics	socio-economic data to support vulnerability analysis, maintain disaster statistics
Bangladesh Disaster Preparedness Centre	advocacy, community-based preparedness programs
Bangladesh Earthquake Society	research into earthquake vulnerability preparedness in Bangladesh
Bangladesh Meteorological Department	cyclone and other weather warnings; support FFWC flood prediction; capture seismic data
Bangladesh Red Crescent Society	disaster awareness, emergency response, relief, recovery support
Bangladesh Telegraph and Telephone Board	emergency communications
Bangladesh Inland Water Transport Authority	river transport resources management
CARE Bangladesh	disaster preparedness and response
Center for Environmental and Geographic Information Services	disaster management decision support tools development
Chittagong City Corporation, Planning	urban planning for risk reduction and emergency preparedness and response
Chittagong DRRO	district relief and rehabilitation responsibilities as per SOD
Cyclone Preparedness Program	disseminate BWD cyclone warnings and tsunami alerts; emergency response
Dhaka City Corporation	disaster preparedness and response
Department for International Development (DFID)	poverty reduction, addressing disaster effects on development issues
Department of Mass Communication, MoI	public awareness programs
Department of Shipping	management of marine resources
Department of Water Management, BWDB	irrigation management, awareness of drought hazard
Directorate General of Food, MoFM	management of emergency food relief
Directorate of Operations and Maintenance, BWDB	infrastructure for mitigation of flood and erosion hazards
Disaster Management Bureau	policy, advocacy, DMC management
Directorate of Relief and Rehabilitation	administration of emergency response, relief and recovery programs

Institution	Disaster Management Role
Disaster and Emergency Response SubGroup	Emergency response and recovery
Emergency Operations Centre, MoFDM	providing information for emergency response
Emergency Support Corps	emergency response, search and rescue
FFWC	flood forecasting and warning dissemination to national level institutions and districts
Field Service Wing, DAE	awareness of hazards related to agriculture: flood, erosion, drought
Fire Brigade and Civil Defense Directorate	fire fighting, earthquake search and rescue
Geological Survey of Bangladesh	analyses of seismic hazards
International Centre for Diarrhoeal Disease Research, Bangladesh	epidemiology, treatment of diseases endemic in disaster
Institute of Water and Flood Management, BUET	flood early warning, mitigation
Islamic Relief	disaster preparedness
Local Government Engineering Department	infrastructure maintenance, vulnerability, hazard mitigation
Ministry of Food and Disaster Management	disaster risk reduction and emergency response
Planning and Maintenance, RHD	maintenance of road and highway network
Rajarbagh Police HQ, Dhaka	security, emergency response
SPARRSO	remote sensing information for hazard vulnerability, early warning, damage assessment
Sustainable Development Networking Programme	ICT, networks for advocacy, awareness and early warning of hazards
Sylhet City Corporation	planning for mitigation of flood, erosion and earthquake hazards, emergency response
Water Resources Planning Organization, Ministry of Water Resources	planning for mitigation of flood, erosion and drought hazards

Section x discusses the approach taken to sample respondents in the local level consultations.

1.4.3 CDMP component stakeholders

The DMIC supports CDMP component objectives and will provide functions that facilitate their operations. Table 1-3 lists the component managers who were consulted to capture their needs for DMIC features.

Table 1-3 CDMP component managers consulted

	Component	Manager
1a	PPPDU	Ian Rector
1b	Professional development	Dr. Aslam Alam
2a	Advocacy and awareness	Nishith Kumar Sarker, Director (Administration and Logistics) DMB SM Morshed
2b	Capacity building	Md. Mazibar Rahman, Director (Training), DMB A.N.M Wahidur Rahman
3a	Program gap analysis	Dr. Shantana Halder
3b	Risk reduction planning	Fazlul Hoque, Director (FFW), DRR A.K.M Mamunur Rashid
3c	LDRRF	Otin Dewan
4a	Urban search and rescue	Not yet assigned
4b	Climate change and research	Mohammad Reazuddin, Director (Technical) DOE
5a	DMIC and emergency procedures	Tasdiq Ahmed

1.4.4 Disaster management phases

The needs assessment examined all phases of disaster management:

- daily operations of the DMIC
- risk assessment
- risk reduction
- early warning and emergency response
- disaster recovery

2 NATIONAL LEVEL INSTITUTIONS' NEEDS

2.1 Needs Assessment Methodology

The consultants used the consultation process described here for assessment of stakeholder needs for disaster management information.

Identify stakeholders
National level institutions with roles and responsibilities described in the Standing Orders on Disaster populated the initial list of about 80 GoB agencies to be consulted. Prominent NGOs with disaster management objectives, and donors including UNDP, DFID and EC, brought the list up to 100 organizations. Since the assessment resources were insufficient to consult so many stakeholders, the consultants planned to meet with institutions identified using the following sampling scheme:

100%	primary users:	MoFDM, DMB, DRR
	main information providers:	BMD, FFWC, BBoS
	donors:	UNDP, DFID, EC Delegation
	city corporations:	Dhaka, Chittagong, Sylhet
	NGOs:	DER Subgroup, CARE, BRCS
as resources allow	secondary users:	Other GoB agencies, NGOs

Table 1-2 lists the stakeholders actually consulted.

Design checklists
The consultants prepared checklists as aids to ensure consistent and complete capture of information needs and capacities of stakeholders according to the nature of the class of stakeholder and the relevant hazard(s). The checklists address the following issues:

- the respondent's identity, designation, institution and location
- perceived hazards and how they affect the respondent/institution
- the institution's disaster management role(s)
- the hazard information needed by the respondent/institution
- the hazard information that the respondent/institution has and will share
- the capacity of the respondent/institution to receive and use hazard information
- the capacity of the respondent/insitution to send hazard information

Interview stakeholders
For each national level stakeholder institution to be visited, the consultants identified a specific person to be interviewed who could respond effectively, and set a time and location of a meeting. At first the three consultants visited stakeholders together to test the checklist, and thereafter they made the visits in parallel to use the available time more efficiently. They recorded responses to the checklist items and other relevant information in meeting notes provided in Appendix A.

Analyze responses
The International Consultant organized and assimilated the response information in the Needs Assessment report. The analysis includes all needs, without consideration of feasibility to implement solutions. Appendix B summarizes national stakeholders' disaster management information needs, willingness to share information and their information partners. This is the basis of the analysis in Section 2.4, which examines the

frequencies of need for, and willingness to share, classes of information, in order to rank them by the importance that stakeholders place on them. Another analysis attempts to match need for classes of information by some stakeholders to willingness of others to share that information. Although every class of information examined is needed and/or can be supplied by at least one stakeholder, some are clearly favored for implementation by being both popular and available.

Analyze GoB policy and procedures
The Ministry of Food and Disaster Management published the Standing Orders on Disaster (SOD) in Bangla in 1997 and in English in 1999 to describe the roles and responsibilities of GoB agencies in disaster management. The document is widely distributed and intended to be understood and practiced by all of those agencies. It specifies reports and other outputs that these agencies will produce and their distribution. The International Consultant analyzed the SOD to extract functions that should be supported by the DMIC, reported in Section 2.2. These include information flows, and liaison among Control Rooms and Emergency Operations Centres. The DMIC will support information flows and mechanisms for liaison among Control rooms and Emergency Operations Centres prescribed in the SOD.

2.2 SOD Information Flows

In its specification of roles and responsibilities of GoB agencies in disaster management, the SOD requires certain agencies to produce specific plans and reports. Appendix C lists the flows of these information items and Appendix D graphs some classes of them, listed in Table 2-1 The Information items are typically reports, but some are liaison telephone contacts and orders. The DMIC should attempt to acquire all of these items, make them available on its portal, and if necessary, facilitate their direct transmission according to the requirement if the channel is not already established.

Table 2-1 SOD information flows graphed in Appendix C

Information Flow
BMD, information flows in and out
CPP, information flows in and out
DMB, information flows in and out
DMC, information flows in and out
DRR, information flows in and out
FFWC, information flows in and out
MoFDM, information flows in and out
damage reports
situation reports
early warnings

2.2.1 Agencies required to establish Control Rooms

The SOD required agencies listed in Table 2-2 to establish emergency Control Rooms when directed or when situations indicate the need. The DMIC should support the requirement by encouraging linkages between those agencies and the DMIC, for example, with their registration as DMIC portal users, subscriptions to DMIC early warning alerts and bulletins, and use of DMIC collaborative tools for emergency response coordination.

Table 2-2 GoB Agency Control Rooms

GoB Agency Control Rooms	
Armed Forced Division	Directorate of Livestock
Air Force	Divisional Commissioners
Ansar and Village Defence Directorate	Disaster Management Bureau
Army	Directorate of Fisheries field offices
Bangladesh Agricultural Development Corporation	Directorate of Fisheries
Bangladesh Police	Department of Livestock
Bangladesh Police Range offices	Department of Livestock field offices
Bangladesh Police Disgtrict offices	Directorate of Relief and Rehabilitation
Bangladesh Rifles	DRR field offices
Bangladesh Inland Water Transport Authority	Local Government Division
Bangladesh Inland Water Transport Commission	Local Government Engineering Departments
Bangladesh Meteorological Department	গরহরংঃু ড়ভ চড়বিৎ, ঊহবৎমু ধহফ গরহবৎধষ জবংড়ঁৎপবং
Bangladesh Post Office	Ministry of Defense
Bangladesh Railway Authority	Ministry of Environment and Forests
Bangladesh Red Crescent Society	Ministry of Food and Disaster Management
Bangladesh Roads And Highways Division	Ministry of Home Affairs
Bangladesh Road Transport Authority	Ministry of Health and Family Welfare
Bangladesh Telephone and Telegraph Board	Ministry of Housing and Public Works
Bangladesh Water Development Board	Ministry of Information
BWDB field offices	Ministry of Post and Telegraph
Cyclone Preparedness Program	Ministry of Shipping
Cyclone Preparedness Program regional offices	Ministry of Social Welfare
Cyclone Preparedness Program district offices	Navy
Cyclone Preparedness Program upazila offices	Power Development Board
Cyclone Preparedness Program union offices	Public Works Directorate
Department of Agriculture Extension	Rural Development and Cooperatives Division
Department of Agriculture Extension field offices	RDCD field offices
Deputy Commissioners	Rural Electrification Board
District Disaster Management Committees	Social Service Directorate
Department of Forests	Thana Central Co-operative Associations
উযধশধ ঊষবপঃৎরপ ঝঁঢ়ঢ়ষু অঁঃযড়ৎরঃু	Union Disaster Management Committees
Directorate of Food	Upazila Nirbahi Officers
Directorate of Health	Upazila Disaster Management Committees
Directorate of Health field offices	

2.2.2 DMIC liaison with other GoB agencies

The SOD requires that the agencies named in Table 2-3 establish direct connections with the Emergency Operations Centre. When/if the DMIC becomes the Emergency Operations Centre, it will be the centre of this Control Room network.

Table 2-3 GoB Agency Control Rooms to be Connected to the DMIC

DMIC-connected GoB Agency Control Rooms	
Air Force	District Disaster Management Bureau
Armed Forced Division	Divisional Commissioners
Army	Local Government Division
Bangladesh Inland Water Transport Authority	Mass Communication Directorate
Bangladesh Inland Water Transport Commission	Ministry of Agriculture
Bangladesh Meteorological Department	Ministry of Defense
Bangladesh Post Office	Ministry of Environment and Forests
Bangladesh Railway Authority	Ministry of Fisheries and Livestock
Bangladesh Red Crescent Society	Ministry of Food and Disaster Management
Bangladesh Rifles	Ministry of Health and Family Welfare
Bangladesh Road Transport Authority	Ministry of Home Affairs
Bangladesh Roads And Highways Division	Ministry of Housing and Public Works
Bangladesh Water Development Board	Ministry of Post and Telegraph
BWDB field offices	Ministry of Shipping
Department of Fisheries	Ministry of Social Welfare
Department of Fisheries field offices	Navy
Department of Livestock	NGO Bureau
Deputy Commissioners	Social Service Directorate
Directorate of Relief and Rehabilitation	Upazila DMCs
Disaster Management Bureau	

2.3 Needs of CDMP Components for DMIC Support

Table 2-4 records the needs expressed by CDMP component managers for DMIC support.

Table 2-4 CDMP component support needs

	CDMP Component	Needs
1a	PPPDU	Public relations material and media
1b	Professional development	• News of academic programs and scholarships, seminars, workshops and conferences • Platform for web-based Computer-Based Training courses • Storage and retrieval of training material • Production facilities for television, video projection and radio presentations, transparencies, posters, workshop handouts and fliers • Dissemination media: web, email, fax
2a	Advocacy and awareness	
2b	Capacity building	
3a	Program gap analysis	Database of community risk reduction programs

	CDMP Component	Needs
3b	Risk reduction planning	• CRA support tools o data acquisition – online forms or import tools o analysis support o maintenance o reporting • risk reduction action tracking
3c	LDRRF	Project tracking tools
4a	Urban search and rescue	• Inventory of city corporations' rescue equipment • GIS tools for presentation of urban vulnerability maps and relief resource inventories
4b	Climate change and research	• DMIC portal page • Display hazard trends in climate change context • Show predicted impact of temperature and rain on long time horizon, localized and segregated by season, related to livelihood activities and the crop calendar • Present localized hazard scenarios corresponding to changed climate parameters • Present distant learning content in computer-based training modules
5a	DMIC and emergency procedures	Portal, data acquisition, dissemination media

2.4 Institutional Needs

In addition to the information needs implicit in the SOD, the institutions consulted in this assessment have other requirements, which this section addresses.

2.4.1 Ministry of Food and Disaster Management

The DMIC should not exactly replace the Emergency Operations Centre, with its useful location in the MoFDM's Secretariat premises close to the nexus of multi-sectoral emergency response controls in the Prime Minister's Office. The EOC should become a remote mirror of the DMIC operations room, offering capability to manipulate and display DMIC information independently of DMIC operators, to support high-level operational decision-making.

As an entity of the Ministry, the DMIC should respond to direction and reflect the Ministry's management directives in its periodic budgets and plans. It should prepare operations status reports to inform the Ministry of its actual performance.

2.4.2 Directorate of Relief and Rehabilitation

The mission of the DRR is mainly the administration of relief and rehabilitation programs:

- execute Food for Work programs
- test relief schemes
- execute Rehabilitation schemes
- conduct relief operations
- execute Vulnerable Group Feeding program
- execute Vulnerable Group Development Program

- distribute gratuitous relief
- sanction carrying cost of food grains of FFW, T.R, VGD, VGF programs
- distribute House Building grants
- direct District Relief and Rehabilitation Officers
- direct Upazila Project Implementation Officers
- maintain and control relief transport in the Directorate and in the field
- construct bridges and culverts
- construct flood shelters
- execute Food Security Enhancement Initiative Program
- execute Risk Reduction Program

The Central Relief Management Information System (CRIMS), hosted by the DMIC, is a project management tool to support the administration of these programs. The DMIC should also maintain a database that can report localized supply and demand for relief and recover materials, based on inputs from the Directorate General of Food, field reports and vulnerability analyses.

2.4.3 Disaster Management Bureau

The mission of the DMB is to perform specialist disaster management support functions working in close collaboration with District- and Thana-level authorities, and the concerned line ministries. It operates under the overall authority of the Inter-Ministerial Disaster Management Coordination Committee as the technical arm to the Ministry of Food and Disaster Management to overview and co-ordinate cross-sector disaster management activities from the national down to the grass-roots level.

In this capacity, the DMB needs to maintain an accurate and current understanding of the status of risk reduction and emergency response activities conducted by all GoB agencies at all levels. With implementation of the SOD requirements on the DMCs and other GoB agencies for delivering action plans and reports, the DMIC will provide this visibility.

2.4.4 Donors

Donors are beginning to regard disaster risk reduction as a cross-cutting consideration in their development programs[1], and are allocating funds accordingly. They need to be informed of the Ministry of Food and Disaster Management's initiatives to establish a proactive risk reduction culture across all GoB sectors, in NGOs and in communities. Providing visibility into these programs is an important function of the DMIC.

In emergency situations, donors need to make decisions about whether and how to allocate resources[2]. They need timely, coherent situation reports to understand how the emergency fits their criteria for engagement. The DMIC should provide an interface to the information that informs them adequately and in good time. The Global Disaster Alert and Coordination System[3], operated by OCHA-Geneva, offers an opportunity to attract the immediate attention of donors with its automated assessment and alert functionality. The DMIC should link with this organization.

2.4.5 Primary Information Providers

The two currently most significant providers of early warning information, BMD and FFWC, have no expectations to receive information from the DMIC, but they are eager to transfer responsibility for dissemination of their early warnings to DMIC. This would simplify their operations to a useful extent and allow them to concentrate on the scientific activity of generating the information rather than the distraction of disseminating it.

The Center for Environmental and Geographic Information Services, which presently produces annual main river erosion predictions and is developing approaches to model flood plain water levels, is also keen to use the DMIC as its dissemination organ. The Institute of Water Modeling has models with similar purposes and has also expressed willingness to share its outputs through the DMIC.

2.4.6 Major NGOs

The Bangladesh Red Crescent Society established the Cyclone Preparedness Program, a network of 35,000 volunteers who advocate and implement cyclone risk reduction initiatives in the coastal zone. They are linked by HF and VHF radio to deliver cyclone early warnings, coordinate rescue and relief activities and support rehabilitation of affected communities. Under a SOD mandate for emergency response, CPP gets faxed cyclone warnings from the BMD and communicates informally with BMD staff on the telephone. They need, and are themselves a good source of, situation and damage reports. They have coastal zone vulnerability and cyclone shelter information. The MoDFM, which now operates CPP, is considering increasing its scope to other hazards, including tsunami. In general CPP needs risk reduction and early warning information for all coastal zone hazards.

The DER Subgroup's focus on emergency response and its role in the coordination of the many autonomous NGOs responding to disasters require that it have information sharing linkages with GoB agencies, NGOs and donors. The DER needs information to maintain those linkages, updated status of vulnerability of communities exposed to hazards and available relief resources. In an emergency they need early warning, situation reports from other actors, damage reports, and real-time status of relief supplies inventories.

Islamic Relief is concerned with development, disaster preparedness and relief, and in those capacities it needs information to make collaborative linkages with other risk reduction initiatives, receive hazard early warnings and situation reports, and remain aware of other agencies' emergency relief activities.

Concern is a development organization with community-based programs in the health, education, human rights, organisational development, and capacity building sectors. They recognize the cross-cutting benefits of disaster preparedness on development success and have become a partner with CDMP to collaborate in areas of common activity. The DMIC needs assessment team has so far not consulted Concern but will do that imminently.

NIRAPAD is a network of disaster management partners established by CARE for advocacy and more coordinated response. It maintains a database of disaster events and impacts, and has resources for sharing information among its members. NIRPAD

wants vulnerability, preparedness, situational and relief resource information to share with its members.

2.4.7 Information Users

This group is the most numerous, and for that reason has the most diverse expectations. A frequency analysis of respondents' requests for various kinds of risk reduction (Table 2-5) and emergency response (Table 2-6) information shows where the DMIC should focus to meet most users' needs.

Table 2-5 Frequency of risk reduction information needs and sharing

Need	Count	Share	Count
vulnerability	14	training	9
weather	8	crop	4
flood	7	infrastructure	4
training	7	weather	4
seismic	5	building quality	3
disaster	4	disaster	3
preparedness	4	arsenic	2
socio-economic	4	coordination	2
erosion	3	drought	2
logistics	3	erosion	2
building quality	3	flood	2
drought	2	media	2
food	2	vulnerability	2
imagery	2	activities	1
losses	2	building code	1
rescue equipment	2	direction	1
resources	2	food	1
salinity	2	groundwater	1
action	1	hazards	1
activities	1	health	1
arsenic	1	imagery	1
climate change	1	logistics	1
contacts	1	maps	1
crops	1	monga	1
directory	1	policy	1
employment	1	preparedness	1
GIS	1	resources	1
health	1	response	1
landslide	1	salinity	1
relief	1	shelter	1
rescue	1	socio-economic	1
risk reduction	1		
topographic	1		

Table 2-6 Frequency of emergency response information needs and sharing

Need	Count	Share	Count
early warning	30	sitreps	10
sitreps	25	early warning	7
losses	10	losses	7
weather	3	coordination	3
relief	2	direction	2
security	2	media	2
accounting	1	recovery	2
coordination	1	resources	2
direction	1	response	2
food	1	weather	2
imagery	1	actions	1
rescue	1	activities	1
resources	1	building quality	1
response	1	disease	1
surface water	1	drought	1
weather	1	drugs	1
		food	1
		health	1
		monga	1
		rainfall	1
		relief	1
		shelter	1
		telemedicine	1
		vulnerability	1
		water levels	1
		water source	1

Table 2-7 and Table 2-8 show the needed information items that can be provided. Less positively, the tables also show that some required information items have no expressed source and some shareable information items have no declared users. Where a needed information item is not available, the DMIC should look for means to provide it.

Table 2-7 Risk reduction information needs and willingness to share

Need	Count	Share	Count
action	1		
activities	1	activities	1
arsenic	1	arsenic	2
building code	1	building code	1
building quality	2	building quality	3
		coordination	2
climate change	1		
contacts	1		
crop	1	crop	4
		direction	1
directory	1		

disaster	4	disaster	3
drought	2	drought	2
employment	1		
erosion	3	erosion	2
flood	7	flood	2
food	2	food	1
		groundwater	1
GIS	1	hazards	1
health	1	health	1
imagery	2	imagery	1
		infrastructure	4
landslide	1		
logistics	3	logistics	1
losses	2	maps	1
		media	2
		monga	1
		policy	1
preparedness	4	preparedness	1
problems	1		
regional	1		
relief	1		
rescue	1		
rescue equipment	2		
resources	2	resources	1
risk reduction	1		
		response	1
salinity	2	salinity	1
seismic	5		
		shelter	1
socio-economic	4	socio-economic	1
topographic	1		
training	7	training	9
vulnerability	14	vulnerability	2
weather	8	weather	4

Table 2-8 Emergency response information needs and willingness to share

Need	Count	Share	Count
accounting	1	actions	1
		activities	1
early warnings	30	early warnings	7
		building quality	1
coordination	1	coordination	3
direction	1	direction	2
		disease	1
		drought	1
		drugs	1

food	1	food	1
		health	1
imagery	1		
losses	10	losses	7
		media	2
		monga	1
		rainfall	1
		recovery	2
relief	2	relief	1
rescue	1		
resources	1	resources	2
response	1	response	2
security	2		
		shelter	1
sitreps	25	sitreps	10
surface water	1	telemedicine	1
		vulnerability	1
		water levels	1
		water source	1
weather	4	weather	2

2.4.8 Disaster Management Experts

Apart from the many GoB officials and other disaster management practitioners, no other disaster management experts were consulted. In particular, the list of respondents includes no one with emergency response expertise, which is a failing that needs to be remedied by identifying specific experts in Bangladesh and elsewhere, and interviewing them. However in the meantime, review of analyses of responses to recent large-scale disasters, including the Indonesian tsunami of 2004, supports the view that coordination of many, diverse, autonomous and often incompetent actors is the key issue. In these circumstances, information is the resource with the most leverage to alleviate suffering, by giving those actors a common understanding of the situation with respect to casualties and damage, and needs and availability of relief resources. The common observation during these events is that un-coordinated actors bring redundant or useless relief materials to locations, leaving other locations in want.

Disaster management experts look for lessons to learn from actual events. To meet that need, DMIC should offer access to a database that characterizes past and future disasters according to a schema that supports the purpose.

2.5 Requested DMIC Functions

Consultation with the stakeholders listed in Table 1-2 validated the usefulness of the functions listed in Table 2-9. They are candidates for implementation although some may not be feasible because of technical, institutional or financial constraints. The DMIC ICT Strategy[4] discusses these functions in more detail.

Table 2-9 DMIC Functions

Mode	Phase	Function
Risk Reduction	Daily use	SODM, directives and SODM-required outputs online Historical hazard/disaster incidence and impacts database Knowledge base of best practices for disaster management Repository of disaster management literature Training resources: materials, lesson plans, CBT modules Maintenance of information-sharing MOUs Information quality assurance CDMP component / GoB / NGO communication support DMIC user directory / contact / expertise lists Portal features: news feeds, forums, alert subscription tools
	Preparatory	Risk assessment tools and status Emergency response readiness plans and status Relief resources availability Institutional capacity status
Emergency Response	Response	Hazard warning analysis and dissemination Loss (deaths, damage, etc.) reporting and analysis Relief needs (water, food, shelter, medical), availability and accounting Emergency response coordination Internal DRR operations Multiple GoB agencies and NGOs International response: GDACS
	Recovery	Resource requirements, availability and accounting Ag inputs, credit, infrastructure, health, reconstruction materials CRMIS – DRR project management system Other agencies' recovery programs status

3 COMMUNITY AND LOCAL LEVEL INSTITUTIONS' NEEDS

3.1 Objective and Scope of the Local Level Study

The objective of the local level study is to assess the need of communities vulnerable to hazards and local level institutions for information on these hazards. It is hoped that such information would help them in taking up measures with regard to preparation, response and rehabilitation.

The study addresses information needs in the context of the following hazards and disasters, with the rationale described in Section 1.4.1:

- river and flash flood
- cyclone
- riverbank erosion
- drought
- monga

Since there is a difference between the nature of river flood and flash flood and the impacts caused by them, the study has distinguished between these two categories of flooding and analyzed the situations separately. The study team decided that needs for cyclone related information would be assessed only at the institutional level since through the Cyclone Preparedness Programme (CPP) adequate feedback from community members has already been received. Since earthquake hazard is primarily an urban issue, the needs assessment addresses it at the national level only. In any case because the country has no recent experience with significant earthquakes, local level respondents do not perceive it sufficiently as a hazard to give useful feedback.

There are needs for information with regard to better preparation, response and rehabilitation. In conformity with this, the needs for information have been discussed separately in these different contexts.

3.1.1 Methodology

An initial task was to decide on the geographical locations where to assess the needs for information on the selected hazards. This was done by studying relevant secondary literature and through discussion among team members.

Table 3-1 lists the study areas selected for assessing local level information needs.

Table 3-1 Geographical areas of needs assessment

Hazard	District	Upazila
River flood	Jamalpur	Sarishadari
Flash flood	Moulavibazar	Sreemangal
Cyclone	Patuakhali	Galachipa
Riverbank erosion	Faridpur Sirajganj	Faridpur Sadar, Char Bharasan Sirajganj Sadar, Kazipur
Drought	Chapai Nawabganj	Nachole
Monga	Rangpur Lalmonirhat	Hatibandha Gangachara

Figure 3-1 shows the upazila study area locations.

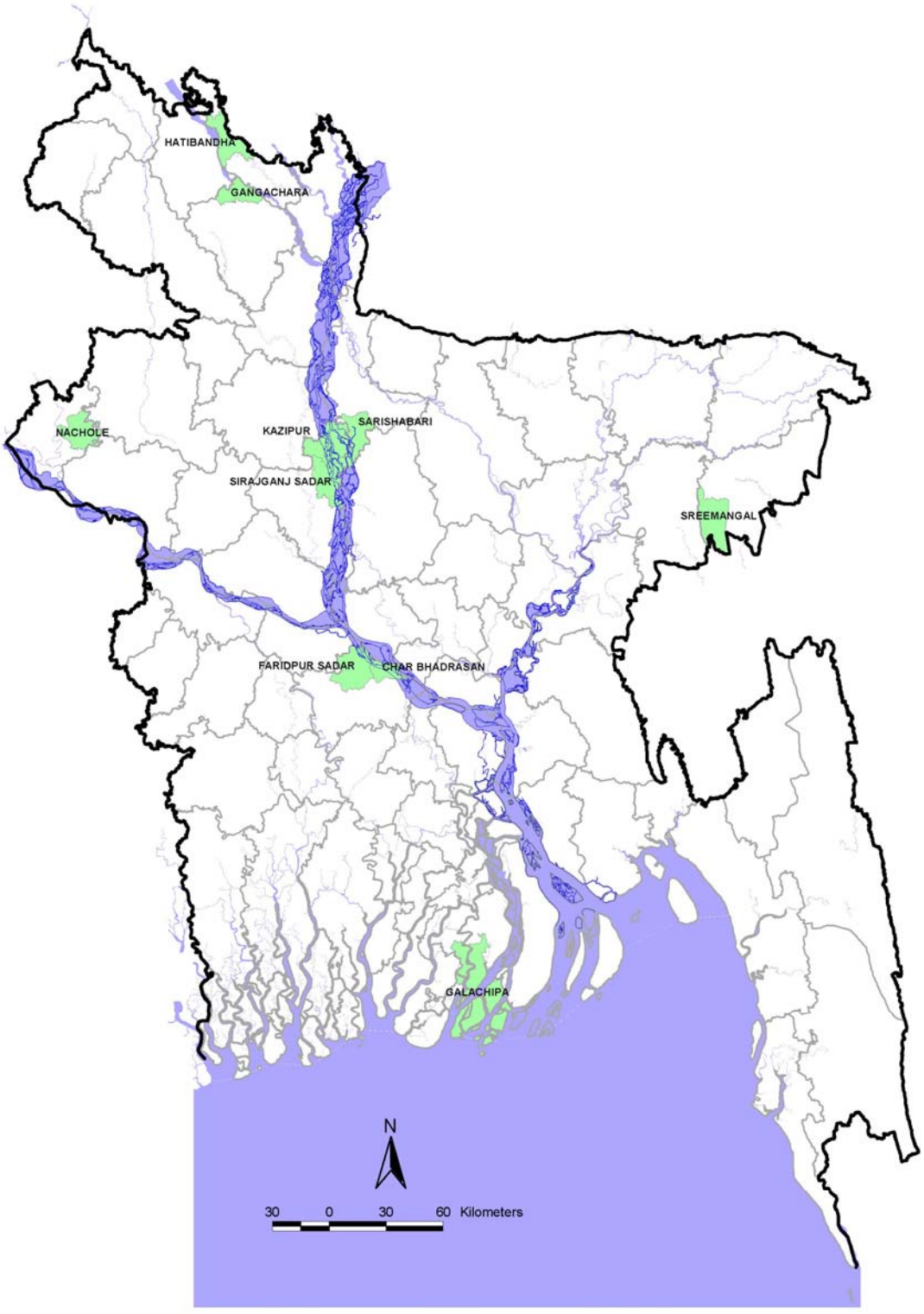

Figure 3-1 Local level study areas

The National Consultant hired nine Field Researchers to consult local level institutions and community members, and with difficulty was able to include a woman in the group, in spite of the scarcity of adequately-qualified women willing to do the work and endure the discomfort of the work environment.

The local level research team developed a checklist to assist the process of obtaining feedback from the local level respondents, shown in Appendix J. The Field Researchers travelled three times to their allotted locations where they interviewed local government officials and gathered small groups of community level respondents for consultation sessions with the objective of eliciting opinions regarding hazard information needs. They ensured that women respondents had opportunities to freely express their views in exclusively female discussion groups, as well as holding meetings with the general population. They also endeavoured to include community members with various occupations.

The Field Researchers collected and recorded information in field notes according to the checklist. In each of the consultation sessions, together with qualitative feedback, they recorded the numbers of respondents expressing need for various kinds of information to enable the quantitative analysis presented in the next section.

Table 3-2 shows the number of community level consultation sessions held in the relevant districts and the number of male and female participants present in these consultation sessions.

Table 3-2 Community level consultation sessions and participants

Hazard	Number of consultation sessions	Participants		
		Male	Female	Total
River Flood	7	39	41	80
Flash Flood	6	24	33	57
Riverbank erosion	16	68	102	170
Drought	7	38	68	106
Monga	19	89	175	264
Totals	55	258	419	677

In addition to the consultation locations, the Field Researchers visited numerous additional locations to collect other relevant information. Appendix H provides detailed information on the local areas from where information was gathered.

They also gathered feedback from local government institutions and non-government organizations at the district, upazila and union levels. For this they made prior appointments with concerned officials and held discussions about the items in the checklist. Appendix I summarizes the institutions covered at the local level.

The National Consultant with input from the Field Researchers processed the field level information in Dhaka consistent with the objectives of the study, for production of this report.

3.1.2 Community perception of hazards

River Flooding
People in river flood areas are aware that excessive rainfall in upstream areas and consequent increase in the volume of water flowing through the rivers can cause flood in their areas. They also think that most rivers have become shallower due to sedimentation, which often causes overflow of water on to the floodplain during monsoon. Community members in vulnerable areas have suffered due to damage of crops, houses and public infrastructure and experience health problems in the aftermath of floods. Floods have even resulted in loss of life in some areas.

Flash Flooding
Those who live in areas vulnerable to flash floods know that the reason for this relatively sudden event is excessive rain in nearby mountains and hills. Water rushes through the rivers and canals in strong currents and can quickly inundate large areas. Although people know that the floodwater will not stay in their areas for very long and will drain out to the south, the damage it can cause to the *boro* crop is a big concern. This flooding also causes shelter, food and health problems, and damage to private and public property.

Cyclone
In the coastal areas of Bangladesh, people suffer from cyclones caused by atmospheric depressions over the Bay of Bengal. They receive warnings from the Cyclone Preparedness Programme (CPP) volunteer network about the possibility of impending cyclones. Community members understand well the threat that cyclone poses to life and property in the areas vulnerable to cyclones. Past experience in this regard has taught them the value of preparation and quick response in the event of cyclone.

River Erosion
In Bangladesh riverbank erosion is a major hazard that has inflicted misery on innumerable people over the years. Although most erosion occurs during the monsoon months, in certain areas people have experienced it for as many as two months before and after the monsoon. The major problem caused by riverbank erosion is loss of land, which may be agricultural land, settlements or other private and public land, resulting in negative impacts on shelter and livelihoods. Community members also suffer due to damage of public infrastructure and facilities like roads, market places, educational institutions and health centres. People in areas that are protected from flood by embankments vulnerable to erosion have the additional worry of flood induced by breaching of the embankment by erosion. The consequently inundated land is often made non-arable for several years by a deep deposit of sand and other embankment material.

Drought
Local communities in Bangladesh define drought as shortage of water caused by shortage of rainfall and irrigation resources leading to reduced soil moisture that adversely affects agricultural activities. The pre-monsoon period of March to May and the post monsoon period of September-October are the times in the year when certain areas of the country face this situation. Long dry spells in the pre-monsoon period can cause problems for the *aus* and jute crops, while in the post monsoon period rain-fed *aman* crop can be adversely affected by low rainfall. Apart from shortage of water for agricultural crops, droughts can cause shortage of water for drinking and other domestic

purposes due to lowering of the ground water table as well as insufficient availability of surface water.

Monga
People in certain northern areas of the country define monga as a situation where during a particular period of the year (usually August to October) lack of employment opportunities causes food shortage for a large number of households, causing significant misery for them. Monga is a local term, which connotes scarcity.

3.2 Needs for information

The structure of this section reflects the Comprehensive Disaster Management approach which emphasises risk reduction, emergency response and longer-term recovery.

3.2.1 Risk reduction information needs

Information provided for risk reduction supports actions that mitigate hazard effects. With localized and scientific knowledge of the nature of hazards, institutions and community individuals can take steps to eliminate, avoid or reduce hazard risks. They can make action plans to cope with hazards by building cyclone shelters, flood shelters, and embankments, supporting livelihood diversification, improving medical facilities, protecting tube wells, raising latrine heights, raising household plinth heights, planting hazard-resistant crops, and so on.

3.2.1.1 Community needs

Table 3-3 shows community responses to risk reduction.

Table 3-3 Community need for risk reduction information

Type of information	Number and percentage of respondents expressing need		
	Male (%)	Female (%)	Total (%)
RIVER FLOOD - Number of respondents: Male 41 + Female 39 = Total 80			
Availability of drinking water and health facilities	25 (61)	22 (56)	47 (59)
FLASH FLOOD Number of respondents: Male 33 + Female 24 = Total 57			
Water levels in secondary rivers	23 (70)	9 (38)	32 (56)
RIVERBANK EROSION Number of respondents: Male 102 + Female 68 = Total 170			
Information on shelter and land for resettlement	87 (85)	58 (85)	145 (85)
Availability of credit	56 (55)	29 (43)	85 (50)
Alternative employment opportunities	48 (47)	20 (29)	68 (40)
DROUGHT Number of respondents: Male 68 + Female 38 = Total 106			
Availability of water for drinking and domestic use	65 (96)	38 (100)	103 (97)
Availability of water for irrigation	66 (97)	18 (47)	84 (79)
MONGA			

Type of information	Number and percentage of respondents expressing need		
	Male (%)	Female (%)	Total (%)
Number of respondents: Male 175 + Female 89 = Total 264			
Employment opportunities	175 (100)	85 (96)	260 (98)
Availability of credit	17 (10)	7 (8)	24 (9)

3.2.1.2 Institutional needs

Institutional respondents expressed information needs listed in Table 3-4.

Table 3-4 Institutional needs for risk reduction information

Hazard type	Information sought
River flood	Vulnerability of settlements and infrastructure Availability of shelter Availability of relief food and medicine
Flash flood	Vulnerability of settlements and infrastructure Availability of shelter Availability of relief food and medicine
Riverbank erosion	Vulnerability of settlements and infrastructure Possibility of erosion induced flooding Availability of shelter and land for rehabilitation
Drought	Source of water for irrigation Water for drinking and other domestic purposes
Monga	Opportunities for alternative employment Availability of relief food stocks and programs
Cyclone	Availability of shelter Volunteer network

3.2.2 Emergency response information needs

Institutional and community stakeholders need early warning of imminent hazards. During an emergency institutions want damage and relief resource information, and all stakeholders want to know how the hazard conditions will change over the coming days. Community members want to know what the authorities are doing to respond to the emergency and how they can avail themselves of assistance.

3.2.2.1 Community needs

Community members have expressed need for various types of information that may help them to cope with hazards. Table 3-5 presents their responses.

Table 3-5 Community needs for emergency response information

Type of information	Number and percentage of respondents expressing need		
	Male (%)	Female (%)	Total (%)
RIVER FLOOD - Number of respondents: Male 41 + Female 39 = Total 80			
Prediction of flood and rainfall	41 (100)	39 (100)	80 (100)
Area expected to be inundated	28 (68)	29 (74)	57 (71)
Duration of flood	28 (68)	25 (64)	53 (66)
Daily changes in water level	30 (73)	22 (56)	52 (65)
Information on shelter.	20 (49)	22 (56)	42 (53)
FLASH FLOOD Number of respondents: Male 33 + Female 24 = Total 57			
Prediction of flood and rainfall	33 (100)	24 (100)	57 (100)
Expected duration and depth of flooding	21 (64)	20 (83)	41 (72)
Water levels in secondary rivers	23 (70)	9 (38)	32 (56)
Duration of flood	21 (64)	20 (83)	41 (72)
Water drainage through network of rivers, canals.	23 (70)	9 (38)	32 (56)
Information on shelter	10 (30)	19 (79)	29 (51)
RIVERBANK EROSION Number of respondents: Male 102 + Female 68 = Total 170			
Prediction of erosion	66 (65)	42 ((62)	108 (64)
Availability of relief	75 (74)	49 (72)	124 (73)
Information on shelter and land for resettlement	77 (75)	45 (66)	122 (72)
Availability of credit	63 (62)	42 (62)	105 (62)
Employment opportunity	48 (47)	20 (29)	68 (40)
DROUGHT Number of respondents: Male 68 + Female 38 = Total 106			
Prediction of rainfall	61 (90)	20 (53)	81 (76)
Water for drinking and domestic uses	68 (100)	38 (100)	106 (100)
Availability of relief material	62 (91)	26 (68)	88 (83)
Availability of irrigation water	66 (97)	21 (55)	87 (82)
Duration of drought	42 (62)	20 (53)	62 (58)
MONGA Number of respondents: Male 175 + Female 89 = Total 264			
Prediction of flood and riverbank erosion	52 (30)	20 (22)	72 (20)
Availability of relief	45 (26)	67 (75)	112 (42)
Employment opportunities	41 (23)	12 (13)	53 (20)

River flooding

These data show that in the river flood study area all male and female respondents want prediction of flood and rainfall. Women in particular want to know the flood timing and extent, and daily predictions of water level change at their location. They believe that this

will help them to assess if their land and homestead may be inundated, so that they can take necessary preparatory measures, such as moving livestock to higher ground or evacuating the household to a flood shelter. River floods create drinking water scarcity and people want to know about potable water availability during flood time, which is a health issue due to the increase of water-borne disease when tube-wells become over-topped and contaminated by flood waters.

Flash Flooding
As in the case of river flood, people in the flash flood area are also eager to receive prediction information on the flood and rainfall. They want to know water levels in the main and secondary rivers to assess their effect on the situation in their area. Women expressed strong need for information on depth and duration of flooding. In particular they want to know whether their homesteads will be inundated and how long the water will remain. This information is valuable to them since they have to prepare for flood in several ways that affect their domestic activities: secure food supply, find dry cooking fuel and potable water sources, ensure the safety of domestic animals, children and elderly persons and know when to evacuate.

Erosion
In the erosion affected areas people want to know when and where the erosion will occur. Both male and female respondents expressed strong needs for information regarding where they can go for shelter and resettlement in the event of their homesteads being eroded, to help them to prepare for the physical shift they might need to make. The need for information about availability of relief materials, credit and employment figures prominently.

Drought
Drought is a common phenomenon in the selected study area. People expect it, but they are concerned about the intensity of drought in a particular year. To prepare, they would benefit from prediction of rain to understand when they will have respite from drought. Other needs include information on availability of water for irrigation of agricultural crops as well as for drinking and other domestic purposes. All female respondents seek information on availability of water for drinking and domestic purposes. Men want to know about the availability of relief in the effect of crop failure.

Monga
Some of the respondents in the monga-affected areas have reported that if they knew about the possibility of flood and riverbank erosion in their area, they would be able assess how bad the monga situation in a specific year would be, which in effect would help them prepare better for the hazard. A major need is for information on availability of employment opportunities during the monga period, which has been expressed by male as well as female members of the communities consulted. Some of the respondents have expressed their need for information on availability of credit.

People in the areas vulnerable to the various hazards want the desired information from government and non-government institutions. Of these, the important sources are upazila parishad, from agricultural and fisheries officers in particular, credit-disbursing institutions, NGOs and local clubs. The respondents suggested media for dissemination of the information, including mobile phones, loudspeakers, leaflets and posters.

In most cases very little of the necessary information has so far been available to community members. People have mainly depended on their own experience and perception to assess chances of the hazards occurring in their areas. At times they have received some information from union parishad and NGOs working in their areas. However, the information is often not timely or sufficiently accurate.

3.2.2.2 Institutional needs

Local government institutions at the district, upazila and union levels, and NGOs expressed needs for information to cope with hazards, summarized in Table 3-6. They receive some information on some of the hazards, but to date it has been insufficient and at times unreliable.

Table 3-6 Institutional needs for emergency response information

Hazard type	Information sought
River flood	Onset of flood Flood extent Depth and Duration of flood Changes in water level Areas and population expected to be affected Availability of shelter Availability of food and medicine as relief
Flash flood	Flood prediction Prediction of rainfall Expected time of flood recession Depth of flood Areas and population expected to be affected Availability of shelter Availability of food and medicine as relief
Riverbank erosion	Erosion prediction Possibility of erosion induced flooding Area expected to be eroded Time when erosion expected Population expected to be affected Availability of shelter and land for rehabilitation, resettlement Availability of food relief
Drought	Duration of drought condition Possibility of rain Source of water for irrigation Water for drinking and other domestic purposes Population expected to be affected Availability of food relief
Monga	Severity of monga Predictions of exacerbating flood and erosion Opportunities for alternative employment Availability of relief materials
Cyclone	Cyclone prediction: severity, area affected Availability of shelter Volunteers available People affected

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3.2.3 Rehabilitation information needs

3.2.3.1 Community needs

Community members affected by hazards need various kinds of information for rehabilitation in their aftermath. Table 3-7 shows the relevant data.

Table 3-7 Information needed by community members for rehabilitation

Type of information	Number and percentage of respondents expressing need		
	Male (%)	Female (%)	Total (%)
RIVER FLOOD (Number of respondents: Male 41 + Female 39 = Total 80			
Availability of medical facility	30 (73)	20 (51)	50 (63)
Availability of seed and fertilizer.	28 (68)	22 (56)	50 (63)
Availability of relief materials	20 (49)	20 (51)	40 (50)
FLASH FLOOD (Number of respondents: Male 33 + Female 24 = Total 57			
Availability of medical facility	18 (55)	16 (67)	34 (60)
Availability of seed and fertilizer	18 (55)	03 (13)	21 (37)
Availability of loan	07 (21)	03 (13)	10 (18)
RIVERBANK EROSION (Number of respondents: Male 102 + Female 68 = Total 170			
Information on shelter and land for resettlement	84 (82)	62 (91)	146 (86)
Information on loan	64 (63)	41 (60)	105 (62)
Employment opportunity	48 (47)	20 (29)	68 (40)
DROUGHT Number of respondents: Male 68 + Female 38 = Total 106			
Availability of relief material	63 (93)	27 (71)	90 (85)
Agricultural recovery strategy	65 (96)	17 (45)	82 (77)
Information on loan	55 (81)	24 (63)	79 (75)
MONGA Number of respondents: Male 175 + Female 89 = Total 264			
Information on loan	70 (40)	51 (57)	121 (46)
Training programs for new types of employment	72 (41)	39 (44)	111 (42)
Availability of seed and fertilizer	49 (28)	04 (04)	53 (20)

Water-borne disease, particularly diarrhoea and other intestinal ailments, is endemic during and after floods in Bangladesh. Consequently respondents in the areas prone to river flooding expressed strong need for information on availability of post-flood medical services. Agricultural rehabilitation is a big issue following flood events, so farmers expressed need for information on the availability of seed and fertilizer. People also need information on availability of various relief materials from government and non-government sources that can help them rehabilitate themselves. Needs for rehabilitation in communities vulnerable to flash flooding and to river flooding are similar.

When riverbank erosion consumes household land, often with the family house, resettlement in some other location becomes the most urgent need. Even when erosion spares the dwelling but takes most of the agricultural land, resettlement is necessary for the sake of adopting a new occupation. Thus a very high percentage of the respondents have expressed need for information on availability of shelter and land for resettlement. More than ninety percent of women respondents want this information. People also want information about credit availability. Since riverbank erosion can take away employment by eroding agricultural land or marketplaces, respondents have expressed the need for information on availability of alternative livelihood opportunities.

Like people affected by other hazards, those affected by drought reported that they need information on availability of relief materials and loans. They also want advice on agricultural strategies that can help them recover from the losses caused by drought.

Monga-affected people have called for information on loans toward their rehabilitation efforts. Significant numbers of women have asked for loans, which they feel can help them rehabilitate themselves in the aftermath of monga. Coupled with loans, the respondents felt information on availability of training programs for alternative livelihoods would help them generate income from sources other than agriculture. However, since agriculture is still the mainstay of household income of farmers and day-labourers, there is also demand for information on availability of seed and fertilizer to make best use of the subsequent cropping cycle.

Community members have received very little information supporting rehabilitation. In certain instances they receive some information from local government agencies and local NGOs about availability of relief toward rehabilitation of the affected people. However, this information has been rather inadequate compared to their need.

3.2.3.2 Institutional needs

Table 3-8 lists the various types of rehabilitation information that institutions at district, upazila and union levels need. Presently they receive very little.

Table 3-8 Institutional need for rehabilitation information

Hazard type	Information sought
River flood	Areas and people affected Nature of loss and damage Strategy for agricultural rehabilitation Availability of resources for rehabilitation
Flash flood	Areas and people affected Nature of loss and damage Availability of resources for rehabilitation
Riverbank erosion	Extent and type of land eroded Loss of private and public infrastructure Number of people affected Availability of resources for rehabilitation
Drought	Loss of crop due to drought Strategy for agricultural rehabilitation Availability of resources for rehabilitation
Monga	Availability of credit

	Training on alternative employment Agricultural extension to alter cropping pattern Availability of resources for rehabilitation
Cyclone	Loss of lives Damage to houses and other private property Damage to public property Availability of food, medicine and clothing as relief

3.3 Conclusions

Hazards including river flood, flash flood, cyclone, riverbank erosion, drought and monga cause misery to vulnerable people. The study shows that male as well as female members of communities require various kinds of information for effective risk reduction, emergency response and longer-term rehabilitation.

Local government agencies and NGOs require hazard information to take effective risk reduction, emergency response and rehabilitation measures. They can play an important role in informing community members to sensitize them to the issues and solutions that they may adopt.

Presently, vulnerable communities and local level institutions receive little hazard information. The DMIC must ultimately meet this need.

4 INFORMATION PRODUCTS

The DMIC will support the information needs of all phases of disaster management. Its functionality proposed in Table 2-9 suggests the information items discussed in this section.

4.1 Daily Operations

Users will view portal screens and download archived material from the portal when they access DMIC information during their day-to-day work. Such material includes:

- SODM, directives and SODM-required reports
- records from the hazard/disaster incidence and impacts database
- disaster management best practices and literature
- training resources: materials, lesson plans, CBT modules
- information-sharing MOUs
- DMIC user directory / contact / expertise lists
- news feed bulletins
- forum contributions

4.2 Risk Reduction

CRA contractors and CDMP staff will access vulnerability information in maps and tables, risk assessment reports, risk reduction action plans and status reports. DMC members will view Inventories of food relief provided by the Director General of Food when assessing readiness for relief distribution. MoFDM procurement officers will review contract performance histories of CRA and other contractors when assessing bids for new contracts.

4.3 Emergency Response

Table 4-1 suggests early warning information products and media that could meet some of the needs of stakeholders consulted at national, local and community levels. More detailed analysis of utility, appropriateness, cost-effectiveness, sustainability, production and dissemination issues, and feedback from field testing is required to confirm them as viable.

Institutions that track disaster impacts will use the DMIC to enter, store and access damage reports. The network of DMC workstations in the district and upazila centers will automate the D-form process described in the SOD, allowing users at all levels assess to disaggregated damage information.

With GIS resources and real time data of adequate quality, the DMIC can quantify localized supply and demand for relief materials, giving responders information to correct over- and under-supply situations.

Similarly, with sufficiently accurate and timely contributions of situation information, institutional actions and intentions by on-site responders, DMIC can present real-time coordination information that gives actors a common understanding of the state of an emergency and enables them to productively apply resources, with less redundant effort and smaller gaps in service.

Table 4-1 Early warning information products

	National institutions	Local institutions	communities
cyclone	Email: cyclone path prediction map showing severity zones and vulnerable district and upazila centres	SMS, email: alerts with localized severity and timing data	CPP provides cyclone warnings; SMS and IVR alerts to subscribers
flood	Email: national flood situation map; water level prediction map; flood extent map;	Email, SMS: water level prediction tables localized to unions, upazilas and districts; Email: inundation extent maps	SMS/flag network for direct transmission of flood plain model water level predictions to villages; IVR alerts
earthquake	Portal: seismic risk zone maps	Portal: GIS tools for urban vulnerability with soils, building quality layers	SMS and IVR tsunami alerts; CPP also plans a tsunami alert system
erosion	Portal, courier: annual report of vulnerable main river sites;	Portal, email, courier: maps and tables that show union-level vulnerability	DMCs, NGOs present localized warning posters to vulnerable communities
drought	Portal: GIS maps predicting rain, irrigation resources and soil moisture variance	Portal, email, courier: localized maps predicting rain, irrigation resources and soil moisture variance	DMCs, DAE Block Supervisors use online tool to prepare localized predictions.

4.4 Disaster Recovery

Similar to the emergency relief situation, disaster recovery actors could use localized resource supply and demand information to identify over- and under-supply of recovery materials. DMIC would provide a GIS tool that would represent the locations of available and required quantities of recovery resources in map or tabular form, assessable from any internet-connected computer, to meet this need.

The Central Relief Management Information System presently under development to support the DRR's management of upazila level relief projects will be hosted by the DMIC and will provide project management reports.

Other agencies should be able to publish their recovery project plans and status reports in the DMIC portal to inform one another of their actual and intended activities. These documents would facilitate linkages that will reduce redundant recovery effort, increase effort applied to gaps and share lessons learned.

5 ICT INFRASTRUCTURE NEEDS

5.1 National Level ICT Capacities and Gaps

The DMIC consultants interviewed concerned officials of national level institutions. Appendix E records their responses to the ICT checklist items and Table 5-1 reduces the data further to provide a concise summary of their ICT capacity and, if necessary, remedial action required to close gaps between their actual state and the capacity they should have to participate effectively in the DMIC .

5.1.1 Assessment

For the purpose of assessing relative capability to use the DMIC, the analysis uses the following descriptors of capacity:

Good — the institution is a leader in implementation of modern ICT practice

Adequate — the institution will be able to access DMIC functions in the scope of its mission but in general could improve its ICT capacity to meet expectations for e-governance implementation

Inadequate — the institution has some ICT capacity but will not be able to access DMIC functions in the scope of its mission unless it makes the recommended improvements

Poor — the institution is severely ill-equipped to access DMIC functions in the scope of its mission

Table 5-1 shows that many of the Institutions have good or adequate ICT capacity to communicate reliably and efficiently with the proposed DMIC for risk reduction and emergency response functions. Others, with inadequate or poor capacity, should take action to upgrade it as recommended.

Table 5-1 National level institutional ICT capacity

Institution	Present ICT Capacity	ICT Gaps
Armed Forces Division	computers, broadband, website, e-mail , telephones, fax, Mobiles, database, HF/VHF networks	good ICT capacity
Bangladesh Agricultural Research Council	computers, LAN, broadband, website, telephones, Personal Mobile	adequate ICT capacity
Bangladesh Amateur Radio League	computers, websites, dial-up, telephones, mobiles, good HF/VHF network	adequate ICT capacity, requires orientation

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Institution	Present ICT Capacity	ICT Gaps
Bangladesh Bureau of Statistics	computers, Internet, website, telephones, fax, personal mobiles, database, data sharing	poor ICT capacity; needs broadband internet; website not maintained
Bangladesh Earthquake Society	computers, website, dial-up, telephones, fax, mobiles	adequate ICT capacity
Bangladesh Inland Water Transport Corporation	computers, dial-up, e-mail, telephones, fax, mobiles, HF/VHF networks	inadequate ICT capacity; need LAN, broadband internet, ICT training
Bangladesh Meteorological Department	many computers, 1 dialup Internet connection, website, LAN, WAN, telephones, teleprinters, microwave link to IMD, fax, personal mobiles, database, data sharing	inadequate ICT capacity; need broadband internet, ICT training
Bangladesh Police	A few computers, dial-up, telephones, mobiles, good HF/VHF network	inadequate ICT capacity; need LAN, ICT training
Bangladesh Railway	computers, LAN, dial-up, telephones, fax, personal mobiles	inadequate ICT capacity; need ICT Training, broadband internet, more BTTB lines, to receive warnings
Bangladesh Red Crescent Society	computers, broadband, website, e-mail, telephones, fax, mobiles, database, HF/VHF networks	good ICT capacity
Bangladesh Space Research and Remote Sensing Organization	computers, Internet, website, telephones, fax, personal mobiles, database, data sharing	good ICT capacity
Bangladesh Telegraph and Telephone Board	computers, broadband, website, telecom Backbone, telephones, fax, mobiles, HF/VHF, data sharing	good ICT capacity
CARE Bangladesh	computers, broadband, website, e-mail, telephones, fax, mobiles, database, HF/VHF networks	good ICT capacity
CEGIS	computers, LAN, broadband, telephones, fax, personal mobile	good ICT capacity

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Institution	Present ICT Capacity	ICT Gaps
Chittagong City Corporation	many computers, dialup internet, website, telephones, fax, personal mobiles, good VHF network,	poor ICT capacity, No LAN, needs broadband internet, Requires ICT training
Cyclone Preparedness Program	3 computers, dial-up Internet, telephones, fax, personal mobiles, good HF/VHF network,	poor ICT capacity, needs broadband internet, LAN, ICT Training
Department of Agricultural Extension	good computer facility, LAN, website, broadband Internet, telephones, fax, personal mobile	adequate ICT capacity, HF/VHF would be useful.
Department of Shipping	computers, LAN, dial-up Internet, website, telephones, fax, personal mobiles,	poor ICT capacity. needs broadband internet, ICT training, HF/VHF.
Dept of Mass Communication	computers, broadband Internet, website, telephones, fax, personal mobiles, data sharing	adequate ICT capacity, HF/VHF would be useful.
DFID	computers, Internet, telephones, fax, database, mobiles	good ICT capacity
Dhaka City Corporation	7 computers, LAN, broadband Internet, website, telephones, fax, personal mobiles, good VHF network	adequate ICT capacity, requires ICT training
Directorate General of Food	good Computer facility, LAN, website, broadband Internet, telephones, fax, Mobile	adequate ICT capacity; HF/VHF would be useful.
Directorate of Ansar and VDP	computers, broadband, website, e-mail, telephones, fax, mobiles, database, HF/VHF networks	adequate ICT capacity, No LAN
Directorate of Relief and Rehabilitation	computers, dial-up Internet, e-mail, telephones, fax, personal mobiles,	poor ICT capacity, needs broadband internet, HF/VHF
Disaster Management Bureau	computers, broadband, e-mail, telephones, fax, personal mobiles, database	good ICT capacity; HF/VHF would be useful.
DRRO, Chittagong	2 computers, dial-up Internet, e-mail, telephones, fax, personal mobiles	No HF/VHF Requires ICT training
Emergency Support Corps	A few computers, telephones, mobiles, HF/VHF	inadequate ICT capacity; needs fax and/or internet to receive warnings

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Institution	Present ICT Capacity	ICT Gaps
Fire Brigade and Civil Defence Directorate	some computers, telephones, personal mobiles	inadequate ICT capacity, needs LAN, broadband internet, HF/VHF,
Flood Forecasting and Warning Center, BWDB	20 computers, LAN, broadband internet, fax, HF, telephones, 2 fax machines	good ICT capacity
Geological Survey of Bangladesh	computers, LAN, dial-up Internet, website, telephones, fax, personal mobiles	adequate ICT capacity, Requires ICT training
ICDDR,B	A few computers, dial-up Internet, telephones, fax, personal mobiles	inadequate ICT capacity; needs broadband internet to receive warnings
Institute of Water and Flood Management	computers, LAN, broadband, website, telephones, fax, personal mobile	adequate ICT capacity
Islamic Relief (UK) Bangladesh	computers, broadband, website, e-mail, telephones, fax, mobiles, database, HF/VHF networks	good ICT capacity
Local Govt. and Engineering Department	computers, broadband, website, e-mail, telephones, fax, mobiles, database,	good ICT capacity; HF/VHF would be useful.
Operations and Maintenance, BWDB	computers, LAN, broadband Internet, telephones, fax, Mobile Phones	adequate ICT capacity; HF/VHF would be useful.
Processing and Flood Forecasting Circle, BWDB	computers, LAN, broadband, website, telephones, fax, personal mobile	good ICT capacity
River Management, BWDB	computers, LAN, Internet, telephones, fax. Mobile	adequate ICT capacity
Roads and Highways Department	good computer facility, LAN, broadband, website, Mobile, telephones, fax, data sharing	adequate ICT capacity; HF/VHF would be useful. need ICT training
Sustainable Development Networking Programme	computers, LAN with 180 nodes, broadband. telephones, fax. Mobile	good ICT capacity
Sylhet City Corporation	8 computers, telephones, fax, personal mobiles,	inadequate ICT capacity; need LAN, VHF, broadband internet, ICT training
Water Resources Planning Organization	computers, broadband Internet, website, e-mail, telephones, fax, personal mobiles, database	good ICT capacity

5.1.2 Discussion

Some of the institutional capacities in Table 5-1 warrant further discussion:

- Bangladesh Police have a good national radio network suitable for voice communication but they lack internet capability for communication with the DMIC. To resolve this issue either the Police should enhance their ICT capability or the DMIC may be equipped with HF and/or VHF facility.

- Sylhet City Corporation is unequipped with radio communication resources, unlike the other City corporations.

- Bangladesh Railway has their own telecom backbone and network sufficient for internal use but because their linkage with the BTTB network is poor they cannot receive early warnings effectively by fax, and they should have always-on internet for timely receipt of email alerts.

- Bangladesh Metrological Department receives weather imagery from overseas sources by satellite downlink and weather observations by microwave link, and has a WAN but just dail-up internet connectivity. They use fax exclusively to disseminate weather bulletins and warnings. .

Internet media
In general, institutions having good or adequate ICT capacity with broadband internet facility will be able to exchange data with the DMIC. The available bandwidth determines the data transfer speed. For e-mails containing text messages and limited images a speed of 64 kbps or even less would suffice. However, reliable transfer of files and images requires a speed of 128 kbps, and video image transfer requires a minimum speed of 384 kbps. Although many institutions consider that they have broadband internet service, in practice they may have their service from an ISP with limited bandwidth and many subscribers, whose activity uses it all. However, recently Bangladesh has been connected to the Submarine Optical Fiber gateway, and use of more optical fiber technology in the local networks also improves the bandwidth situation.

Some other institutions with dial up internet capability may also be able to communicate with the DMIC in a limited way provided that the conventional telephone system works properly. However, in such cases there may be a delay in collection of the required data from DMIC due to low bandwidth.

Shortage of computers in many institutions will retard the growth of access to the DMIC. Other institutions are well-equipped with computing resources but have not yet exploited internet advantages even though internet connectivity is possible for them. ICT training and awareness generation would be useful in these cases.

Fax
Institutions with inadequate internet capacity depend on the T&T network and fax machines. Unfortunately, fax messages are susceptible to disruption and data loss during poor network conditions, and suffer from transmission failure due to "line busy", "no answer", "no paper" and incompetent receivers.

SMS and IVR
IVR can also be useful for submitting or accessing data using standard telephones sets, especially from upazila and union level field offices where internet facilities are not yet in place. SMS and IVR match the ICT capacity of community level participants of DMIC.

Many institutional staff have personal mobile phones, which are useful for communication with the DMIC in case of emergency. Personal mobile phone ownership, which is much higher than institutional ownership, is a resource that those institutions exploit, and the DMIC can use it too. During emergency times SMS transmission of localized alerts will be useful for early warning of floods, cyclones and tsunamis. SMS has been used to acquire scientific data during normal periods also, for example, in the collection of water levels from river gauge stations.

BTTB has a major backbone of telecommunication links, which might be leased out to interested stakeholders. At this moment, E1s (2 Mb/s) links could be available to the upazila level. The private mobile operators operate a countrywide network of wireless links based on microwave systems. Unfortunately, these links and the roof-top antennas linking relays and cell phones are susceptible to damage during disasters like tornados and earthquake, and restoration of the system to a normal functional condition might be time consuming.

HF/VHF radio
For communication redundancy and continued connectivity during failure of land and mobile telephone networks, preparation to deploy interim telecommunication solutions may be useful. VHF and HF wireless communication systems are less susceptible to being disabled during a disaster and restoration of these systems can be accomplished in a shorter time. Consequently, addition of VHF and HF communication equipment to the DMIC, with necessary power back-up systems, deserves consideration. HF systems are still widely used in sea-and river-going vessels, which are also vulnerable to natural hazards and require effective early warning mechanisms. BIWTC maintains a 24-hour control room for tracking river-going vessels with HF equipment. Police, military, civil defence and city corporations use various radio technologies, offering opportunities for useful connectivity with the DMIC.

5.1.3 Recommendations

The DMIC should support e-mail, web, SMS, IVR and courier service for sharing information among the users. The medium of communication with DMIC would

be truly effective if Internet facility could be made available beyond the present limit of upazilas, i.e., to the union level. Within a short time, the BTTB backbone will effectively reach all of the upazilas and consequently the internet will be available in more remote areas of Bangladesh.

The DMIC website may provide a 24x7 access and the web pages should be tailored to meet the specific requirements of the users. Authentication systems should be implemented to safeguard the quality of information made available. An offsite backup arrangement should be implemented at a later stage to protect any loss of data from the DMIC. For protection against simultaneous damage of the primary and the back up server and total loss of data during an event of earthquake the back up center may located at a location far away from the primary DMIC location. The location for such a back up center may be in the northern part of Bangladesh, which would less susceptible to earthquake. Both the centers may be kept connected with a reasonably high bandwidth link. Considering the cost leasing E1s (2 Mbps) links from BTTB for this purpose may be considered. This link may be in a 24 hours on line mode to have a real time back up. However, initially back ups may be kept in tape or cassette drives in case of fund limitations.

Considering the present telecom situation in Bangladesh, complete achievement of DMIC objectives will require a few more years. The communication media among DMIC users should be planned to grow gradually. Transfer of information through fax, voice calls and SMS messages will play an important role for the foreseeable future. The DMIC will become increasingly useful with internet expansion to remote areas and cultural adjustment.

5.2 Local Level ICT Capacities and Gaps

The DMIC Field Researchers interviewed concerned officials of selected local level institutions and members of the community with the aid of checklists to understand their capacity to receive, send and use DMIC information. Appendix F and Appendix G summarize the responses of the institutional and community respondents, respectively.

Many of the institutions have adequate ICT capacity and are in a position to communicate reliably with the proposed DMIC for risk reduction and emergency response activities. The Field Researchers visited 54 institutions to interview the respective officials. Table 5-2 displays a summary of the assessment, giving an indication of the general ICT capacity of local level institutions.

Table 5-2 Distribution of local level institutional capacities

Institutional ICT resources	Count	%	Notes
How many use E-mail?	1	2	ASA, Sirajgonj
How many have computers?	50	93	8 have > 1 computer

Institutional ICT resources	Count	%	Notes
How many have a network?	2	4	RDRS, Lalmanirhat SHARP, Sirajgonj
How many have internet?	1	2	BRAC, Hatiabanda, Lamonirhat
How many maintains a web site?	0	0	
How many have land phones?	39	72	
How many have fax?	7	13	
How many have HF radio?	1	2	UNO, Patuakhali
How many share data?	1	2	PIO, Lalmanirhat
How many staff have mobile phones?	432		

Only one institution of 54 has dial up internet and may be able to communicate with the DMIC in a limited way provided the conventional telephone system works properly. Another 7 institutions having traditional fax machines may communicate with DMIC with T&T line fax messages.

Most of the institutions considered IVR or phone link to be useful if necessary training is arranged. Many think that submitting or accessing brief data using standard telephones sets by phone link from upazila or union level field offices is acceptable. IVR is suitable for community level participants as well as for the institutional officers. Proper training and awareness generation would be useful in these cases.

More than eight staff per organization possess personal mobile phones, which appears to be the most common media of communication and should be considered useful for communication with the DMIC in case of emergency. SMS transmission for dissemination of localized messages is useful for early warning. The DMIC should support e-mail, web, SMS, IVR and courier service for sharing information.

Some institutions possess data, which might be useful to others but not accessible to them at this moment due to administrative reasons or conservative attitudes. The users within the institution itself normally use those data. DMIC should play an important role for sharing data under such conditions.

Considering the present telecom scenario of Bangladesh, for the field level institutions and members of the community, transfer of information through voice calls and SMS messages will play an important role for another few years.

Appendix A National Level Consultation Notes

CDMP DMIC Needs Assessment

Date: April 19, 2006

Address: Armed Forces Division (AFD),
Prime Minister's Office, Dhaka Cantonment,
Dhaka, Bangladesh.
Tel: 8750011/4334
Website: www.bangladeshnavy.org
(AFD Website is classified)

Present: 1) Lt Col Md. Abdur Razzak psc, GSO-1
(Jt Operations)

2) Lt Col Md. Nazrul Islam Sarker psc,
GSO-1 (C2 1)(O&PDTE)
Tel: 88754334, 01715000745
E-mail: sim_nazrul@yahoo.com
3) Lt Com A.T.M. Razaul Hasan
Tel: 8754358, 8750011/4342,8754041/2743, 01711905518
E-mail: atmrh936@yahoo.com
4) Mr. Nizam Uddin Ahmed Chowdhury, CDMP.

Agenda: **Armed Force's Disaster Management Information needs, possible contributions and its resources.**

Defense Forces are in possession of a huge infrastructure of telecommunication equipments and heavy machineries, which would be useful at the time of a disasters.

The (AFD) monitoring cell under control of the Prime Minister's office is directly linked with the Bangladesh Metrological Department. They obtain cyclone warnings, flood warnings, etc. from BMD right in time and as a continuous process of information flow. The Armed Forces of Bangladesh always take part in the mitigation process of any severe disaster.

Ministry of Food and Disasters Management has been trying to improve the Disaster Management situation in Bangladesh since last few years. Representatives from the Armed Forces Division often take part in seminars, discussions or workshops organized by DMB or any other related organization. It has been opined during discussion that in the recent past lot of progress has been achieved in respect of disaster management by CDMP. However, no severe cyclone or flood also occurred after 1988 flood. Further, AFD is of the opinion that the DMIC is likely to provide the stakeholders with the desired information in an efficient way and at the appropriate moment. AFD control room(s) may exchange information by Fax, e-mail, SMS messages and Telephones. Warning broadcast by SMS from DMIC would be very useful. Website can be a reliable source of updated data. Exchange of information among stakeholders via DMIC may bring transparency. Suitable information products would play a vital role in the process of alertness generation, preparedness procedures and mitigation procedures. Information products related to awareness generation, rescue operations, training, mock ups related to disaster management, etc. might be made available for display at the websites of DMIC, they opined.

Defense services are in a position to make its existing facilities available up to some extent at the time of a disaster. Considering the possibility of damage or failure of telecommunication system during a disaster, back up arrangements have been kept in most cases. They arrange Trainings and Mock Ups on rescue activities on regular basis.

The AFD related stakeholders for disaster management are:

- DMB
- CPP
- Fire Service and Civil Defense
- Different Govt. coordination cells
- Bangladesh Rifles
- Bangladesh Police

- Directorate of Ansar and Village Defense

AFD Disaster Monitoring Cell's present full time Manpower:

- Lt Col - 1
- Lt Com – 1
- Sub Asst. Engineer – 1
- Some other staffs.

AFD Disaster Monitoring Cell's present ICT capacity:

- 2 BTTB Telephone lines, I Army Line, 1 Navy Line, 1 Air Force Line and Extension Lines of PABXs.
- 1 Fax Machine.
- 2 Computers (1 under repair at the moment)
- Broadband Internet

Defense service's (Army, Navy & Air Force) present ICT capacity:

- BTTB Telephone Lines
- PABXs at almost all sites
- Point to point lease lines between HQs & Cants.
- HF network among all Cantonments and important locations
- VHF network at many locations
- Computers with Internet facility and LAN
- Mobile Phones (mostly personal)

Other resources of Defense services:

- Light vehicles
- Heavy vehicles
- Helicopters
- Aircrafts
- Tents and shelters
- Relief materials ready stock
- Engine Boats
- Small ships
- Trained manpower

CDMP DMIC Needs Assessment

Date: May 23, 2006

Address: Directorate of Ansar and VDP
Malibagh, Dhaka, Bangladesh.
Tel: 7214951-5, Fax: 7124958, 7124959
E-mail: info@ansarvdp.gov.bd,
ansarvdp@yahoo.com
Website: www.ansarvdp.gov.bd

Present: 1) Lt Col Faroque, Director (Training)
Tel: 7214924, 7214951-5/
2) Mr. Nirmalendu Biswas,
Deputy Director (Operations)
Tel: 7218593, 7214951-5/115
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP.

Agenda: **Ansar and VDP Directorate's Disaster Management Information needs, contributions and resources.**

This Directorate is in possession of a huge network of organized manpower up to the level of villages, which would be useful for managing a disaster. The Village Defense Parties in each village contains 32 male and 32 female i.e. in total 64 members. These VDP members work as listed volunteers and are hired at the time of need. In average they are paid a little sum (Tk.40/00 per day) for 2 months per head per year as allowances. Orientation courses are organized at district level for them each year. There are two (1 male & 1 female) Leaders to guide them at Union level. The leaders are paid Tk.250/00 per month as allowance.

There are about 15,000 uniformed Ansar members enrolled in the directorate. The Ansar members gets around Tk.3,500/00 per month for about 10 months a year (when they are deployed). One regular officer and staffs are posted in each district HQ.

No specific but all hazards are their concern. The directorate obtains cyclone warnings, flood warnings, emergency situations, etc. in time. They take part in the process of managing and mitigation during a disaster.

Ansar and VDP Directorate is of the opinion that the DMIC is likely to provide the concerned agencies with the desired information during a disaster. They may exchange information by Fax, e-mail, SMS messages and Telephones. Exchange of information among stakeholders via DMIC may bring better result. Information products related to awareness generation, rescue operations, training, mock ups related to disaster management, etc. might be made available at the websites of DMIC.

Required data and records are maintained in conventional ways. Recently computers are used for record keeping at district level. No centralized database has yet been developed.

The related stakeholders for disaster management are:

- ❑ Bangladesh Police
- ❑ CPP
- ❑ Fire Service and Civil Defense
- ❑ Different Govt. coordination cells

Present ICT capacity of Ansar/VDP:

- BTTB Telephone: 3 Lines up to dist. Level and 1 line at 10% of Upazillas.
- Fax: 2 in HQ and 1 in district level.
- PABXs: Dhaka HQ – 10/100 lines, Shafipur Ansar/VDP Academy – 5/50 lines.
- HF: at Dhaka, Chittagong & Shafipur Academy.
- VHF network in Dhaka HQ, Academy and Chittagong Hill Tracts Range office – about 25 sets at each site.
- Computers up to District level

- Internet: Broadband in Dhaka and dial up at 5% of districts.
- Mobile Phones (mostly personal)

Other resources/constraints of Ansar/VDP:

- Trained manpower/ volunteer
- Limitation of fund allocation
- Lack of vehicles and equipments.

Md. Anwar Iqbal
Member-Director (P&E)
Bangladesh Agricultural Research Council (BARC)

April 26, 2006

- The need for setting up a facility for integrating data on various hazards and disasters has been felt for a long time and although good intentions were expressed by different quarters, not much was done in this regard. It is very encouraging that a serious attempt toward the objective is now being made by CDMP.
- Currently BARC uses data that it collects on its own and also data that it procures from diverse sources (BMD, DAE, BARI, BRRI, SRDI, BWDB, WARPO, SPARRSO, etc.).
- BARC would benefit from readily available data on such aspects as availability of surface and ground water for irrigation purposes, depth and duration of cropland inundation during floods, salinity intrusion caused by cyclonic tidal surges, loss of land due to riverbank erosion, crop damage due to disasters, etc. It would also benefit from meteorological and climatic data to assess spatial and temporal variation in cropping as well as susceptibility of crops to various hazards.
- BARC has a website, where some information is available for those interested. However, when a centre is established for integration of data from various sources with appropriate agreements for sharing of data, additional data can be made available. It may, however, become necessary to recover some of the costs of the data.
- BARC has developed a database on land suitability for various crops. This dataset proves useful in planning on food supply and also in adopting rehabilitation measures in the aftermath of disasters.
- The format in which the data is to be integrated should be determined through discussion among potential users of the data. This will require an arrangement by which concerned professionals can be made available from various institutions to define the data layers that need to be developed for catering to the needs of the users.
- It would be necessary to strengthen BMD significantly for proper functioning of DMIC. It calls for a professional set up with knowledge of hazards and disasters in Bangladesh and consequent impacts on various sectors of the country. It also should have a proper understanding of the use of information contained in DMIC, so that it can effectively advise concerned institutions and initiate interactions among institutions.
- There should be adequate budgetary provision for necessary capacity building of DMB both in terms of additional recruitment and training of the concerned personnel.
- BARC has a satisfactory network of computers (more than 100 computers) with LAN and broad band internet facilities.

CDMP DMIC Needs Assessment

Date: March 27, 2006

Location: Bangladesh Amateur Radio League (BARL),
222, New Elephant Road,
Dhaka-1000, Bangladesh.
Tel: 7100340, 8812693, 01711609516
E-mail: s21as@yahoo.com, s21am@agnionline.com

Present: 1) Engr. Sharif Ahmed (S21AS), President/BARL
2) Mr.Manjurul Hoque (S21AM), General Secretary/BARL
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP

Agenda: BARL Disaster Management information needs and possible contributions

BARL is the national society of radio amateurs in Bangladesh and is a member of International Amateur Radio Union (IARU) and of IARU, Region-III. Its members take interest in experimenting with electronics and radio communication as a hobby, and were recognized for disaster related emergency services on several occasions. It has got about 100 members including 50 licensed members.

The role of BARL in providing Emergency Services was highlighted on several occasions. Normally BARL members get information from electronic medias. BARL came forward with their hands of co-operation in emergencies. As for example, teams equipped with emergency set up went to the distressed area in the coastal belt hit by cyclone during May 1997. They were associated with the Red Cross and CARE and were supporting in establishing and maintaining the communication systems. They were stationed in Chittagong, Cox'sbazar and Chokoria in the southern part of Bangladesh during the period of disaster.

They don't have any direct telecom link with the disaster managing agencies, but are well equipped with their on radio network or radio transceivers and licensed amateurs. They consider that the DMICs forthcoming network is likely to provide them with the desired information in case of need. They may transect information by HF/VHF sets, e-mail, SMS messages, land phones or websites. They are ready to share information with other stakeholders. BARL members are ready to act as volunteers during any type of emergencies. They consider that elimination of risk environments may reduce incidences and severe ness of a disaster. Awareness generation is also an important factor in reduction of risk factors.

BARL's needs / contributions to the CDMP information center may include:

- weather forecasts, all types of hazard warnings like cyclones, fire, building collapse, earthquakes, etc.
- information related to mitigation operations
- regarding relief operations, etc.
- regarding location of occurrence of casualty
- any other related information.

The BARL related stakeholders are:

- Red Crescent Society
- CARE
- Fire Service
- Govt. control Rooms
- Bangladesh Scouts

BARL's present ICT capacity:

- Mobile Phones of about 60 radio amateurs
- Accessibility of VHF Repeater from Internet
- VHF Repeater network in Dhaka covering about 50 sq.km

- VHF sets of 25 Amateur members
- HF sets of 20 Amateur members
- Land Telephones of members
- 20 dial-up Internet of members
- Website (www.barl.org)
- Radio equipment repair capability
- Antenna designing and erecting capability.

Man Power: Around 100 Bangladeshi Radio Amateurs. The Call signs of licensed Bangladeshi Amateurs are given below:

S21A, S21B, S21C, S21D, . . .

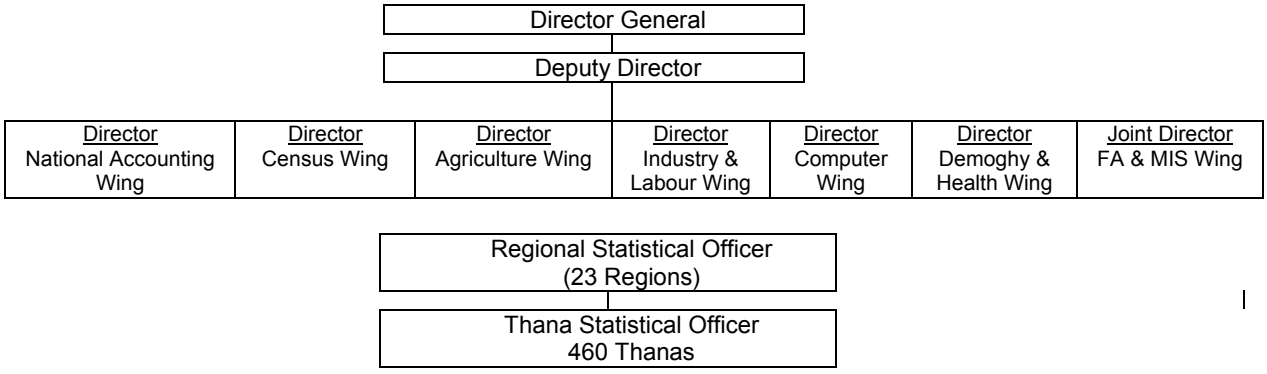
CDMP DMIC Needs Assessment

Date:	May 28 2006, 10:30 for 1 hour
Location:	Bangladesh Bureau of Statistics Parishankhan Bhaban E-27/A, Argargaon, Dhaka
Participants:	Mohammad Shaheen, DG Staff Officer Md. Zobdul Hoque, Director MIS Sid Tupper, CDMP
Agenda:	BBS information needs, sharing and ICT capacity

The right people weren't available to address the most important question: what institutional arrangements need to be in place for effective information sharing between BBoS and DMIC? Mohammad Shaheen, the DG staff officer, said that the DG will not be available to discuss this until June 10. He recommended that a Bangladeshi participate on the CDMP side if the project follows up on this question, and a letter of support from a Joint Secretary would help too.

The BBS mandate is "collecting, collating and dissemination of statistical data required for socio-economic development and policy formulation of the Government". This and the figure below come from their website at www.bbs.gov.bd which is primitive, with most links broken.

Organizational Setup of Bangladesh Bureau of Statistics (BBS)



Abbreviations
(1) FA and MIS= Finance, Administration and Management Information System

Md. Zobdul Hoque, Director MIS (or "Computer Wing"?) was enthusiastic about 2-way information sharing with DMIC. He said that BBS collects no primary data; instead they rely on other agencies to provide data which they process and publish. They have some disaster management information but want to improve it, and he welcomes a relationship with MoFDM to achieve this. The Environmental Department (what wing is that?) is particularly interested in disaster information. He said that BBS would in principle be happy to provide any data they have to MoFDM.

Normally BBS provides its products in bound books at their commercial outlet downtown near the Press Club. However Md. Zobdul Hoque was confident that they would provide DMIC with datasets in digital form, although their ICT resources are poor: only the DG has a broadband connection, and the rest are dialup.

CDMP DMIC Needs Assessment

Date:	1100, May 10 2006, for 0.5 hours
Location:	Bangladesh Disaster Preparedness Centre
Participants:	Md. Saidur Rahman, Director Sid Tupper, CDMP
Agenda:	BDPC disaster management information needs and sharing

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1. What information does BDPC need to fulfil its role in Disaster management?

To perform its role in disaster management, BDPC needs, among others, the following information:

- Statistics of major disaster events in terms of the date of occurrence of the events, extent of casualty to human life, livestock, major crops damaged, areas affected, household affected and so on since independence, if possible.
- Update natural hazard maps.
- Highlights of the decision of the international conferences/meetings on disaster related issues.
- Names and particulars of disaster related reports and publications, both at national and international level.
- Names and addresses of the organizations engaged in disaster risk reduction initiatives, as opposed to distribution of relief.
- Names and particulars of the various Government agencies responsible for providing specialized services during disaster, pre-disaster and in post-disaster periods.
- Area-wise damage list in terms of human life, livestock and crops in any disaster.
- Area- and item-wise relief distribution figures.

2. What information would BDPC contribute to the disaster management community?

BDPC is primarily responsible for awareness raising and capacity building activities at the family and community level through its various training and awareness raising programs. It can contribute its research and study reports to the disaster management community. Especially it could contribute towards development of training modules: IEC materials and training on various disaster-related issues. It could also contribute towards influencing policy change through its advocacy program.

3. What is BDPC's ICT capacity to receive and provide information?

BDPC has professional and IT staff. All of the computers have broadband Internet connection. Development of BDPC's website is in process, where others can share information and their activities. BDPC also maintains regular contact with other organizations through mail and fax regarding collection and dissemination of information.

CDMP DMIC Needs Assessment

Date:	11:30, March 6 2006, for one hour
Location:	Bangladesh Earthquake Society Department of Geology, Dhaka University
Participants:	Dr. Aftab Alam Khan, VP Bangladesh Earthquake Society Nizam Chowdhury, CDMP Sid Tupper, CDMP
Agenda:	Bangladesh Earthquake Society information needs

Dr. Khan is a Professor in the Department of Geology, Dhaka University, and Vice President of the Bangladesh Earthquake Society. He says:

Earthquake hazard risk assessment is in an embryonic state. No work has been done yet. There is no basis for earthquake risk reduction policy. The approaches for policy formation taken so far were shallow. Severe earthquakes are rare in Bangladesh but are potentially devastating. It is not a common hazard like flood, cyclone, etc.

The problem needs to be assessed:

- Generate/assemble real time data of all kinds: socio-economic, geological, etc.
- Develop early warning systems

Dr. Khan thinks that earthquake prediction and warning is possible, with a lead-time in hours. He encourages CDMP to form an R&D cell to develop the methodology. For example, DGPS stations measuring relative land movement would locate faults, and precision seismometers would characterize their behavior leading up to a major event. Urban areas are much more hazardous and should be assessed first: Dhaka, Chittagong and Sylhet.

Dr. Khan is not optimistic about information sharing among GSB, BES and BMD. GSB is not equipped to study seismic issues. BMD has no involvement in seismic studies. It will install three new sets of seismic measuring instruments, in Dhaka, Sylhet and Chittagong, presently early in the procurement phase. Although the buildings are ready, operations will not commence for a long time (years). Dr. Khan is unsure about the motivation of BWD to have seismic observations and noted that it is under the Ministry of Defence, agreeing that possibly detecting nuclear testing might be of interest to the MoD.

The BES organized an International Conference on Earthquakes last year at which papers were presented on design of earthquake-resistant structures. He said that the 2005 Savar garment factory building collapse had subtler causes than commonly understood. It was built on the edge of a significant river channel and coincidentally over a fault. Although the initial design was probably legitimately approved, subsequent modifications including more floors and additional washing, drying and electricity generation equipment that added unsafe dynamic loads. To accommodate increased water requirements they drilled four more wells, which changed the load-bearing characteristics of the ground under the building. The recent Tejgaon building collapse may have similar root causes, in particular a design that neglected dynamic loading. Building codes for safe and earthquake-resistant constructions have to be tailored for each location: eg, a Dhaka building code would not be appropriate for Chittagong.

Dr. Mehedi Ahmed Ansary, a Civil Engineering professor at BUET, and BES Secretary-General, has urban building quality data that might be useful if overlaid with other risk factors to quantify vulnerability.

Dr. Khan says that BES has no ready data to share, because they have no resources and no offices. BES has some publications dated My 28, 2005 and July 6, 2006, which might be useful for DMIC. He thinks that BES and/or the Department of Geology could offer training in site characterization, i.e., analysis of a location to determine its constraints on safe building design.

When asked how the DMIC could support earthquake hazard information sharing, Dr. Khan said it should:

- maintain a database of earthquake hazard information
- support acquisition of real time seismic and DGPS data
- have close localized survey and seismic study
- CDMP should develop resource persons for itself

BES has no ICT resources except a one-screen static website at http://www.geocities.com/bdeqsoc/. The Department of Geology has got resource persons and broadband Internet service, T&T lines and fax. The Dhaka University website www.univdhaka.edu may also be considered.

CDMP DMIC Needs Assessment

Date: May 30, 2006

Address: Bangladesh Inland Water Transport Corporation
5, Dilkhusha C/A, Dhaka-1000, Bangladesh.
Tel: 9555031-3, Fax: 9563653
E-mail: info@biwtc.gov.bd

Present: 1) Capt. Showkat Sardar, General Manager (Marine)
Tel: 95552472, Extn: 220, Fax: 9563653
2) Mr. Nizam Uddin Ahmed Chowdhury, CDMP.

Contact person: Advocate Shamsur Rahman Shimul Biswas, Chairman, BIWTC.
Tel: 9567780, 9554100

Agenda: **BIWTC's Disaster Management Information Needs, contributions, resources and ICT Capacity.**

BIWTC is under control of the Ministry of Shipping. This organization has a big fleet of River going vessels. They are aware of the 'Standing Order' with respect to Disaster management.

Hazards especially those related to cyclones, tornados, floods are of concern. They have a full time 24/7 Control Room in Dhaka to monitor river vessels. The phone numbers are 9558000, 01711626966.

They think that the DMIC is likely to provide the concerned agencies with the desired information during a disaster. They may exchange information by Fax, e-mail, web sites, SMS messages and Telephones. Information products related to awareness generation, rescue operations, training, mock ups related to disaster management, etc. might be helpful in their opinion. Few data are maintained in computers. Rather traditional filing system is still in practice.

The related stakeholders for disaster management are:

- various Govt. coordination cells
- Govt. agencies.
- DoS
- Private river-going ships and launches.

Present manpower: About 3,400 persons (Officers and staffs).

Present ICT capacity of BIWTC:

- BTTB Telephone: 71 Lines in total. 1 PABX -3/78 lines.
- Fax: 1 in HQ and 1 in Chittagong.
- Computers: 15. All GMs and some others. No LAN.
- Internet: dial up in HQ.
- Website: Under developement
- Mobile Phones- Mostly personal.
- HF Network: Between Dhaka, Ctg, Khulna, Barisal, Aricha Maowa, Hatia, Sandwip, etc. – 23 in total.
- Mobile HF: In 27 Ships out of total 197 vessels.

Other constraints:

- Fund limitations – More Computers required
- More HF sets in Ships required.
- CDMP may provide ICT assistance.
- Satellite phone may be required during a severe disaster.

CDMP DMIC Needs Assessment

Date:	10:00, 18 May 2006 for 1.5 hours
Location:	Bangladesh Meteorological Department, Agargaon, Dhaka
Participants:	, Director , Deputy Director , System Manager , Communication Engineer others Dr. Alam Alam, CDMP Tasdiq Ahmed, CDMP Sid Tupper, CDMP
Agenda:	BMD information needs and sharing

The Director took us to the Operations Centre and gave us a tour of the weather bulletin production process:

1. Three kinds of weather observation data are received by teleprinter:
   a. Synoptic data 3 times daily from 35 surface stations: temperature, wind velocity, atmospheric pressure, cloud state, humidity, hours of sunlight, rainfall
   b. 10 Pilot balloon stations return telemetry of atmospheric pressure from six altitudes up to 60,000 feet, each tracked by one theodolite
   c. Global/regional weather observations from Delhi via microwave link
2. Analysts manually plot isobars from the data on regional and local maps. They plot the pilot balloon data as isobars at the six altitudes.
3. Meteorologists examine the plots and other data including NOAA imagery and produce as many as 24 kinds of weather bulletin, depending on the user (eg, aviators, mariners, farmers, coastal zone, …), and weather warnings as necessary. Two computer systems make an automated prediction which the BMD uses to validate the human-produced bulletins.
4. Bulletins are disseminated by fax in a limited distribution. Cyclone warnings have a larger distribution.

Weather bulletin distribution	Cyclone warning distribution
Minister of Agriculture	PM's Special Security Force
Cabinet Secretary	Cabinet Secretary
PM's Principal Secretary	Secretary, MoD
Secretary, MoD	Bangladesh Betar
Secretary, MoA	BTV
Secretary, MoFDM	DFID
Secretary, MoWR	EOC, MoFDM
Chairman, Sugar and Food Industries Corporation	CPP
Secretary to the PM	Ministry of Shipping
DG, PM's Special Security Force	Port authorities: Mongla and Chiitagong
Personal Secretary, Minister of Agriculture	BIWTC, BIWTC
Assistant Military Secretary to President	DMB
PM's Monitoring Cell	PM's Officer, Armed Forces
Banglasesh Army, Military Operation Directorate	FFWC
World Food Program	Army, Navy, Air Force
Senior Assistant Secretary, Shrimp Management and Export Cell, Ministry of Industries	BAF (Patenga)
Deputy Director, Storm Warning Centre	UNHCR
Deputy Director, BMD HQ	BSS
Personal Assistant to the Director, BMD	UNB
	Coastal Guard
	Reuters, ATN, Amer Desh
	SPARRSO

In the view of the staff present at the consultation, BMD would provide processed information on request but not raw data. They regard the raw weather observation data as intellectual property and do not want to make it available to other institutions to take profit that BMD should have.

These staff would like to receive damage reports so that they can locate the actual position of weather phenomena they predict, eg, tornado paths. They do field work for cyclone research and DMIC might provide other useful data or support the collection of field data, for example, to calibrate their tidal surge model.

BMD would welcome the support of DMIC to disseminate their forecasts. During emergency times they are responding to so many information requests that they have barely time to work. They would like to transfer their responsibility for delivery of early warnings to DMIC, which would relieve some staffing pressure.

A Japanese donor is installing a Numerical Weather Prediction system which BMD expects to provide seasonal weather predictions in a month or two. The Climate Forecasting Applications in Bangladesh project which has been an effort of Georgia Tech for several past years, but languished from lack of funding, is funded this year. The IWM will host the model, which gives good 10 day predictions, less reliable 20 day predictions and shows promise for seasonal predictions. Longer lead times would be valuable to weather information users.

BMD would like better radio and TV linkages to support public awareness programs.

BMD has poor internet connectivity. The Director has a dial-up connection and there is another in the Operations Centre. They need broadband always-on connectivity.

CDMP DMIC Needs Assessment

Date: May 10, 2006

Address: Bangladesh Railway,
Kamalapur Railway Building
Kamalapur, Dhaka.
Tel: 9362260

Present: 1) Engr. Md. Abul Kalam,
Divisional Signal Engineer (Signals)
Tel: 880-2-9362260, Mobile: 01711691567
2) Engr. Mainul Islam Azad,
Divisional Signal Engineer (Telecom)
Mobile: 01711500089
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP

Contact Person: Mr. Khondaker Shahidul Islam, Chief Signal and Telecommunication Engineer (CSTE),
Chittagong Railway Building, Chittagong.
Tel: 031-843225, Mobile: 01711500201

Agenda: **Disaster management information needs and ICT capacity of Bangladesh Railway.**

Bangladesh Railway is one of the largest Govt. owned organizations in the country. It has a wide network railway tracks and signaling system.

Disaster management activities do not fall under its jurisdiction. However, the railway itself a few times suffered from flooding of railway tracks, collapse of bridges due high current of floodwater and damage of some buildings due to tornado, etc. Earthquake would be a serious hazard for BR. Hazard like Tsunami would not be so serious for BR.

They consider that the DMIC is likely to provide the concerned agencies with the desired information in an efficient way. It may exchange data/ information with the proposed DMIC by Fax, e-mail, SMS messages, land phones, Mobile phones, etc. in case of emergency.

Railway does not maintain any disaster related database. Sharing data with DMIC would be useful, they opined.

The Chief Signal and Telecommunication Engineer stationed at Chittagong is looking after the IT organ of the organization. A few projects related to ICT are under development.

Total manpower: 30,000 (including 200 in Telecom).

Railway's ICT capacity:

- Railway was earlier in possession of a huge network of Optical Fiber (about 1600 km) laid beneath the railway tracks all over Bangladesh. The project was implemented with the objective of improving Railway's signaling and

Telecommunication system. Later on the same has been handed over to Grameenphone.

- At present railway has obtained (as per Contract) 4 (four) E1s) i.e. 120 Telephone channels) from Grameenphone for Railway's internal use.
- Railway has 10 PABXs of different sizes in Bangladesh which are interconnected through the OFC link (4xE1). At present, this capacity is sufficient for its internal Telecommunication purpose among Divisional Head Quarters and stations.

- LAN connecting important Railway Stations for mainly for ticket counters.
- Internet facility.
- Website: Under development
- BTTB Telephone: Provided to all Divisional.
- Fax: Around 20. GM level offices- BTTB nos. and some other departments Fax with Rly Nos.
- Mobile Phones: Mostly personally owned.
- PABX in Dhaka: 350 lines Capacity.
- Railway has block interlocking system for controlling movement of trains between stations.

CDMP DMIC Needs Assessment

A.S.M. Akram
Secretary General (Acting)
Bangladesh Red Crescent Society (BRCS)

May 3, 2006

- Bangladesh Red Crescent Society needs information on various hazards and disasters and it often finds the information to be piecemeal and inadequate. Therefore availability of integrated information from DMIC would be very helpful to them.
- There are many organizations that are now involved in preparatory and mitigation activities with regard to cyclone. Knowing about their activities like arranging shelters would help in planning and executing real time measures. The same thing applies for other disasters and BRCS would benefit enormously if the information is made available through the proposed DMIC
- There is hardly any information available on nor'westers and tornadoes, which makes it difficult to plan preparatory and mitigation measures for these events. Therefore measures should be taken to gather information on these natural events and integrate such information into the DMIC.
- BRCS has a community based disaster preparedness program in 35 flood-prone districts of the country. This program would benefit significantly if the concerned officials could get relevant flood information in time for preparatory and mitigation activities.
- Timely information on disasters will enable BRCS to procure food relief from agencies like WFP (with whom it has an arrangement to receive up to 1,000 tons of rice at one time under such circumstances).
- Proper information on poor/deficit areas of the country is essential for BRCS to plan its activities. Such information would help in assessing need for internal and external assistance.
- The proposed DMIC should be functional throughout the year since 'normal time' information on numerous parameters often becomes essential in assessing possibilities of disasters. Besides, miscellaneous datasets need to be updated even within the course of the same year.
- BRCS has taken up an earthquake preparatory and response program, the purpose of which is to make vulnerable people aware of the measures they need to take in the event of earthquake. This program would become more effective if information is available on risks and possible damages by regions/ areas of the country.
- BRCS operates 68 health centers all over the country. If advance information on disasters and consequent health problems is available to these centers and BRCS headquarter in Dhaka, it would help in taking up measures to address the health issues.
- BRCS has offices in all the districts of the country. Their activities would become more effective if BRCS could supply them with the kind of integrated information on disasters that DMIC hopes to furnish.
- There are around 100 officers working in the BRCS office in Dhaka and they have around 80 computers. Some of the computers have internet facility (some broad band, some dial up). Some of the computers are connected by LAN.

BRCS said they would be willing to supply relevant data, including food relief stocks, to DMIC once it is formally set up. The type of data to be integrated into the DMIC would be known better by holding discussions among the participating institutions.

CDMP DMIC Needs Assessment

Date: April 02, 2006

Address: Bangladesh Telegraph and Telephone Board (BTTB),
37/1, Eskaton Garden, Dhaka, Bangladesh.
Tel: 8311500, 8824131, Fax: 8312577, 9884768
E-mail: s.alam@bttb.net
Website:www.bttb.gov.bd

Present: 1) Mr. Malek Akhand, Chairman, BTTB
2) Mr. Md. Mujibur Rahman, General Manger (Trans. Region),
3) Mr. Shahidul Alam, Director (Transmission), BTTB
4) Mr. Nizam Chowdhury, CDMP

Agenda: **BTTB's Disaster management information needs and possible contributions and its role.**

Bangladesh Telegraph and Telephone Board having a huge infrastructure of telecommunication equipments is the only Govt. owned Telecom Operator in the country.

Just on receipt of an information or an warning signal, a central Control Room in Dhaka as well as control room(s) in the regional head quarter(s) is opened to coordinate the disaster related activities. BTTB starts its activities after getting the information of a hazards/ disaster from Radio/ Television news or getting information over telephone from other agencies. Its activities include maintenance of the Telecom circuits towards the site of incident as well as opening of some new circuits at the spots as the situation demands. Ensuring standby/backup means of communication is also looked for at this stage. As a part of preventive maintenance they mobilized manpower and resources to a safe near by location of the risk prone area. Awareness generation is also a preparatory work at the on set of a disaster. Traditional relief activities are not within the list of BTTB.

BTTB considers that the DMIC is likely to provide the stakeholders with the desired information at the appropriate moment and in an efficient and faster way. Its control room(s) may exchange information by Fax, e-mail, SMS messages, land phones or through websites. BTTB is in favor of supporting exchange of information among stakeholders and DMIC. Suitable information products would play a vital role in the process of risk reduction. Information products related to awareness generation would also be very useful, they opined.

Disasters Management Bureau can act as a coordinator to integrate the services of all public utility departments to cope with the emergency situation and havoc caused by a natural disaster.

BTTB can render its existing facilities at the time of disaster like cyclone, earthquake and tsunami as per the requirement of the situation. Considering the possibility of partial damage of means of telecommunication equipments, sharing resources among the stakeholders may be necessary in such occasions. BTTB can lease E1s up to district HQs and circuits/E1s up to Upazilla levels, if so desired by any other agency. New towers have been erected along the coastal belt, which would be much more secure at the time of cyclone etc. The submarine cable project of BTTB will also make Optical fiber link to World Wide Web available for the proposed DMIC soon.

Officers and Staffs: Manpower around 22,000.

The BTTB related stakeholders for disaster management are:

- DMB
- CPP
- Fire Service and Civil Defense
- Different Govt. coordination cells
- Red Crescent Society

- NGOs

BTTB's present ICT capacity:

- BTTB is a public sector PSTN service Provider. BTTB also provides data services and leases out transmission Media to Private Operators and/or other customers.
- BTTB Telephone Exchanges: Total number of Digital Exchanges 270.
- Total numbers of subscribers are 915000.
- Total working Optical Fiber network: 1,396 km
- Digital Data Network (DDN) Nodes: Nationwide
- Upazilla Radio Link: All Upazilla HQs are connected to District HQs.

- DDN (Digital Data Network) Node are working in 41 Districts where Board Band Internet services are available for corporate users.
- Internet services are available for 64 Districts and 206 Upazila.
- A Sample Solution: Panchagar - Dhaka:
  - Dial-up Internet
  - Lease Internet (dedicated BW 64 Kbps – 2 Mbps)
  - Point to point TDM lease lines (64 Kbps – 2 Mbps)
  - X.25 Packet switch (8Kbps – 128 Kbps)
  - E1 line Driver (2 Mbps) – for ISP and PBX

BTTB's on going Projects:

- Installation works of 58 MSU (Digital Exchanges) at district level and 220 RSU (178 upazila + 42 GC) together with 185 digital UHF radio links to connect with districts HQs.

- Hill Tracts project – 25 Digital Exchanges and Digital Microwave link will be installed at 22 Upazila and 3 Growth Center in Chittagong Hill Tracts.

- Up-gradation of Dhaka–Chittagong Optical Fiber link up to STM 64.
- Expansion of Ctg–Cox's Bazar SDH µ-wave Link up to 3+1 configuration.
- Expansion of Dhaka–Khulna, Bogra–Natore–Rajshahi, Natore–Pabna– Kushtia SDH Radio link up to 3+1 configuration.

- Bogra – Natore- Rajshahi –Chapai Nawabganj Optical Fiber link.
- Keraniganj –Srinagar Optical Fiber link.
- Srinagar – Madaripur new SDH Radio link.

- After implementation for Keraniganj –Srinagar Optical Fiber link and Srinagar – Madaripur new SDH Radio link there will be a ring Network between Dhaka – Barisal, Barisal - Khulna and Dhaka – Khulna as well.

Approved Project:

GMDSS (Global Maritime Distressed Safety system) in collaboration with Ministry of Shipping. Under this Project two base stations one at Silimpur (Chittagong) another at Mongla (Bagerhat), one Monitoring station in Dhaka and Microwave links will be installed along the costal belt. After implementation, communication will be possible with ships in deep sea through INMERSAT.

CDMP DMIC Needs Assessment

Md. Ali Hossain, Chief
Md. Abul Hashem, Deputy Chief (Agriculture)
Department of Water Management
Bangladesh Water Development Board (BWDB)

April 27, 2006

- Disasters create adverse impacts in multiple sectors of the country. To best handle such impacts it is necessary to have an integrated approach toward management of relevant datasets.
- When GoB defines the mandate of DMIC, concerned agencies would be happy to supply relevant information for the proposed centre to prove effective.
- The Department of Water Management plays an important role in irrigation management of the country. It is also responsible for ensuring people's participation in water resources management through the Water Management Organizations working in various parts of the country.
- Information on drought is essential for timely delivery of services by the Department. The rain-fed aman crop can be adversely affected if there is lack of rain during monsoon.
- The Department has a 'supplementary irrigation' program, by which it arranges surface water irrigation in areas where during monsoon the standing crop faces damage due to lack of rain. It is usually during September and October that such stresses can occur for a period of fifteen or so days, particularly in protected areas where embankments prevent easy flow of water from outside.
- The Department does not deal with groundwater irrigation, which is mainly covered by private agencies overseen by BADC.
- Prediction information on geographical areas with aman coverage that can be affected by dry spells would be very useful for the Department to plan on its supplementary irrigation program. This has become all the more essential in the face of changing rainfall patterns in the country.
- It has been the experience of the Department that delayed information on areas affected by dry spells resulted in delayed actions, thereby reducing the effectiveness of the measures. By incorporating appropriate information into the DMIC (through the use of satellite and other technologies) and ensuring quick access, the situation can be improved significantly.
- The Department has an MoU signed in 1994 with DAE. Through this MoU the Department handles water management and people's participation, while DAE looks after yield and production aspects of crops.
- The Department was consulted in 2003 about an FAO sponsored project on crop yield forecasting and agro-meteorology. I would be interesting to know what came of the project and examine its relevance for the work undertaken by CDMP.
- The Department has around 10 officers and not everybody has a computer. No LAN facility is available. Although funds have been requested to upgrade the computer facilities, no approval has yet been received.

CDMP DMIC Needs Assessment

Md. Makbul Hossain
Director
Directorate of O&M
Bangladesh Water Development Board (BWDB)

April 27, 2006

- Inventories are not complete with individual agencies and hence it would be very convenient to receive various types of necessary information from one single source. By ensuring compatibility of the datasets one can increase their usability.
- The data put together in DMIC should be accessible to those contributing data to it and also to other users, particularly to those who deal with disasters. Procedures would have to be put in place for ensuring quick access to the information for the users.
- Information should be 'broken down' in a way that it can prove useful to the diverse users. For example, some agencies may need information on total length of embankments in the country, while other agencies may require the same information by upazilas.
- NWRD data as well as relevant BBS data should be integrated into the DMIC. Some social and demographic data are necessary to decide on priorities of O&M work.
- The Directorate of O&M would benefit from prediction information on disasters like flood, riverbank erosion and flood that can affect the infrastructure covered by them (embankments, irrigation canals, pump houses, etc.). Such information would help them prepare plans in advance regarding O&M activities and allocations.
- If damage information is made available quickly in the aftermath of disasters, it would be possible to take up early O&M measures. The proposed DMIC should be able to play an important role in this regard.
- The information put together at the DMIC would have to be updated from time to time. For this it would be necessary to coordinate monitoring activities that are undertaken by various agencies. Also, it may be necessary to initiate new monitoring activities in certain cases.
- A competent technical team is required for proper functioning of the DMIC. Appropriate IT training is essential for hardware and system management as well as trouble shooting. Training is necessary not only for the junior professionals, but also for the seniors.
- Appropriate committees should be constituted (following the SOD) to facilitate quick sharing of data with respect to specific disasters.
- The officers at the Directorate have access to PCs, with LAN and internet facilities.

CDMP DMIC Needs Assessment

Date: May 09, 2006

Address: CARE Bangladesh,
Pragati RPR Center (Level-12),
20-21, Kawran Bazar, Dhaka 1215, Bangladesh.
Tel: 9112315, 8114207 Fax: 8114183
E-mail: biswas@carebangladesh.org

Present: 1) Mr. Chitta Ranjan Biswas, Technical Coordinator (Humanitarian Assistance)
Tel: Extn. 172, 01711177415
2) Mr. Abdus Shaheen, Technical Coordinator (Shouhardo Program),
Tel: Extn. 135, 011
E-mail: shaheen@carebangladesh.org
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP

Contact Person: Mr. Fazlur Rahman, Humanitarian Assistance, Coordinator, CARE Bangladesh.
Tel: 9112315, 8114207 Extn: 139.

Agenda: **Disaster management information needs, contributions and ICT capacity of CARE Bangladesh.**

CARE Bangladesh is one of the old and largest NGO in the country. The present manpower is around 1500 persons. It has a very wide network for humanitarian assistance related activities covering all over Bangladesh. Earlier CARE was having about 3000 staffs. Now, Volunteers and partner NGOs /organizations in the locality are used saving the cost of higher full time manpower.

CARE starts its activities after getting the information of a hazards/ disaster from Radio/ Television news or getting information from its own sources.

They consider that the DMIC is likely to provide the stakeholders with the desired information in an efficient and faster way. It may exchange data/ information with the proposed DMIC by Fax, e-mail, SMS messages, land phones, Mobile phones or through websites. CARE is in favor of sharing data with others. At present, they are share data within its own organs.

Care maintains database of its financial accounts, its activities, working field and skills of staffs for suitable deployment, etc. NIRAPAD is another NGO which keeps database of disaster related information also publishes monthly bulletins.

They consider that participation of Media with such data would bring more positive results. SMS broadcast from DMIC would be very useful. But, use of Phone link by general public may not be fruitful because of illiteracy and shortage of training. DMIC may have direct links with DRROs and PIOs for better dissemination of data. HF and VHF networks would prove to be more reliable in case of a severe disasters like tornado, earthquake etc.

Cyclone warning signals (numbering) should be more user friendly, they opined. Warning signals broadcast may also be local languages. Media may generate awareness among the community.

The present preparation of the government against earthquake appears to be very poor. Govt. is not having readily available data of doctors, nurses, ambulances, etc. for managing a disaster like earthquake.

Total manpower: 1500 (including 239 in HQ) plus partners.

The related stakeholders are:

- DMB
- CPP

- Fire Service and Civil Defense
- Different Govt. coordination cells
- Red Crescent Society
- Other NGOs like Action Aid, OXFAM, BDPC, etc.

CARE's present ICT capacity:

- Over 200 Computers
- LAN in HQ connecting more than 200 PCs, also connecting about 20 district offices
- Internet facility.
- Website: www.carebd.org
- Fax: one in Dhaka HQ
- Mobile Phones: around 200 and almost 95% personally owned.
- PABX in HQ: 40/300 lines Capacity
- VHF/UHF Network: In Dhaka, Chittagong and Rangpur, covering about 25 sq km each.
- HF Network: In 26 Locations all over Bangladesh. Some more HF Transceivers have been planned for procurement. Frequency allocation was obtained from BTRC.

CDMP DMIC Needs Assessment

Date:	10:00, April 4 2006, for 2.5 hours
Location:	Dept. of Architecture and City Planning, Chittagong City Corporation
Participants:	AKM Resauk Karim, City Planner and Head Nizam Chowdhury, CDMP Sid Tupper, CDMP
Agenda:	CCC disaster management information needs

Architect Rezaul says:

Chittagong suffers severely from unplanned development and high density

- A CUET/BUET project is surveying buildings for earthquake resistance
- Ward commissioners are involved in awareness programs
- The city needs policies for physical development
    - weak infrastructure, eg, no water sources for firefighting
    - few resources
- an integrated urban framework is needed
    - presented the document "Chittagong City Government" to PMO which proposes an organization of 20 bureaus that operate under the Mayor, eg, water, electricity, welfare, auditors, disaster management, …

Architect Rezaul has published about 60 articles on urban development and disaster management issues in Bangla newspapers.

He doesn't appear to be aware of Standing Orders on Disaster (or SODM), or Action Aid's rumored activities in earthquake preparedness in Chittagong. He says CARE is active in disaster management here.

The central government (PMO, MoFDM) was not very helpful in the last cyclone in 2000 because the airport and coastal roads were affected isolating the area, except for limited access with helicopters.

GIS tools would be very useful. CCC's request for GIS tools is in process. Useful for city planning, not just disaster management. Could be integrated with a DMIC. Good planning mitigates disaster effects. A city is a machine that has to be designed.

Earthquake has the most potential for disaster. CCC has no experience dealing with earthquakes. Poor building quality and high density are big liabilities of the city. Buildings need to be designed by engineers and architects, who should be accountable for their work. Architect Rezaul showed us a 6-storey building drawing approved by CDA (Chittagong Development Authority, analogous to RAJUK in Dhaka, under the ministry) which had no specifications of materials or dimensions, and gave no confidence that the design accounted for hazards. He has no confidence in the CCC building's seismic resistance either. Many roads are not wide enough to allow passage of fire equipment.

CCC has a central and zonal Disaster Management Offices.

The District and City Corporation are sometimes at jurisdictional odds. The City Corporation is in principle an independent zone in the District, but the DC has some influence within the city. The Mayor is an elected official so has a more proactive attitude to problem solving than the DC, who is appointed and whose period in office is shorter. The current Mayor is in his 3rd term. Although aligned with Awami League he is so popular that he is untouchable by the ruling party and the PM has even told the Dhaka Mayor to look for guidance from him. A city mayor outranks a deputy commissioner by a large margin. There is no liaison between the CCC planning office and the DRRO. The City Corporation is under the Ministry of Local Government.

The city has a budget of 20 crore taka per year which does not afford necessary emergency response resources such as rescue equipment, staff and training. Tax revenues are about 30% of nominal due to ineffective enforcement and outdated land and land use records.

Coastal people are reluctant to respond to evacuation orders for fear of losing their possessions to looters. Security measures need to be in place. Mr. Rezaul thinks that the cyclone signals are hard to understand, particularly at the community level. The CCC gets cyclone and flood warning exclusively from TV and newspapers, not from BMD or FFWC.

The CCC is headed by the Mayor of the city and is under the Ministry of Local Govt. Its area of activity is distributed among the wards of the city. After the 1991 cyclone disaster they established an emergency service monitoring office. Besides the central office they have a few zonal offices at various locations in the city. They opined that supervision and management of all the activities and development and maintenance works including disaster management could be better managed if a “City Govt.” structure were followed. This would ensure coordinated and effective planning in all sectors.

CCC starts the disaster mitigation activities on receiving hazard warnings or events on radio or television news, or getting information over telephone or by messenger. They don’t have any direct link with BMD or other early warning agencies. They opined that the DMIC concept is likely to provide them with such information, better and faster.

The CCC’s need / contributions to the CDMP information center may include:

- metrological forecasts, flood warnings and probability information of any other type of hazard like land slides, earthquakes, etc.
- information related to casualty, relief needs, etc.
- all related information regarding risk reduction or response to disaster
- security related information at the time of disaster.

CCC related stakeholders:

- CARE
- BUET
- BMD
- District Administration
- PDB
- WASA

CCC’s present ICT capacity:

- Land Telephones
- Mobile Phones
- VHF sets linking wards and repeaters
- dial-up internet
- Website (under development).

CDMP DMIC Needs Assessment

Date:	April 5, 2006
Location:	Office of the Superintending Engineer (Elect.), Chittagong City Corporation (CCC), Lalkhan Bazar, Chittagong, Bangladesh.
Present:	Engr. Md. Shaheedullah, Superintending Engineer (Elect.) Mr. Bibek Kanti Das, Assistant Engineer Nizam Chowdhury, CDMP
Agenda:	CCC Disaster management ICT capacity and needs

The Superintending Engineer (Elect.), Chittagong City Corporation (CCC), heads this office. Its area of activity is distributed among all the wards of the city. The Emergency Service Monitoring office is located in this building. Besides, the central office they have a few zonal ESM offices at different locations in Chittagong. They open control room at the time of disaster.

CCC starts the disaster mitigation activities after getting the information of any hazard or disaster from Radio/ Television news and bulletins or getting information over telephone or by messenger. They don't have any direct link with the metrological offices or any such other agencies. In their opinion DMIC would be helpful in respect of transaction of disaster related information. The flow of information in such a case would be in a much reliable and faster way.

In Chittagong, earthquake might be a major cause of devastation in the city area since the probability is very high in this region.
During disaster, information related to type of havoc, seriousness of casualties, Medical teams, movement of vehicles, availability of relief materials, etc. would be very useful.

City Corporation's Mayor is the Chairman of the Red Crescent Society's city unit by virtue of his post.

After getting Cyclone warnings from Radio/Television broadcast they usually do "miking" announcements, move people to shelters, arrange foods and drinks, arrange lights, etc. Flow of information at this stage is very vital. Arrangement of security measures at this stage for property, etc. is very vital for the general mass.

CCC's present ICT capacity:

- Land Telephones: 200 Nos.
- Mobile Phones: 90% of the staffs, almost personal.
- VHF sets linking wards and repeater: more than 100 sets and one Repeater (50w) covering city and adjacent areas.
- HF Radio: Nil.
- Computers: 300 nos, No network.
- Internet: Mayor – Broadband, 24 Hours, some other dial up.
- Website (under development): www.ccc.org.bd
- No database maintained.
- Staffs and officers: 500 and 5,000 staffs (including schools).

Contact persons:

- Mr. Shaheedullah, Superinending Engineer (Elect.), Tel: 630739, 650252 (Res.), e-mail: ullah-s2005@yahoo.com
- Mr.Bibek kanti Das, Asst. Engineer (Elect.), Tel: 627761

CDMP DMIC Needs Assessment

All hazards

Respondent: Mir Abdul Matin ***Interviewer: Sid Tupper***
Institution: CEGIS
Address: Gulshan, Dhaka ***Date of interview: 14-Mar-2006***

Question	Answer
What is the role of your institution in disaster management?	Flood and erosion warning information generation and dissemination.
What hazards concern your institution?	CEGIS has studied and executed projects related to river flooding, river bank erosion, cyclone (shelter location), drought prediction, salinity intrusion, climate change, arsenic contamination.
Defining the risk environment	
What hazard risk environment information do you receive? From whom? When? How? Is it useful?	CEGIS gets data from : ▪ FFWC (water levels) ▪ BMD: rainfall ▪ BARI, SRDI ▪ Satellite imagery ▪ Survey of Bangladesh
What hazard risk information do you want?	
How should the information be delivered to you? Media? Frequency?	
Has your institution been requested to provide hazard risk information? From whom? When? What information?	
What hazard risk information do you have that would be useful to share? With whom?	CEGIS could provide risk assessment services : ▪ Remote sensing, GIS analyses for risk/vulnerability mapping ▪ conduct Community Risk Assessments ▪ arsenic impact modeling
Managing the risk environment	
What hazard risk avoidance/elimination/reduction information do you receive?	
What information do you want?	
How should the information be delivered to you?	

CDMP DMIC Needs Assessment

Question	Answer
What information has your institution that is useful to partner institutions?	CEGIS could provide the following services: ▪ community awareness building for self-help ▪ recommendations for flood and cyclone shelter location ▪ urban building quality status information system ▪ infrastructure status information system ▪ relief resources inventory information system ▪ drought and monga modeling
How should the information be delivered to partner institutions?	
What information has your institution that is useful to community individuals?	
How should the information be delivered to community individuals?	
Responding to the emergency	
What information do you need during response to a disaster?	▪ Main river water level predictions from FFWC ▪ Satellite imagery for erosion prediction, damage assessment, flood extent
How should it be delivered to you?	internet
What information of yours should partner institutions have to coordinate their disaster response?	Current services: ▪ Main river water level prediction products ▪ Flood plain water level prediction products ▪ River bank line movement information products Possible services ▪ Drought, monga prediction ▪ Damage assessments ▪ Resource inventories ▪ Building quality database (earthquake vulnerability) ▪ Water source, drug, shelter status databases
What information do you need during recovery after a disaster?	Satellite imagery Field data
How should it be delivered to you?	Internet, field visits
What information do community individuals need after a disaster?	
How should information be delivered to community individuals?	
What information of yours should institutions have to coordinate recovery?	

CDMP DMIC Needs Assessment

Date:	13:30, April 4 2006, for 1.5 hours
Location:	District offices, Chittagong
Participants:	Bazlul Haider Patuary, DRRO Sid Tupper, CDMP
Agenda:	Chittagong DRRO disaster management information needs

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Sid presented the DMIC scope strawman to the DRRO and asked for comment. Mr. Patuary said that if the DMIC offers all of the proposed features, it will be very useful to him.

He said that generally the DRRO faces pressure and many opportunities to corrupt the process but in his 30 years on the job he has never allowed this to happen.

In emergency times, the DRRO's office becomes a "control room". They use annotated maps and tables to track status. The information comes in by telephone from the DMCs at the upazila and union levels.

The lower level DMCs and communities want to know that the problems they're reporting are being fixed through the respective agencies

The DRR maintains go-downs to store food grain for distribution when relief is needed. Local Supply Depots (LSD) at the upazila level have 500MT capacity, replenished from Central Supply Depots (CSD) at the district level which are never allowed to empty. DMC members monitor and report food grain levels in these depots.

The difference in perceptions of the Chittagong DRRO and CCC planner, who have similar hazard environments, is worth noting. Perhaps one or neither institution has a well-developed understanding of the issues.

See other outputs of the meeting:

- Chittagong DRRO checklist.doc
- ICT Chittagong DRRO checklist.doc

CDMP DMIC Needs Assessment

Date:	10:00, April 24 2006, for 2 hours
Location:	Cyclone Preparedness Program, BRCS, Maghbazar
Participants:	Md. Nasir Ullah, Director (Admin) Md. Ruhul Amin, Director (Operations) Md. Shahidullah, Deputy Director (Operations) Other CPP functionaries Dr. Aslam Alam, CDMP Sid Tupper, CDMP
Agenda:	CPP activities during the Mala cyclone event CPP information sharing in DMIC CPP ICT capacity

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The Mala cyclone event exercised the alert stage procedure specified in the Standing Orders on Disaster (SOD) but because its path took it into Myanmar with little manifestation in Bangladesh, the later procedures were not relevant. The chronology of CPP activities was:

- storm originated April 24
- BMD faxed first bulletin to CPP at 14:15 BST April 25
- CPP broadcast bulletin to 35 district/upazila HF radio stations immediately after receiving the BMD fax
- CPP Implementation Board meeting convened 17:00 April 28, when Signal 4 was received, and attended by (nominally)
    - CPP Director is member secretary
    - Secretary-in-charge, MoFDM
    - DG, DMB
    - DG, DRR
    - Director, BRCS
    - Director, BMD
    - Deputy Secretary, Ministry of Information

CPP operations are strictly based on BMD information. All district and upazila stations get the same bulletin simultaneously in a broadcast. BMD is solely responsible for the content. In normal times, BMD distributes no information until a cyclonic low is formed, and then calls CPP on the telephone informally.

Info flow is BMD → CPP HQ → CPP Zonal/upazila office → CPP union volunteer → village / unit volunteer

Fax HF VHF megaphone

MoFDM is responsible for propagating the BMD information through its DMC network. However the CPP Zonal/upazila officers maintain liaison with the UNOs and DCs.

In the cyclone season the CPP headquarters control room operates 24/7. CPP calls the BMD storm warning centre three times a day. The field radios are always on in the cyclone season. The CPP HQ is in touch with CPP field stations as often as hourly during the 24 hours in which the cyclone is confidently predicted to make landfall in Bangladesh, until the storm abates. Field stations send in monitoring reports of sky condition, rainfall, wind speed, wind direction, water level and remarks. The field stations mobilize more than 34,000 volunteers with various functions including warning propagation, evacuation to cyclone shelters, first aid, search and rescue, food relief distribution.

HF radios cost 1.6 lac taka and VHF radios cost 1 lac taka. HF radios with “unlimited” radius connect the HQ and 35 district and upazila stations, and VHF radios with limited radius (50km) connect those stations with 265 union offices. CPP distributes batteries for radio sets and megaphones. In 2004, 124 solar charging units were in operation.

The cyclone warning signals of BMD is an old system, originally conceived by the British and more or less unchanged since 1973. It is designed for port operation so is less relevant for communities. The signals pertain to ports so their meaning is ambiguous to communities between the ports. For example, if Bhola is Signal 2 and Chittagong is Signal 4, communities between the two ports will be uncertain about which signal applies to them. This could lead to loss of confidence in the signals so there is scope for improvement.

The BMD signal system has eleven levels but the CPP flag signals have just three, so the CPP signal loses some precision aggregating the BMD signal. The correspondence is as follows:

BMD signals	CPP signals
1 – 3	1 flag
4 – 7	2 flags
8 – 11	3 flags

The MoFDM is encouraging CPP to repeat its success with cyclone hazard management in other hazards, specifically tsunami and in general, all hazards. Tsunami is problematical because the lead time is so short, as little as two hours, so the existing warning propagation system is too slow. Suggestions to preserve tsunami warning lead time include providing HF radios at the union level (costly), installing remotely controlled siren/light signals (incomplete coverage; doubtful effectiveness) and using the mobile networks.

Some people are skeptical about the reliability of mobile networks in disaster situations since the infrastructure may be sensitive to the hazard. Mobile network equipment, eg, antennas, must be vulnerable to extremely high winds characteristic of cyclones. However, since the warning/alert stage of a disaster precedes that period of potential damage, mobile network transmission is at least reliable then.

CDMP DMIC Needs Assessment

Md. Shamsul Alam
Additional Director (Ext.)
Field Service Wing
Department of Agricultural Extension (DAE)

April 27, 2006

- Information on hazards and disasters in Bangladesh is too dispersed. It is important to create an integrated repository of this information. The initiative of CDMP in establishing the DMIC is a step in the right direction.
- DAE has recently concluded a project funded by FAO on Strengthening Disaster Preparedness in Agricultural Sector. This project looked at flood related issues in two upazilas in the district of Gaibandha and drought issues in two upazilas of Dinajpur district. It was concerned with collection of information on the hazards, interpretation of the information and formulation of mitigation measures. DAE is currently conducting a project on Livelihood Adaptation to Climate Change, also funded by FAO.
- DAE disseminates information obtained from research institutions (BARC, BARI, BRRI, etc.) to the farmers through its field level personnel (Sub-Assistant Agriculture Officer; previously called Block supervisor). It also provides feedback obtained from the field tot the research institutions. It would be useful to have other institutions participate in this twoway information flow and the proposed DMIC can be instrumental in this regard.
- DAE undertakes needs assessment at the farmer level and obtains feedback on the need for technical advice as well as support toward rehabilitation in the aftermath of crop failures and damages. Thus information on possible disasters and their impact on the agricultural sector is of crucial importance to DAE.
- Among the activities of DAE is to provide advice and extension services in areas that are hit by drought. Hence prediction and other information on drought would prove useful to DAE.
- Data on water conditions and meteorological parameters are very important in designing extension services. Hence easy availability of such data from DMIC would be very useful to DAE.
- Early warning about impending flood, erosion vulnerability, surface water availability, etc. would help DAE in designing and implementing it program. It is a good idea to keep DMIC functioning during ‘normal’ times as well since information relating to such times is also important for planning and executing activities by agencies like DAE.
- DAE is also concerned with food security and currently has a project in this regard covering 21 vulnerable upazilas. Among other things, this project is investigating the potential of support in technology and income generating activities in facilitating food security.
- DAE has good computer facilities in its Dhaka office, although improvements are needed in connecting with field offices.

CDMP DMIC Needs Assessment

Date:	14:30, April 24 2006, for 1.5 hours
Location:	Urban Planning Department, Dhaka City Corporation
Participants:	Md. Sirajul Islam, Chief Town Planner Sid Tupper, CDMP
Agenda:	CCC disaster management information needs

Hazards affecting DCC:

- Waterlogging -> water-borne disease (diarrhea, skin conditions), transport problems
- Earthquake -> no experience; anticipate catastrophe due to unplanned development
    - High density
    - Building code not generally applied
    - Many streets too narrow for emergency vehicles or equipment
- Wind storms -> not a big concern; accustomed
- Fire?

DCC is organizing a Disaster Management Volunteer corps

- in the 90 wards, each headed by the Ward Commissioner
- 30% women
- 630 members

DCC has an Emergency Information Centre

- Connected to all parts of the city with > 100 VHF radios
- Organized to get situational reports

Had a mock disaster exercise in 2005 in an Old Dhaka park, attended by Armed Forces, Fire Service, medical. Wants to hold an annual workshop for emergency preparedness in every ward.

<u>EARTHQUAKE is the biggest concern currently.</u>

Two days after the Tejgaon building collapse, Parliament approved the National Building Code.

DCC has a GIS that registers all buildings:

- Owner, purpose, size (area, height)
- Digitized from maps and existing records
- Validated with field survey: chain (building dimensions) and GPS (location)
- No building quality assessment because unfunded; requires expensive tests
    - 250,000 buildings
    - At $200/building, need $5M

<u>Information needs</u>

- Seismic observations
- Contact information for experts, agencies
- The Chief Planner agreed that the DMIC functions proposed to date are useful

<u>Information sharing</u>

- Building code
- Disaster preparedness training material

CDMP DMIC Needs Assessment

All hazards

Respondent: **Md. Abdul Mannan, DG** ***Interviewer:*** **Sid Tupper**
Nipendra Chandra Depnat, Deputy Director
Address: **Dept of Mass Communication, MoI** ***Date of interview:*** **3-Apr-2006**

Question	Answer
Defining the risk environment	
What hazards concern the DMC?	All
What role has the DMC in the management of these hazards?	Information dissemination Training, capacity development Acquire damage reports
With which institutions does the DMC interact in the disaster management context?	All GoB ministries, PMO (thru MoI) Foreign news agencies UNICEF
In what areas of disaster management does DMB want to be involved ?	GoB programs for information dissemination
How does the DMC want to interact with other agencies concerned with disaster management?	Any way requested DMC is best at interpersonal communication, ie, public meetings, theatre, folk-singers, loudspeakers
What information does DMC want from other disaster management agencies?	Information sharing for dissemination
Has the DMC been requested to provide hazard risk information ? From whom? When? What information?	from Ministry of Information damage reporting routinely
What hazard risk information does the DMC have that would be useful to share with partner institutions? With whom?	source of information dissemination medium
In the view of the DMC, what is the role of a Disaster Management Information Centre?	The stated goal of the DMIC is appropriate facilitate internation of DMC with other agencies
What ICT resources does the DMC have?	See ICT questionniare
Managing the risk environment	
What hazard risk avoidance / elimination / reduction information has the DMC that is useful to partner institutions?	Capacity to communicate at the community level
How should the information be delivered to partner institutions?	DMC uses public meetings, theatre, folk-singers, loudspeakers

CDMP DMIC Needs Assessment

Question	Answer
What information does the DMC receive?	Other GoB agencies use the DMC to disseminate information and capacity, eg, DMB used DMC to provide community training on cyclone hazard preparedness
What information does the DMC want?	Any information that should be disseminated or acquired.
What information has the DMC that is useful to community individuals?	Any information that should be disseminated
How should the information be delivered to community individuals?	DMC uses public meetings, theatre, folk-singers, loudspeakers.They want more resources, eg, network to their divisionala and district offices, boats for water transport
Responding to the emergency	
What DMC information should partner institutions have to coordinate their disaster response?	
What information does the DMC need during response to an emergency?	
How should it be delivered to the DMC?	
What information does the DMC need during recovery after a disaster?	
How should it be delivered?	
What information can the DMC provide to help institutions to coordinate recovery?	

CDMP DMIC Needs Assessment

Date:	14:00, March 21 2006, for 2.5 hrs
Location:	WFP conference room
Participants:	John McHarris, WFP Monzu Morshed, WFP Malik K. Kabir, WFP Abdul Awal, unicef Atiq Kainan Ahmed, CEGIS Tariq-ul-Islam, UNDP a woman I didn't identify Sid Tupper, CDMP
Agenda:	DER Subgroup working group on DM information systems

This was the first meeting of a committee to work on information systems objectives. We drafted some objectives statements, identified some candidate information projects and discussed who should be the chairman. No decisions were made. Morshed undertook to condense the meeting into minutes that will facilitate decisions at the next meeting on April 24.

My objective was to present the DMIC to the DER Subgroup, which we have identified as a primary stakeholder, as a step toward a subsequent meeting to capture their information needs, contributions and capacities. I showed the "DMIC Terms of Reference Strawman" presentation and got the following comments:

- "acute food insecurity" may be a more acceptable term for monga, and more precise than the currently used euphemism "seasonal unemployment". (John)
- The greatest challenge in this scope of the DMIC is supporting management of emergency response. The knowledge management part is relatively easy. Making a management framework for tools and information structures to capture and present real-time situational data that facilitates coordination of multi-sectoral autonomous institutions for efficient effective action during emergencies is difficult. Once this is established, the technical task is straightforward. (Tarik)
- WFP / DER Subgroup was pleased that CDMP might be represented on this committee because of its key role in the GoB's disaster management resources. (John)

The DER Subgroup has decided to keep a narrower focus, on preparedness for effective response, and response. The committee could contribute information and functions in that scope to the DMIC. For example, WFP is developing a database for historical record of disasters, which is a function that has been suggested for DMIC, so they would make that available.

CDMP DMIC Needs Assessment

Date:	10:00, March 23 2006, for 1 hr
Location:	DFID conference room, Gulshan
Participants:	Yolande Wright, DFID Johny Sarker, DFID Sid Tupper, CDMP
Agenda:	1. DFID views on monga as a hazard 2. DFID needs for information from DMIC

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1. DFID views on monga as a hazard

Yolande said that monga is a situation that DFID wants to address under its poverty reduction goals, for example in the Char Livelihoods project. Internal discussion about monga being considered a hazard is ongoing. The politicization of the monga concept is problematic because it distorts the sources of information, eg, press reports, that DFID uses to assess the magnitude of an emergency situation. If DMIC could provide data that enables objective, methodical, fact-based assessments of predicted or actual monga situations, DFID could better apply its response decision process.

DFID wants more GoB involvement in disaster management and should be providing leadership in the disaster management community, which includes MoFDM committees, other GoB agencies, NGOs and civil society. The DER Subgroup has taken on the coordination of NGOs as a stopgap but DFID wants to see a comprehensive approach implemented in which the GoB integrates all actors, resources and real-time situational information to effectively and efficiently coordinate risk reduction and response.

Johny said that practicable emergency response to monga depends on capturing prediction/assessment indicators, and then understanding how to use the information. These are both undemonstrated, new ground.

2. DFID needs for information from DMIC

I presented the "DMIC Terms of Reference Strawman" and got the following comments:

- They accepted the goal statement.
- Yolande said that donors should be included as primary users of DMIC information because generally they do not fund relief efforts without first assessing need. For example, DFID has a threshold for responding to disasters, which includes the number of people affected: Yolande used the figure 100K people. DFID wants reliable sources of information on which to base their assessments and expects DMIC to be a one-stop-shop for that information. Yolande recommended that I consult the EC Delegation similarly, since they will likely contribute to CDMP. (Later I called Anwar Hossain, ECHO, to arrange a meeting and he suggested that I wait a few days until negotiations between the European Commission Delegation and MoFDM have resolved some funding uncertainties.)
- Yolande asked why avian influenza is not included in the hazards listed in the presentation. I explained that for the purposes of the DMIC needs assessment we selected some typical hazards to focus the consultations. Since DMIC scope is all hazards, health/epidemics/avian-flu will be addressed ultimately. I quoted Dr. Steve Luby at ICDDR,B whose view is that because of underdeveloped health sector capacity (laboratory facilities, data collection), effective early warning of health hazards will not be practicable for many years.
- Johny pointed out that avian flu is also a livestock loss issue since conventional measures require mass culling of birds at risk, to limit propagation. Domestic fowl are a significant possession of poor people and they will not consent to culling until they see

people dying. They will argue that adequate cooking reduces the risk sufficiently, without culling.

Johny asked that, toward the end of the DMIC needs assessment, CDMP present to DFID the status of the DMIC development progress.

CDMP DMIC Needs Assessment

Md. Zahid Hossain
Director General
Directorate General of Food

May 3, 2006

- An integrated information center would be able to play a vital role in the management of disasters in Bangladesh. Multiple agencies, both government and nongovernment, would benefit from it.
- The proposed center should have proper regional and international contexts to benefit from wider sets of information. In the regional context, the South Asian Association for Regional Cooperation (SAARC) has on its agenda a program to cooperate in disaster management, which calls for sharing of relevant information.
- Increasing demographic pressure in the country has resulted in larger number of people living in areas prone to various natural hazards. Thus the number of people vulnerable to disasters has been on the increase. This calls for concerted action, for which an integrated information center is essential.
- How soon can one disseminate information from central to local areas is of crucial importance. Even the impacts of disasters caused by tsunamis can be reduced if a system is in place to quickly transmit information from central to local areas. The scope of using cellphones to forewarn people should be investigated in this regard.
- The Directorate needs information on flood situation in the country to arrange adequate storage of food grain in the central and local depots, which is important from the point of view of relief operation during floods.
- Available information on damages caused by disasters is often faulty, the use of which results in improper distribution of food grain in affected areas. Therefore it is important to ensure availability of accurate information on damages caused by disasters.
- Accurate information on acreage, yield and production of food crop is a must for proper planning of food grain procurement, which is an important function of the Directorate. The level of procurement obviously affects what can be supplied during the times of need.
- Due consideration should be given to 'hidden disasters' like reduced availability of food in certain areas caused by the nature of cropping patterns and employment opportunities. An area may produce a lot of cash crop, but if it does not create enough employment opportunities for the labor force (and hence income), then many households would face hardship.
- The Directorate procures food grain from domestic as well as external sources. Correct and timely information on internal food production is essential not only in planning internal procurement, but also ascertaining the need for procurement from abroad. All this is intimately related to food security of the country.
- Over 30 officers work at the head quarter of the directorate. LAN is available. The dominant mode of internet connection is still dial up. The process of making broadband facility available is on and would be shortly accomplished.
- The DG, Food said they would be willing to supply relevant data to DMIC once it is formally set up and was of the opinion that the type of data to be integrated into the DMIC would be known better by holding discussions among the participating institutions. He said that data on food stock available with his institution could be usefully shared with other stakeholders through the DMIC.

CDMP DMIC Needs Assessment

Md. Shahadat Hossain, Director General
Syeda Badrun Nahar, Director - Disease Control
Directorate General of Health Services

May 15, 2006

- The Directorate feels that all hazards covered by CDMP are of relevance to them since health issues are associated with each one of them and the Directorate has responsibilities in connection with these issues.
- The Directorate and its field officials have to keep themselves prepared for addressing health emergencies that may be caused by disasters. Prior and reliable information on possibilities of disasters would help them enormously in making such preparation.
- The directorate has the responsibility of providing emergency health services to those needing it during and in the aftermath of disasters. Such real time health services can be provided in a more efficient manner if advance information is available on the number of people that would need various kinds of assistance.
- Information needed by the Directorate includes: timing of possible disasters, extent of damages caused by the disasters, number of people affected, possible health problems faced by affected people, etc.
- The Bangladesh Centre for Health Emergency Preparedness and Response (BCHEPR) would significantly benefit from the information that is expected to be available at DMIC. The center coordinates its activities with DMB through meetings and sharing of information. DMIC would be able to help this process further
- The National Institute of Preventive and Social Medicine (NIPSOM) will also benefit from the information made available by DMIC.
- There is an MIS set up at the Directorate that has a database on personnel (doctors, nurses, other staff) working at the health service facilities at the national and local levels (district, upazila and union), which includes staffing position and bio-data of the personnel.
- The MIS also has a services database, where information is available on disease profiles (upazila-wise), health services infrastructure at different levels (national as well as local: district, upazila and union) and hospital statistics on in-door and out-door patients, occupancy rates, etc.
- What of the data available with the Directorate would be useful to DMIC should be determined by discussions among partners. When there is proper directive from GoB, the Directorate can share the data with DMIC.
- The Directorate at its headquarter has around 200 working officers. There are 85 direct land phones and 7 fax machines. No official mobile phones are available for the staff. The number of computers is around 125, of which 110 are connected by LAN and have broadband internet facility (bandwidth 94 Kbps).
- The Directorate maintains a website (www.dghs.org.bd).

CDMP DMIC Needs Assessment

Date:	3:00 pm April 16 2006, for 1.5 hours
Location:	DMB DG's office, Disaster Management and Relief Bhaban
Participants:	Rafiqul Mohamed, DG DMB Mohammad Abu Sadeque, Director MIM, DMB Other DMB staff Tasdiq Ahmed, Mustafa Alam, Sid Tupper, CDMP
Agenda:	Validation of DMIC terms of reference

Sid Tupper presented "DMIC TOR strawman" to the group and got the following comments:

The DG questioned his staff about the training they have relevant to operating the DMIC. Three officers responded, one of whom, Mr. Netai Chandra Dey Sarker, has attended GIS, IT and disaster management training courses in Bangkok, Kathmandhu and Singapore. Another DMB officer went to Japan where he received training on tsunami warning.

The DG made the point that institutional capacity to sustain DMIC operations under DMB will require ongoing attention which he expects initially from CDMP. The Director, MIM suggested that staff from more capable GoB agencies such as the BMD could be seconded to DMB to pollinate capacity there. Director, DMIC suggested that professionals from BWDB could also be seconded to help build capacity at DMB on flood information dissemination. The DG felt strongly that DMB needs training programs and more personnel to operate DMIC in an effective manner.

The DG wanted to know how sustainable would DMIC be as a centre to be run by GoB. Sid pointed out that agencies like WFP and some large NGOs could have interest in procuring information from DMIC on payment of a subscription since they value the information for supporting their operational decisions. Some funds could be available from EC and DFID. Besides, some of the operational costs could be borne by DMB from GoB revenue budget. The Business Plan being put together by CDMP would address the issue of financial sustainability as well as issues of technical and institutional sustainability.

The DG pointed out that in the table on DMIC user focus (Sid Tupper's presentation), First Priority users during emergencies should include the Cabinet Secretary, who is the Vice Chairman of the Inter-Ministerial Disaster Management Coordination Committee. He felt there should be representation of the Ministry of Home Affairs as well.

The DG thought it would be useful to incorporate into the DMIC database relevant information on some 'Safety Net Programmes' that GoB has like the Vulnerable Group Development Programme and allowance given to widows and the elderly. NGOs and other development agencies would then be able to inform eligible community members about these programs.

One of the DMB officers expressed the view that the DMB should be shown to have a role not only during normal times, but also during emergencies.

Director, MIM made the point that CDMP is to assist DMB in establishing DMIC and also suggest ways and means of ensuring that DMB is able to run DMIC on a sustainable basis. He felt for this necessary capacity building plans should be formulated by CDMP.

The DG mentioned that a GoB Committee for Speedy Dissemination of Disaster Related Warning/Signals (CSDDWS) exists, described in the Standing Orders on Disaster, Annex O, 1999. Although this committee was conceived to deal with 'weather' information, the DG explained that it has a wider mandate to ensure dissemination of disaster information in general. The DG directed the Director, MIM to convene a meeting of this committee as soon as possible, at which Sid Tupper would make his presentation to generate more ideas. He felt that the name of the committee could be changed to make it more relevant to its current purpose to

steer the DMIC. He also thought it would be necessary to discuss and recommend inclusion of other agencies in the committee to make it more effective.

In summary, the group accepted the DMIC goal statement, scope and proposed functionality, and made useful suggestions for sustainability.

CDMP DMIC Needs Assessment

Date:	10:30, April 3 2006, for one hour
Location:	Department of Mass Communication, MoI, Segunbagicha
Participants:	Md. Abdul Mannan, DG DoMC Nipendra Chandra Depnat, Deputy Director DoMC Sid Tupper, CDMP
Agenda:	DoMC relationship with DMIC

Goal of DoMC is to "educate the people". They specialize in "inter-personal communication", using community meetings, loudspeakers, theatre and folk-singers to disseminate information and knowledge as directed by the Ministry of Information, to individuals in communities. Typical subjects include sanitation, dowry, HIV/AIDS and disaster management information. The Ministry of Agriculture has used them to disseminate flood disaster recovery information. They have conducted mock disasters as exercises.

They have recently conducted 6 divisional workshops on disaster management commissioned by the Disaster Management Bureau, presided by a Minister and prominent media personalities, and attended by DRROs and ???.

The DoMC has 64 district offices and 4 upazila offices in the Chittagong Hill Tracts. They routinely acquire damage and other data and report it to higher authorities. They also disseminate information, for example, cyclone warning advocacy.

The DG has been in the job for just a year so his Deputy Director was useful to remind him of how to describe the function of the DoMC.

They asked for support in the form of speed boats to improve their capacity to reach remote communities. I explained that the DMIC can offer information, not boats. They expect to have networked their HQ, divisional and district offices within the next two years. Not even the HQ offices have a LAN. Only the DG has an internet connection.

The DoMC seems to be a useful resource for community interaction that CDMP should consider using. They could not immediately think of specific information they want or can share, but instead see themselves as a general communication service at the command of the Ministry.

I asked them about their views on community radio. They think it's a useful medium and would like to see it available but don't appear to have seriously considered it.

Other outputs of the meeting:

- Dept of Mass Communication - ICT questionaire.doc
- Dept of Mass Communication checklist.doc

CDMP DMIC Needs Assessment

Date: May 29, 2006

Address: Department of Shipping,
141-143 Motijheel C/A, Dhaka-1000, Bangladesh.
Tel: Fax:
E-mail: dosdgdbd@bttb.net.bd

Present: 1) Capt. A.K.M. Shafiqullah, Director General
Tel: 9555128, Fax: 7168363
E-mail: captsha@yahoo.com
2) Mr. Shaiful Islam, Chemist, DoS
Tel: 9569625, 01712574888

3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP.

Agenda: **DoS's Disaster Management Information Needs, contributions, resources and ICT Capacity.**

DoS is under control of the Ministry of Shipping. This organization has been carrying out the regulatory responsibility. Control of Shipping vessel, survey, inspection, issue of certificates, list of crews, etc. falls under their jurisdiction.

Hazards especially those related to cyclones, tornados, floods are its concern.

They opined that the DMIC is likely to provide the concerned agencies useful information during a disaster. They may exchange information by Fax, e-mail, web sites, SMS messages and Telephones. Information products related to awareness generation, rescue operations, training, etc. related to disaster management might be helpful in their opinion.

The related stakeholders for disaster management are:

- Govt. coordination cells
- Govt. agencies.
- BIWTC

Database for crews, vessels etc. is under construction. Conventional filing system is in practice.

Present manpower: 100 (20 Officers and 80 staffs).

Present ICT capacity of DoS:

- BTTB Telephone: 15 Lines. 1 Intercom -20 lines.
- Telephone: Ctg- 4, Barisal-1, Khulna-1 & Sadarghat-1.
- Fax: 1 in HQ and 1 in Chittagong.
- Computers: 14. Dhaka- 10, Ctg- 2, Khulna- 1 & Sadarghat- 1.
- Website: www.dos.gov.bd
- LAN with 5 connections.
- Internet: dial up, 2 connections.
- Mobile Phones- About 90% of Staffs, 100% personal.

CDMP DMIC Needs Assessment

Date:	16:00, March 21 2006, for one hour
Location:	DRR Conference Room, Disaster Management and Relief Bhaban
Participants:	Md. Mahfuzur Rahman, Director General, DRR Dr. Mohd. Shahadt Hossain Mahmut, Deputy Director, DRR DRROs and PIOs Sid Tupper, CDMP
Agenda:	View of DRR on DMIC terms of reference

Sid Tupper presented the slides in "\\Pppdu\file_server\CDMP_USERS\sid\DMIC TOR Strawman.ppt" which propose a DMIC goal and scope. These notes record comments received, corresponding to the slide titles.

Is this statement of DMIC scope appropriate?

Everyone agreed that the following goal is a useful working statement of the scope of the DMIC:

> "The DMIC will implement effective information sharing among disaster management agencies and communities, for all hazards, in all sectors, in normal times and emergencies, throughout the nation and regionally, to support sustainable risk reduction and emergency response capacity."

DMIC user focus for needs assessment

The slide suggests that the "normal times" primary user of the DMIC is DMB and the "emergency times" primary user is DRR. The DG remarked that the DRR should be considered to be the primary user of the DMIC at all times. The Deputy Director said that the DMB has no resources to maintain and use the DMIC.

Initial hazard focus of the DMIC

The DG said that the DMIC should address, in addition to cyclone, flood, erosion, tsunami, drought and seasonal unemployment, also fire and building collapse. Sid Tupper explained that the DMIC will address all hazards, but initially the needs assessment will focus on a limited set in order to accomplish the work with the resources provided.

What functions should the DMIC provide?

Participants in the meeting suggested the following preparedness information could be offered by DMIC:

- training
- rescue training
- effective coping behavior
- micro-credit availability for preparedness (eg, to buy a boat before flood)
- livelihood alternatives

The DG suggested that a database that provides evacuation status reports should be maintained, as a function under emergency response. For building collapse, information about logistical support for rescue should be provided, including an inventory of rescue equipment and expertise.

How should the DMIC meet the needs of these MoFDM disaster management committees?

This slide, taken from the CDMP document "Comprehensive Disaster Management Approach", describes several disaster management committees naming the DG DMB as chairperson:

> Disaster Management Training and Public Awareness Building Task Force (DMTATF)

Focal Point Operation Coordination Group of Disaster Management (FPOCG)
NGO Coordination Committee on Disaster Management (NGOCC)
Committee for Speedy Dissemination of Disaster Related Warning/ Signals (CSDDWS)

The Deputy Director said that the DG DRR should be chairing these committees. The DG requested that CDMP name the DG DRR as the chairman of these committees.

What role has the DMIC in food security?

The DG said that the Food Directorate is responsible for making food relief available, so the DMIC should maintain an inventory of food relief supplies.

Sid Tupper left handout copies of the slides with the meeting participants. The DG said that they would consolidate their comments on the slides and give them to him (Sid Tupper).

CDMP DMIC Needs Assessment

Date: March 28, 2006
Location: Emergency Support Corps (ESC),
House No.34/1, Road No. 11 (New), Dhanmandi R/A, Dhaka-1209, Bangladesh.

Tel: 8157548, 01711234098, 01713038208, Fax:
E-mail: esc@agni.com

Present: 1) Mr. Aminul Kawser Khan (S21D), Coordinator, Emergency Support Corps
2) Mr. Nizam Chowdhury, CDMP

Agenda: ESC Disaster management information needs and contributions

ESC has been engaged in Disaster Preparedness and Mitigation Training Programs and Search Rescue operations prior to, during and after occurrence of a disaster. They deal with hazards like flood, tornado, building collapse and earthquake. They have very limited activity related to rehabilitation programs. Awareness generation and First Aid Training also fall under their activities. They consider that proper alertness and preparation reduces the loss and sufferings of the mass people.

ESC starts the disaster mitigation activity after getting the information of a hazards/ disaster from Radio/ Television news or getting information over telephone or by volunteers. They don't have any direct telecom link with Metrological department or similar agencies. They consider that the DMICs network is likely to provide them with the desired information in a much more comfortable way. They may receive information by e-mail, SMS messages, land phones or websites. They want to share information with other stakeholders.

The ESC's demand / contributions to the CDMP information need may include:

- weather forecasts, flood warnings and information of any other type of hazard like building fire or collapse, earthquakes, etc.
- information related to search and rescue operations
- regarding rescue equipments, special logistics, etc.
- regarding location of occurrence of Mass Casualty (MC)
- any other related information in respect of a disaster.

The ESC related stakeholders are:

- CARE
- Action AID
- Fire Service
- Govt. coordination cells
- Red Crescent Society
- Bangladesh Scouts

ESC's present ICT capacity:

- Mobile Phones of Institution and of volunteers
- HF/VHF sets of Amateur volunteers
- Land Telephones
- dial-up Internet
- Website (under development)
- Database of Blood Donors

Staff: 3 and 100 volunteers (including Radio Amateurs)

CDMP DMIC Needs Assessment

Md. Sazedul Karim Chowdhury
Superintending Engineer and NPD, Processing and Flood Forecasting Circle
Bangladesh Water Development Board (BWDB)

April 12, 2006

- DMIC can serve a very useful purpose in sharing information on hazards and disasters.
- Role of DMIC is crucial, given that we live in a disaster prone country.
- DMIC would be able to create a common forum where concerned agencies and professionals can define common goals with regard to information on hazards and disasters.
- DMIC can supply information quite quickly to those who need it. This can save valuable time during disasters.
- An integrated approach toward managing hazards and disasters require a repository of information that DMIC proposes to create.
- DMIC can help disseminate information to community members to educate them on hazards and disasters.
- All agencies contributing data to DMIC can agree to maintain set standards.
- FFWC will supply all its data to DMIC on receipt of directive from proper government authority.
- Information on storm surges in coastal areas, changes in upstream flow of water, breaches in embankments, etc. will prove very useful to FFWC in making forecasts on flooding.
- The updated information that SoB is expected to gather on topography of Bangladesh would be very useful to agencies like BWDB, LGED and R&HD. Sharing of this information can be best facilitated by DMIC.
- There should be an 'international desk' at the DMIC to benefit from relevant international data and information.
- Information on the issue of 'river linking' should be integrated into DMIC.
- Apart from data on flooding, BWDB has useful data on riverbank erosion, particularly data that relate to protection works. All such data can be usefully shared with DMIC.
- Currently efforts are being made by BWDB toward generating useful information on flash flood. Data resulting from these efforts can be incorporated into DMIC.
- Training programs need to be designed and implemented to ensure that GoB officials engaged with DMIC can perform their task efficiently.
- DMB should be the lead agency with regard to the DMIC and the available SOD should be properly followed in setting it up.
- Inter-Ministerial meetings would be useful in sharing ideas and defining responsibilities.
- FFWC can improve its website in collaboration with DMIC.
- NGOs would also benefit from information available at DMIC. An appropriate mechanism should be set up for them to access the information with ease.
- Relevant committees concerned with DMIC should meet on a regular basis to keep its functions alive. Arrangements should be there to quickly and frequently meet during emergencies.
- Meetings concerning DMIC should have representation from both suppliers and users of the information.

CDMP DMIC Needs Assessment

Date: May 21, 2006

Address: Fire Brigade and Civil Defense Directorate
Fulbaria, Dhaka-1000, Bangladesh.
Tel: 880 2 9555555 Fax: 9565657

Present: 1) Maj Md. Asadul Hoque,
Director (Planning, Development and Training)
Tel: 9556756, 9555555 Extn. 204, 01711683921
2) Mr. Siddiqur Rahman,
Asst. Communication Engineer
Tel: 9555555 Extn. 234, 0191318725
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP

Contact Person: Brig Gen Rafiqur Rahman, Director General
Tel: 9558880, Extn. 201 E-mail: dgfire@bttb.net.bd

Agenda: **Disaster management information needs, contributions and ICT capacity of Fire Brigade and Civil Defense Directorate**

Fire Service and Civil Defense is a large organization under control of M/O Home Affairs. It has got its Divisional Head Quarters in Dhaka, Chittagong, Khulna and Rajshahi. 171 Fire Stations are active at this moment and another 250 stations are expected to be ready under a project being implemented now. All stations are not well equipped.

- Emergency/Disaster Preparedness training is often organized.
- The capacity and quantity of Fire fighting and rescue equipments available is not sufficient due to fund constrains.
- Govt. should encourage Construction firms to procure more rescue type machineries (say, tax free)and make them available at the time of disaster.
- Building code 1993 containing guidance's should be followed by the contractors/engineers.
- Wireless VHF and HF sets are considered to be more useful after a severe disaster damaging telecom infrastructure of the country.
- More than 6000 fire incidents are tackled by the Directorate each year.
- More 1200 rescue cases are handled each year.
- At 43 locations Ambulance services are being offered to the public and the same service earned some goodwill.

It starts its activities after getting the fire information mostly over Telephone. But, telephonic info needs to be verified critically for authenticity. Caller ID Telephone system would have been more useful. In case of other hazards Radio/ Television news plays an important role. Its activities cover rescue operation, shifting to a safer place, waste disposal, food & water, burial, passage of important info, etc. after a disaster.

All hazards are concern the directorate. Most concern is for accident, fire, tornado and earthquake. Training on earthquake preparedness was organized once.

They consider that the DMIC is likely to provide the Fire Services with necessary information at the appropriate moment. It may exchange data/ information with the proposed DMIC by Fax, e-mail, SMS messages, land phones, Mobile phones or through websites.

It maintains no computerized database. Records are maintained in conventional logbooks and registers. They are ready to share data with others.

Total manpower: 6000 (including 1000 non-uniformed).

Fire Service's present ICT capacity:

- insufficient computers
- no LAN
- Internet facility
- Website: No
- Fax: 1 in Dhaka HQ
- BTTB Telephones: Dhaka- 25, Ctg/Khulna/Rajshahi- 7 each.
- PABX in Dhaka HQ: 10/100 lines Capacity
- 5/25 lines PABXs each at 3 other Divisional HQs
- Mobile Phones: limited nos.
- 25% of staffs posses' personal Mobile Phones.
- VHF Network: 100 watts Repeater in Dhaka.
- 100 vehicles mounted sets 30 handheld VHF sets.
- 40 VHF sets in Chittagong.
- HF Network: No (earlier 12 sets out of order now).
- Shortage of test equipment.
- Shortage of trained radio technicians.

CDMP DMIC Needs Assessment

Date:	10:30, February 28 2006, for 1 hour
Location:	Geological Survey of Bangladesh, 153 Pioneer Road, Segunbagicha, Dhaka
Present:	Afia Akhtar, DG AKM Khorshed Alam, Director Mohammad Nurul Hasan, Superintending Geophysicist / Director 2 other GSB people Sid Tupper, CDMP Mustafa Alam, CDMP Nizam Chowdhury, CDMP
Agenda:	GSB disaster management information needs and contributions

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Conclusion: GSB has useful information for disaster management and wants to share it. They welcome an opportunity to become involved with the MoFDM in the CDMP and DMIC.

The Geological Survey of Bangladesh (GSB) is a department of the Ministry of Power, Energy and Mineral Resources. As well as offices at the above address, it has a field office in Bogra.

The Bangladesh Meteorological Department (BMD), in the Ministry of Defence, is responsible for collection of seismic data and is in the process of acquiring more instruments, intending to expand their sensing capability from one station in Chittagong to several more stations elsewhere.

The GSB see two modes of information flow of interest to them:
- incoming: want better connectivity with the BMD to get seismic data
- outgoing: geological information related to hazards, of interest to other agencies

GSB contributions of disaster management information could include:
- earthquake zoning maps based on seismic data, indicating earthquake probability and severity (risk)
- geological analyses indicating slope stability, ie, risk of landslides
- geological analyses indicating ground characteristics that modify seismic energy, and hence building safety
- landform characteristics that predict river movement due to tectonic activity

Some hazards have geological influences that the GSB can help to clarify, as suggested above. For example, rates of riverbank erosion depend in part on
the material being eroded. Infrastructure (dams, highways, tunnels, bridges, etc.) construction feasibility (hence, safety) depends partly on
geological analyses. Research into arsenic contamination of groundwater is a geological activity.

Earthquake during flood time would amplify both hazards. (We should explore the idea of compound disasters)

Upazilas can be classified and listed depending on severity of earthquake risk on the basis of zonal information (maps) available with GSB, 3 zones in Bangladesh (JRC, President, Bangladesh Earthquake Society considered 4 zones, northern zone in two parts- western and eastern (Sylhet & Chittagong).
- Earthquake possibility / survey is dealt by GSB,
- Earthquake detection is taken care of by Bangladesh Metrological Department- the instrumental part
- Mitigation by Disaster Management
- At present low linkage among these agencies
- SPARRSO might have more seismic data based on satellite images
- Indian Consultant at BSD, Mr. Srivastava has a different map.

CDMP DMIC Needs Assessment

Useful prediction of timing, intensity, nature and location of earthquakes is many years/decades away.

GSB is interested in participating with other institutions in
- identifying hazards
- predicitng hazards
- mitigating hazards

DMB has invited participation of GSB professionals in training programs, which GSB found useful.

Jamilur Reza Choudhury ,President of the Bangladesh Earthquake Society, has produced an earthquake zoning map with four regions.

BMD is deploying a seismic sensor network to monitor events better, to understand trends and consequently assess vulnerability more effectviely.

Population density overlaid on seismicity maps would indicate risk / vulnerability and support preparatory measures.

Related stakeholders:
- Bangladesh Earthquake Society
- BUET
- BMD
- Dhaka City Corporation
- Chittagong Municipal Corporation

GSB gave us the following documents:
- paper: Seismic Zoning Map of Bangladesh and Outline of a Code for Earthquke Resistent Design of Structures, 1979, prepeared by an inter-ministerial committee
- paper: Natural hazards in Bangladesh and role of geology for their mitigation, 1997
- paper: Neotectonics of the Ganges-Brahmaputra Delta, Bangladesh, 2003
- paper: Response of the Someswari River (Bangladesh) to Neotectonics, 2004
- map: geological map of Bangladesh
- map: magnetometer survey map of Bangladesh
- map: gravimetric survey map of Bangladesh

GSB ICT capacity:
- telephones (Land & Mobile)
- dial-up internet, would like broadband
- LAN
- website, needs development
- may be some GIS skills
- Man power – 500 including 150 officers.

The website www.gsb.gov.bd is entirely static with mainly "under construction" links but has hints of sensitivity to hazards:
- GSB has a branch called "Urban & Environmental Geology and Natural Hazard Assessment"
- Preparation of geotechnical and engineering geological maps for planned urbanization
- Studies for environmental impact assessment and mitigation of natural hazards
  . arsenic contamination in ground water
  . cyclone hazard in the coastal areas.
- no specific discussion of earthquakes

CDMP DMIC Needs Assessment

Date:	13:30, February 23 2006, for one hour
Location:	Dr. Luby's office, ICDDR,B
Participants:	Dr. Steven Luby, Head of Program on Infectious Diseases and Vaccine Sciences Dr. Mustafa Alam, CDMP Nizam Chowdhury, CDMP Sid Tupper, CDMP
Agenda:	value of addressing health issues in the DMIC needs assessment

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Dr. Luby told us:

- many health hazards: for example, many more people will die from smoking than cyclones, floods, earthquakes, etc.
- Institute of Epidemiology, Disease Control and Research (IEDCR) tasked with disease surveillance, outbreak detection and response, is under-resourced to meet that mandate
- what would be the net value of providing health data via the DMIC:
  - MoFDM as multi-sectoral broker of disaster information is an impartial assessor of priorities
  - but the additional reporting burden on under-resourced institutions may reduce their effectiveness
- Ministry of Health is not nimble enough to respond proactively to health hazards by providing information
  - doesn't have trained manpower
  - inadequate governance capacity
  - inadequate IT capacity
- cholera epidemic prediction is not feasible EXCEPT as a consequence of flooding
- health issues related to flooding include water-borne deseases and respiratory illnesses due to stress
- the DMIC can usefully provide disaster information to the health sector
  - information flows between the Civil Surgeons and hospital managers are weak
  - DMIC should inform CS and hospitals (front line health workers) of disasters (warnings, status)
- we should talk with MoH people to identify institutional contacts to receive disaster information
- a pandemic SARS or influenza outbreak would be a certain disaster in Bangladesh
- a recent study ranked Bangladesh as the country with
  - highest chance of emergence of an epidemic
  - highest likely disease propagation speed
  - lowest capacity to contain an outbreak
- Steve is unaware of any comprehensive Bangladesh health datasets
- Bangladesh Health Survey (5 year period) has good but limited data, focusing on births, deaths and fertility
- information is diffuse, mostly in the minds of foreign consultants who have longer attention
  - GoB staff rotations disfavour accumulation of knowledge
- no central clearing house of health information

Dr. Luby's summary recommendation seems to be: getting epidemic early warning information, or any information at all, is too much to expect of the health sector, but providing disaster information (early warning, situation reports) to front-line health workers would be useful.

CDMP DMIC Needs Assessment

Rezaur Rahman
Institute of Water and Flood Management (IWFM)
Bangladesh University of Engineering and Technology (BUET)

May 4, 2006

- The experience of National Water Resources Database (NWRD) shows that it is very useful to have integrated data available from one single source.
- IWFM needs data on hazards like flood, drought and riverbank erosion in conducting its studies. It would be very convenient to obtain necessary data from a center like DMIC.
- Apart from its research and academic pursuits, IWFM requires the data for various consultancy and advisory services it provides. Currently IWFM has to gather necessary data from institutions like WARPO, BWDB and LGED. Procuring data from multiple agencies proves too time consuming,
- Although national level data may be relatively easy to find, it is often difficult to obtain disaggregated data. Thus, for example, it is difficult to obtain data on various hydrological parameters broken down by districts or upazilas. Same is the case with data on damages caused to agricultural crops by disasters Therefore the proposed DMIC should attempt to satisfy the need for disaggregated data.
- Currently available datasets often do not provide appropriate/ adequate definitions of the parameters used. DMIC should try to make proper definitions of the parameters available to the users, so that the information can be effectively utilized.
- Time series data should be kept with the DMIC, which will help identify trends of disasters and damages thereof, all of which is important for purposes of disaster management.
- Data on climate change and the physical and social aspects of the consequent sea level rise should be integrated into the DMIC database. For this DMIC would have to collect and integrate various meteorological and impact data throughout the year.
- IWFM does not collect data that DMIC could integrate into its database. However, if considered useful, IWFM can make its study-reports available for sharing.
- Concerned local level institutions should be linked up with DMIC in such a way that disaster related information is available for quick transmission to them. For this it would be necessary to identify focus persons in concerned institutions, which can be facilitated by holding discussion sessions with Disaster Management Committees at various levels.
- DMB would need outside assistance for setting up the DMIC. Also some outsourcing would be needed for data updating, etc. In developing capacity of DMB for running the DMIC, only technical capacity building would not be sufficient. It would be necessary to enhance managerial capacity as well.
- IWFM is well equipped with computers. It has around 15 computers used by as many professionals. The computers are connected by LAN and have broadband internet facility. The O&M needs to improve, for which timely allocation and disbursement of funds is essential.
- They will share information they have on their regular programs as well as emergency activities relating to relief and health care.

CDMP DMIC Needs Assessment

Emaduddin Ahmad
Executive Director
Institute of Water Modelling

May 15, 2006

- In managing various disasters, GoB often has to rely on incomplete information. It is essential for the government to have reliable, updated and comprehensive data on possibilities and consequences of disasters.
- Disaster management programs based on incomplete information can lead to inefficient use of resources since without proper data it is difficult to assess the needs of affected areas. The proposed DMIC can help in ensuring availability of necessary data to GoB and other stakeholders. Both historical and real-time data should be made available through DMIC.
- Provision of information is not enough. One needs to know how to use the information, which calls for training and feedback from local levels. In all this, the SOD should prove useful.
- The DMIC would have to keep specialized agencies like FFWC involved at various stages. These agencies would be helpful in designing the integrated database and in updating the data.
- IWM purchases some data from GoB and pays royalties to GoB for use of such data. Gathering data by the institute itself entails costs. Hence issues of cost recovery have to be addressed.
- Certain relevant data sets available with some institutions may have been gathered under specific projects, the release of which may be conditional upon obtaining permission from those project authorities. This issue will need sorting out for DMIC to obtain such data.
- Keeping the above in view, appropriate protocols of data sharing will have to be developed between DMIC and institutions sharing their data.
- The DMIC would have to be operational year-round not only because it would have to deal with disasters that happen at different times of the year, but also because it would have to play a reviewing-monitoring-updating role that demands year-round attention.
- IWM has needs for flood data (extent of inundation, depth, duration, etc.). Other data needed includes breaches in primary and secondary embankments, drought prone areas, aquifer recharge, cyclone induced flooding, damages to infrastructure like embankments, roads, bridges and culverts caused by various hazards.
- After receiving permissions from proper authorities, IWM can share with DMIC their data on water level and discharge, sedimentation, salinity, ground water, erosion induced flooding, etc.
- Capacity building at DMIC requires arrangements by which concerned professionals at DMB can work in a collaborative way with professionals from specialized institutions.
- IWM has 165 staff members. It has around 150 computers with LAN and broadband internet facilities (bandwidth 100 Mbps). It does maintain a website (www.iwmbd.org). The staff members use more than 50 mobile phones owned by the institute. There are six land phone lines. The institute has fax facilities.

CDMP DMIC Needs Assessment

Date: May 14, 2006

Address: Islamic Relief (UK) Bangladesh,
House# 24, Road# 5, Block-K, Baridhara,
Dhaka-1212, Bangladesh.
Tel: 880 2 8819392, 9893458 Fax: 8825119

Present: 1) Mr. Md. Nurul Amin Bagmer, Programme Manager
Tel: Extn. 227, 01711177415
2) Mr. M.U.M. Abdul Maleque, Head of Programmes
Tel: Extn. 225, E-mail: maleque@islamicrelief.bd.org
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP

Contact Person: Mr. Md. Nurul Amin Bagmer, Programme Manager
Tel: Extn: 227, E-mail: bna@islamicrelief.bd.org

Agenda: **Disaster management information needs, contributions and ICT capacity of Islamic Relief Bangladesh.**

Islamic Relief Bangladesh is a large NGO with its head office in Birmingham, UK. The present manpower in Bangladesh is around 268 including 170 females. 244 of them are posted in the field offices. Fulfillment of the basic requirements of the people in need is its mission. They have been trying to mitigate the sufferings through emergency response and disaster preparedness activities. In addition, alleviation of poverty, improving health situation, sanitation, self-reliance, enhancing dignity of the people, etc. are its objectives.

It has got the following units:

- Emergency and Disaster Preparedness (EDP) Unit
- Development Programmes
- Health and Orphan Unit (HAU)
- Programme Development, Monitoring, Evaluation & Research (PDMER).

It has got area/field offices in 22 districts that include Mithapukur, Sylhet, Moheshkhali, Faridgonj, Shunamgonj, and Dhirai.

The annual Budget for the year 2005 was around Tk. 500m. Family shelter, Cash for work, providing safe water and hygiene, seasonal food supports, support during Fasting and 'Kurbani' for the Muslim community, etc. fall under its activities.

Disaster risk management and response activities are undertaken from its district offices. It has got a 32 member VDM (RR) committee and a 100 youth volunteers group. IR also undertook orientation of 2200 trainees.

All hazards concern IR Bangladesh. It starts its activities after getting the information of a hazards/ disaster from Radio/ Television news or from its own sources.

They consider that the DMIC is likely to provide the stakeholders with the desired information at the appropriate moment and in an efficient and faster way. It may exchange data/ information with the proposed DMIC by Fax, e-mail, SMS messages,

land phones, Mobile phones or through websites. IR is ready to share data with others. At present, they share data within its own organs.

IR maintains database for its financial accounts, activities, working field and skills of staffs for suitable deployment, etc.

Total manpower: 268 (including 24 in Dhaka HQ).

The related stakeholders are:

- Red Crescent Society
- CPP
- Different Govt. coordination cells
- ESC
- Other NGOs.

IRs present ICT capacity:

- Over 200 Computers
- LAN in HQ connects more than 200 PCs
- WAN connects about 20 district offices
- Internet facility
- Website: www.
- Fax: 1 in Dhaka HQ
- Mobile Phones: around 21 and almost personally owned.
- PABX in HQ: 2/16 lines Capacity
- VHF/UHF Network: In 11 districts.
- No HF Network; fund applied from DFID.

CDMP DMIC Needs Assessment

Date: May 23, 2006

Address: Local Govt. and Engineering Department
LGED-RDEC Bhaban, Agargaon, Dhaka 1207, Bangladesh.
Tel: 8119437, Fax: 9120476
E-mail: amzad@lged.gov.bd
Website: www.lged.org

Present: 1) Engr. S.K. Amzad Hussain, Project Director,
Secondary Towns Integrated Flood Protection
(Phase-II) Project, LGED
Tel: 78119437, Fax: 9120476
2) Engr. Hasan Kabir Kashru,
Deputy Project Director, STIFP
Tel: 9124811, Mobile: 01711883628
3) Mr. Nizam Uddin Ahmed Chowdhury, CDMP.

Agenda: **LGED's Disaster Management Information Needs, contributions, resources and ICT Capacity.**

This department is in possession of a huge network of organized manpower and capacity up to the level of Upazillas/ Unions, which could be utilized for managing a disaster. The PIO offices Of MoFDM in Upazillas may take joint effort with local LGED offices in management of a Disaster. The UNOs may organize the possible collaboration.

All hazards especially those related to infrastructure damage are their concern. The department obtains cyclone warnings, flood warnings, emergency situations, etc. through news broadcasts or through official chains. They may take part in the process of managing and mitigation during a disaster.

The creditability of local NGO's should be verified before involving them in disaster management activities.

They opined that the DMIC is likely to provide the concerned agencies with the desired information during a disaster but, it should be well organized and be controlled by the govt. authority. They may exchange information by Fax, e-mail, web sites, SMS messages and Telephones. Information products related to awareness generation, rescue operations, training, mock ups related to disaster management, etc. might be helpful in managing the show.

LGED related data and records are maintained in Computers in addition to conventional means. The database for LGED infrastructure may be shared with others. Mapping Data related to 3 districts of CHT is available in a database. For basic Telecom requirement the infrastructure of BTTB has been used.

The related stakeholders for disaster management are:

- Different Govt. coordination cells
- Govt. agencies.

Present manpower: About 16,000 persons. 18 staff in each Upazilla.

Present ICT capacity of LGED:

- BTTB Telephone: 100 Lines in Dhaka HQ, 3 in district offices and 1 at each Upazilla.
- LAN: WAN in Dhaka, up to Kushtia & Faridpur. Upto Upazilla under planning now.
- Fax: up to district level.
- Computers: 6/7 at district level and 1 at each Upazilla.

- Internet: More than 200. Broadband in Dhaka and dial up at other places.
- IT training going on now.
- Mobile Phones- Up to SAE, Drivers, 80%personal

Other resources/constraints:

- Infrastructure and set up to Upazillas existing
- Infrastructure and set up to 1000 Unions under development now
- Bull dozers, tractors, etc. available in Districts.

CDMP DMIC Needs Assessment

Date: May 05, 2006
Location: Rajarbagh Police HQ, Rajarbagh, Dhaka.

Present: 1) Md. Akkas Uddin Bhuiyan, Superintend of Police (Telecom)
Tel: 9333625, 9332585 (Res.), Fax: 9344504
2) Saiful Islam, Inspector (Telecom)
3) Nizam Uddin Ahmed Chowdhury, CDMP

Agenda: Disaster management ICT capacity of Bangladesh Police

The Police department is a law-enforcing agency of the government. It works under the control of the Ministry of Home Affairs. Enforcement of the law of the country and maintenance of discipline and security of life and property of the mass population are its main responsibility. It has the deepest penetration up to union/ward level i.e. much beyond Thana (Upazilla) level through its Police Out-posts. In case of need it can draw further law enforcing manpower from the Directorate of Ansar and VDP.

Besides, in view of their social and administrative position, any natural disaster information is obtained by the Officer In Charges heading Thanas at the very on set and the same is relayed to the highest level through their chain of command using available Telecom Netqork. And naturally, they become active in cooperating with the disaster management agencies in all cases of hazard.

Although Disaster management activities are not their prime responsibility, they supplement and enhance warning and mitigation activities by way of communicating messages and ensuring security at the time of management of hazards.

They open control rooms in District HQs and respective Battalions at the time of a disaster.

Police Forces present ICT capacity:

- Land Telephones: BTTB Telephone connections up to Thana level.
- Mobile Phones: about 30% of the staffs, mostly personal.
- PABX of 100/1000 lines capacity in Dhaka Metropolitan City linking Police Stations and Out-posts.
- PABXs in other Metros, Police Academy and Police Staff College.
- VHF Network with Repeater in Dhaka covering city area.
- VHF Network with Repeater in other Metropolitan area.
- VHF link up to Police Out-posts all around.
- HF Radio Base Station in all 64 districts and 9 Battalions.
- Computers: limited nos, no network, a new project in tendering stage
- Internet facility: In development stage.
- No IT branch existing in Police Telecom at present.
- RAB has much more sophisticated and latest type of Telecommunication devices.

A proposal for setting up a Wide Area Network (WAN) covering 15 districts in 1st phase in Chittagong region is under active consideration through Japanese funding.

These Telecom facilities are used mainly for law enforcement purposes but are also utilized for early warning and preparatory activities. Information is also relayed from the central to the local level and vice versa through wireless, mobile and Land Telephone.

CDMP DMIC Needs Assessment

M. M. Masudul Huque
Additional Chief Engineer
Planning and Maintenance
Roads and Highways Department (RHD)

April 30, 2006

- RHD through its field offices collects information on vulnerability of its infrastructure to disasters caused by hazards like flood, riverbank erosion and cyclone.
- During flood an information centre is set up at the Dhaka office of RHD, where information is sent by the field offices on flood conditions, vulnerability of the infrastructure and damages caused.
- Correct and quick information on breach of roads, damages to bridges/ culverts and breakdown of ferry services under RHD is essential in taking up mitigation measures. Although RHD field personnel send this information to the Dhaka office, the information is not always comprehensive. It would be useful if the necessary information could be supplied through the proposed DMIC.
- RHD would benefit from prediction information on hazards and disasters in planning its activities. Although RHD has some communication with FFWC, it feels that integrated information on flood and other disasters made available through the proposed DMIC would be the efficient arrangement.
- The landing *ghats* of ferries operating in the country are under RHD. Some of these installations, particularly those located at the banks of main rivers, can be vulnerable to riverbank erosion. Thus prior information on vulnerability of the concerned locations to erosion would help in planning and executing protective and rehabilitation measures.
- RHD liaises with BIWTA in keeping landing *ghats* for their ferry services functional throughout the year. In this activity RHD would benefit from quick access to necessary hydrological and morphological data, where DMIC could play an important role.
- Information on earthquake vulnerability, though important for planning the infrastructure under RHD, there has been little done in this regard. One of the reasons for this is the lack of specific information on earthquake vulnerability of different parts of the country. DMIC should try to address this issue.
- RHD has a website, where information on its infrastructure has been made available. This could be integrated into the database of the DMIC. Through discussions with concerned agencies and by developing appropriate mandates for the DMIC other relevant data from RHD could be incorporated into it.
- RHD has good computer facilities at its Dhaka office, with LAN and broad band internet services. Around 70% of the district level RHD offices have internet connections and efforts are being made to increase the coverage.

CDMP DMIC Needs Assessment

Date:	1300, May 22 2006, for 2 hours
Location:	Sylhet City Corporation
Participants:	Md. Abul Kashem, CEO Badar Uddin Ahmed Kamran, Mayor Chief Engineer and others Probir Kumar Das, Programmer, BMD Tasdiq Ahmed, CDMP Sid Tupper, CDMP
Agenda:	SCC disaster management information needs and sharing

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Most of the responses came from the Chief Engineer and other, rather than from the Mayor and CEO, who expressed interest in the CDMP and DMIC, and willingness to support the needs assessment by making staff available to us.

Hazards of concern to the SCC are river flooding, earthquake and erosion. They want support from DMIC for promoting awareness of hazards and training. For emergency rescue they want heavy equipment (bulldozers and scrapers) and light equipment (mobile generators and lights). We told them that the CRA would expose these needs and the Risk Reduction Action Plan would help them to lobby the ERD and others sources for these resources.

They want to prepare a GIS database of city infrastructure, including buildings and utility lines, and will share this if asked. They say that 10 – 15% of the buildings are commercial and most of the rest are residential. There are few industrial buildings. They are aware of the recently promulgated building code and are attempting to apply it. Identification of vulnerable (seismically non-resistant) buildings is difficult. They have no list of vulnerable buildings. The City Corporation is the building authority, ie, they approve plans. They say they have people competent to evaluate building plans.

All of their early warnings come from news media. Primary warning information sources (BMD, FFWC) do not disseminate directly to the SCC. They want to subscribe to DMIC information and think that they would get warnings sooner and more reliably from DMIC.

CDMP DMIC Needs Assessment

Date:	1430, May 17 2006, for 1 hour
Location:	Sustainable Development Networking Programme, Agargaon, Dhaka
Participants:	Dr. Md. Hakikur Rahman Sid Tupper, CDMP
Agenda:	SDNP disaster management information needs and sharing

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SDNP is a SEMP (Sustainable Environment Management Programme) project in the Ministry of Environment and Forests, and UNDP, implemented by the Bangladesh Institute of Development Studies.

SNDP has broad ICT-supported development scope in environment awareness, education, health care, countryside development and early warning of cyclones and floods. Their website www.sndp.org gets 10k hits/day.

As well as their HQ in Agargaon SDNP has branch offices with high-speed data backbone connections in Dinajpur, Haluaghat, Phulpur, Mymensingh, Satkira, Jessore, Tala, Chittagong, Maheshkhali and Cox's Bazaar. This network is attractive to DMIC since it offers better domestic bandwidth than is commercially available. The Dhaka-Mymensingh link is a 160km microwave system with 5 relay stations. The others are satellite links to servers in Hong Kong or Singapore.

They maintain a WAP (Aktel) site (news.bdix.net) with a local news feed, weather, local commodity prices and other information, all collected and compiled by SNDP staff.

SDNP provides emergency-time information services. For example, during the April 2006 cyclone that missed Bangladesh but caused some fatalities in Myanmar, they disseminated weather monitoring and prediction information through their coastal zone stations at Satkira and Maheshkhali. They get their weather and flood information from the BMD and FFWC websites. They are not on BMD or FFWC fax/email distribution lists. They want better early warning information and cyclone situation reports. They are archiving weather reports for future research purposes, perhaps in climate change.

At Maheshkhali (across the river from Cox's Bazaar) they operate a tele-medicine facility that connects medical experts in Dhaka with a physician and patients on-site through a VSat video-audio link serving 15-20 patients per week.

In their nation-wide school-based Multi-Purpose Village Information Centre project, they installed 160 computers in 59 schools, with internet connections. Their ECFC (Empowering Community Fishermen C-something) project installed 10 internet-connected computers in villages near Cox's Bazaar and trained trainers to develop the capacity of villagers to use them.

The 2005 annual report, with lessons learned, is available. SDNP publishes an annual CDROM observing World Environment Day.

CDMP DMIC Needs Assessment

Date:	10:30, May 15 2006, for 1 hour
Location:	Bangladesh Space Research and Remote Sensing Organization, Agargaon, Dhaka
Participants:	A.H. Howlader, Chairman Md. Obaidul Quader, Chief Scientific Officer Sid Tupper, CDMP
Agenda:	SPARRSO disaster management information needs and sharing

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SPARRSO regards itself as an information provider but not an information receiver, ie, the Chairman saw no need to get information from DMIC. During emergencies they get information requests from PMO and DRR.

SPARRSO is mainly interested in cyclone, flood, erosion and drought hazards. They receive daily NOAA satellite data (1.1km resolution) at their on-site ground station which can usefully resolve large hazard manifestations like cyclonic depressions in the Bay of Bengal and flood extent. They produce an annual flood extent map made of multi-temporal optical images from which they mask out the cloud cover and replace it with cloud-free imagery from other passes. They would like to have radar imagery to get flood extent through cloud cover and hope to get support for this from Japan in 2007 in an AOLS project. (Advanced Land Observation Satellite)

SPARRSO also makes annual crop productivity maps at harvest time, which might be useful for predicting food scarcity.

They have suggested to BMD to use their daily NOAA data. BMD uses METEOSAT which is a geostationary sensor and hence even lower resolution than NOAA.

SPARRSO is presently engaged with the Bangladesh Bureau of Statistics to execute three phases of “Digital Enumeration Area Maps”. They have completed two phases, which by means of analysis of aerial photography, provides estimates of population in about 70% of the country to date. The information is / will be available at BBS in GIS data sets and would be very useful in vulnerability analyses. Other layers include roads, rivers, infrastructure, and so on.

SPARRSO serves many GoB agencies including Fisheries, Forestry, BBS, …

CDMP DMIC Needs Assessment

Date:	1530, May 22 2006, for 1 hour
Location:	Sylhet District Office
Participants:	SM Faisal Alam, Deputy Commissioner Md Abdul Musawwir Choudhury, District Relief and Rehabilitation Officer Altaful Hossain, Project Implementation Officer, Dakhin Surma, Sylhet Probir Kumar Das, Programmer DMB Tasdiq Ahmed, CDMP Sid Tupper, CDMP
Agenda:	Sylhet District disaster management information needs and sharing

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We first visited the DRRO, primarily so that Tasdiq could check the state of the equipment delivered there for the DMIC network. The equipment had been briefly taken from the office by the DC who was concerned about its security and the inability of the DRRO, not yet trained, to operate it. It is back with the DRRO now.

The DRRO did not have a copy of the SOD and was not aware that he is required to have made a District Action Plan.

Then we visited the DC. He was initially very critical of CDMP's training progress, until he understood that the training is progressing as per schedule and will come to Sylhet in June.

We presented an overview of CDMP and details of the goal and proposed functionality of the DMIC. The DC expressed support.

CDMP DMIC Needs Assessment

H.S. Mozaddad Faruque
Director General
Water Resources Planning Organization (WARPO)

April 12, 2006

- Information on arsenic contamination of ground water should be included in the database of DMIC.
- Information relating to various health issues should be included
- CDMP may not be able to cover all relevant information, but there should be a suggestion to cover other items in future.
- Salinity intrusion should be covered in future.
- Erosion in the coastal area is a problem and needs to be covered.
- NWRD needs continuous updating. It can use the data from DMIC to do this.
- Some part of NWRD is web-enabled. Apart from the web-enabled data, some other data from NWRD can be integrated into DMIC for use by other stakeholders.
- Since WARPO has the policy of recovering part of costs for the supply of certain datasets (incurred in processing of the data), arrangements are necessary to accommodate this within DMIC.
- Formats of datasets to be incorporated into DMIC should be so standardized as to make one set of data compatible with another.
- The responsibility of round the year collection of hydrological data has been carried out by BWDB. But reorganization of BWDB has resulted in reduced number of personnel collecting such data. This should be looked into.
- The databases of WARPO and BWDB could be linked up through DMIC.
- If necessary, BWDB can collect data for DMIC (on which they have expertise) on payment of normal fees (such activity can be taken up on an arrangement called ‘deposit work’).
- WARPO has prepared a drought map, which may prove useful to DMIC in its drought component.
- WARPO has a proposal to develop a groundwater zoning map, which would provide useful information on availability of a substitute to surface water for irrigation purposes.
- The guidelines prepared by DMB should be properly followed in generating and using information on hazards and disasters.
- More formalization of how information is to flow between the central databank and DMCs at various levels should be ensured.
- Necessary facilities for easy exchange of data should be created at local level institutions like the Upazila Parishad.
- For the functioning of DMIC a steering committee with involvement of the Prime Minister’s Secretariat would prove useful.
- DMIC should cover information pertaining to all three phases of preparation, coping and rehabilitation.
- DMIC should cater to the immediate as well as longer term needs for information.

Appendix B National Institution Information needs and Sharing

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
Action Aid	**need:** **share:**	**need:** **share:**	
Ansar and VDP Directorate	**need:** awareness materials training materials mockups support **share:**	**need:** early warnings **situation reports** **share:**	Bangladesh Police CPP Fire Service and Civil Defense Different Govt. coordination cells
Armed Forces Division	**need:** disaster management training awareness programs disaster preparedness status mitigation action status **share:** mock exercise support	**need:** early warnings situation reports **share:** communication and response resources	PMO, BMD, FFWC DMB CPP Fire Service and Civil Defense GoB coordination cells Bangladesh Rifles Bangladesh Police Directorate of Ansar and Village Defense
Bangladesh Agricultural Research Council	**need:** irrigation resource information extent, depth, duration of inundation salinity intrusion land lost to erosion crop losses due to hazards climatic and meteorological data to understand cropping variations crop vulnerability to hazards **share:** land crop suitability maps	**need:** **share:**	BMD, DAE, BARI, BRRI, SRDI, BWDB, WARPO, SPARRSO
Bangladesh Amateur Radio League	**need:** **share:** transmission resources during mock exercises	**need:** situational information weather and other emergency warnings public orders from authorities **share:** situational information weather and other emergency warnings public orders from authorities	mass media other radio operators in civil society, GoB and NGOs
Bangladesh Betar	**need:** **share:**	**need:** **share:**	

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
Bangladesh Bureau of Statistics	**need:** disaster/hazard information **share:** eveything thay have, in 7 wings: National Accounting Census Agriculture Industry and Labour Computer Demography and Health Finance, Management Information Systems	**need:** **share:**	ERD, Planning Commssion other Ministries
Bangladesh Disaster Preparedness Centre	**need:** hazard statistics disaster statistics (incidence, damage, relief) hazard and vulnerability maps disaster bibliography disaster literature disaster risk reduction organization directory GoB disaster actors directory **share:** awareness building materials capacity development information disaster study reports policy change recommendations	**need:** early warnings situation reports **share:**	
Bangladesh Earthquake Society	**need:** socio-economic data for vulnerability assessment seismic data to support earthquake prediction research earthquake hazard database	**need:** **share:**	DMIC
Bangladesh Meteorological Department	**need:** field information to validate research **share:** processed met data (not raw data)	**need:** damage information to track actual weather paths **share:** meteorological bulletins early warnings: cyclones	GoB agencies CPP see weather bulletin and cyclone warning distribution lists

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
Bangladesh Railway Authority	**need:** no perception of need **share:** nothing to share	**need:** early warning **share:** nothing to share	
Bangladesh Red Crescent Society	**need:** hazard and disaster information other agencies' disaster management activities tornado and nor'wester research information flood vulnerability socio-economic information to identify poverty-vulnerabilities earthquake risk **share:** program details	**need:** early warnings situation reports **share:** emergency activities	MoFDM, BBS, FFWC, BMD, field officers, MoA, MoHFW
Bangladesh Telegraph and Telephone Board	**need:** **share:** awareness building information	**need:** early warnings **share:**	BMD, FFWC, DMB, CPP Fire Service and Civil Defense various GoB coordination cells Red Crescent Society NGOs
Bangladesh TV	**need:** **share:**	**need:** **share:**	
Bangladesh Inland Water Transport Authority	**need:** cyclone, tornado, flood awareness information training material mock-exercise support **share:**	**need:** early warnings for cyclone, flood situation reports to support rescue operations **share:**	GoB agencies and coordination cells Department of Shipping ship and launch operators
CARE Bangladesh	**need:** earthquake vulnerability directory of disaster experts and resources **share:**	**need:** early warnings situation reports **share:**	NIRAPAD, mass media, DMB CPP Fire Service and Civil Defense Different Govt. coordination cells Red Crescent Society Action Aid, OXFAM, BDPC

Institution	Risk reduction	Emergency Response	Information partners
CEGIS	**need:** FFWC water level dataBMD rainfall datasatellite imagerySurvey of Bangladesh topographic data**share:** CEGIS could provide the following services:community awareness building for self-helprecommendations for flood and cyclone shelter locationsurban building quality status information systeminfrastructure status information systemrelief resources inventory information systemdrought and monga modeling	**need:** FFWC water level dataBMD rainfall datasatellite imagery**share:** local level water level predictionserosion early warningPossible services:Drought, monga predictionDamage assessmentsResource inventoriesBuilding quality database (earthquake vulnerability)Water source, drug, shelter status databases	FFWC (water levels)BMD: rainfallBARI, SRDISatellite imagerySurvey of BangladeshNWRDSPARRSO
Chittagong City Corporation	**need:** GIS tools and datasets public utility vulnerability building seismic resistance inventory landslide vulnerability risk reduction information rescue equipment inventory **share:**	**need:** early warnings for cyclones and flooding casualty and damage reports security reports (looting, other crimes) availabiliy of relief materials **share:**	mass media BMD (not currently) CARE, BUET District Administration PDB, WASA
Chittagong DRRO	**need:** **share:**	**need:** situation reports damage reports food stocks **share:** food stocks action on problems reported by DMCs	DC, DRR, DMCs, other local GoB agancies
Cyclone Preparedness Program	**need:** weather reports **share:** awareness, training material	**need:** cyclone warnings tsunami and other hazard warnings weather conditions and situation reports from field stations **share:** situation reports	MoFDM, DMB, DRR, BRCS, MoI, field stations, DC, DRRO, UNO BMD
DCC	**need:** GIS data layers: building qualityseismic observationscontact information for experts, agencies**share:** building codedisaster preparedness training material	**need:** early warningsituation reports**share:** situation reports	MoFDM, DMB, DRRBMD, FFWC

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
Department of Mass Communication, MoI	**need:** any information that the GoB wants disseminated or acquired **share:** GoB training, awareness, capacity development information workshops	**need:** any information that the GoB wants disseminated or acquired **share:** can provide means to comminucate at the community level disaster recovery information damage reports	all Ministries, foreign news agencies, UNICEF, commmunities
Department of Shipping	**need:** cyclone, tornado, flood awareness information training material **share:** cyclone, tornado, flood awareness information training material	**need:** early warnings for cyclone, flood **share:**	GoB agencies and coordination cells BIWTC
Department of Water Management, BWDB	**need:** irrigation resource information **share:** awareness of surface water irrigation issues	**need:** early warning of drought **share:**	BWD, FFWC, DAE
DER Subgroup	**need:** information for preparation for emergency response and recovery **share:** hazard incidence history database	**need:** early warnings information for multi-agency coordination real-time situational information **share:** response coordination information	MoFDM, DRR, DMB NGOs in emergency response roles
DFID		**need:** situational information for assessment of need of relief funding	MoFDM, DRR, DMB
Directorate General of Food, MoFDM	**need:** crop acreages, yields, productivities employment situation **share:** food inventories at CSDs, LSDs	**need:** flood warnings situation reports damage reports **share:**	MoFDM, DRR, MoA
Directorate of Operations and Maintenance, BWDB	**need:** NWRD, BBS socio-economic datainfrustructure vulnerability**share:**	**need:** early warningsdamage reports**share:**	WARPO, BBS, MoFDM, FFWC, BMD

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
DMB	**need:** awareness information problems **share:** awareness programs SOD	**need:** situation reports weather\nbulletins early warnings **share:** early warnings coordination situation reports casualties damage reports	IMDMCC, NDMAC BMD, FFWC MoI, BTV, mass_media foreign_missions, districts, DMCs, DRROs, UNOs, unions, villages, communities MoFDM, MoEd, DoH, BRHD, DoF NGOs, UN_agencies CPP_HQ, CPP_field
DRR	**need:** relief materials inventories preparedness reports **share:** preparedness reports coordination/direction to DMCs, other agencies	**need:** early warnings situation reports relief reports damage reports relief materials accounting **share:** situation reports relief and recovery requirements	BMD FFWC Directorate of Food: CSDs, LSDs CPP HQ, field offices MoFDM DRROs
Emergency Operations Centre, MoFDM	**need:** **share:**	**need:** early warnings situation reports damage reports **share:** MoFDM directives situation reports damage reports	BMD, FFWC, DMB, CPP, DRR, MoFDM DCs, UNOs, DMCs
Emergency Support Corps	**need:** preparedness program information **share:** training material	**need:** situation reports early warnings requests for rescue support casualty and damage reports **share:** situation reports	CARE Action AID Fire Service Govt. coordination cells Red Crescent Society Bangladesh Scouts
European Union Delegation	**need:** **share:**	**need:** **share:**	

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
FFWC	**need:** hydrological and meteorological data regional basin data vulnerability to erosion-induced flooding **share:** information for agricultural decisions riverlinking issues	**need:** hydrological and meteorological data **share:** early warning of river and flash flooding rainfall vulnerability	Ministries, GoB departments, DCs, DMCs, communities NGOs
Field Service Wing, DAE	**need:** information for understanding flood and drought issues crop and ag infrastructure vulnerability meteorological and hydrographic information food security variables **share:** research information farmers' experience with ag issues technical advice to farmers	**need:** early warning of flood, erosion, drought prediction of surface water availability **share:** crop damage reports	BARC, BARI, BRRI, MoFDM, MoA BMD, FFWC
Fire Brigade and Civil Defense Directorate	**need:** vulnerablity information support for awareness of Building code 1993 availability of rescue equipment to borrow **share:**	**need:** early warnings situation reports **share:**	city corporations mass media other Home Ministry agencies

Institution	Risk reduction	Emergency Response	Information partners
Geological Survey of Bangladesh	**need:** better connectivity and agreement with BMD to acquire seismic information**share:** geological information related to hazards:earthquake zoning maps based on seismic data for earthquake vulnerabilityslope stability assessments for landslide vulnerabiltysoils analysis for building stabilitysoils analysis for river bank erosion ratetectonic and landscape analyses to predict river bed migration geoplogical analyses to support infrastructure (dams, highways, tunnels, bridges, etc.) planningresearch on the geological basis for arsenic contamination of groundwater	**need:share:**	Bangladesh Earthquake SocietyBUETBMDDhaka, Chittagong, Sylhet City Corporations
ICDDR,B	**need:** **share:**	**need:** early warning of hazards emergency situation reports **share:** prediction of water-borne disease during flood time Bangladesh Health Survey data	Ministry of Health and Family Welfare MoFDM (DMIC) Civil Surgeons hospital managers
Institute of Water and Flood Management, BUET	**need:** NWRD datasets: flood, erosion, drought disaggreated hydrological and damage data metadata time series data climate change: physical and socio-economic aspects **share:** published reports	**need:** **share:**	WARPO, BWDB, LGED, MoFDM, BMD, BBS
Islamic Relief, Bangladesh	**need: t**raining materials for risk reduction **share:** everything that they have	**need:** early warning damage reports **share:** everything that they have	CPP, ESC and other NGOs

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
Local Government Engineering Department	**need:** awareness generation informationrescue operations procedurestraining materialsmock disaster support **share:** infrastructure database map data	**need:** early warningssituation reports **share:**	mass mediaUNOsGovt. coordination cellsGovt. agencies.
NIRAPAD	**need:** **share:** disaster database	**need:** early warnings situation reports **share:**	CARE
Planning and Maintenance, RHD	**need:** infrastructure vulnerability earthquake risk **share:** RHD infrastructure database	**need:** early warning of cyclone, flood, erosion infrastructure damage reports: roads, culverts, bridges, ferries, ghats **share:**	FFWC, MoFDM
Prime Minister's Disaster Management Cell	**need:** **share:**	**need:** **share:**	
Rajarbagh Police HQ, Dhaka	**need:** **share:** radio facilities for preparatory activities	**need:** early warnings situation reports security issues **share:** radio facilities for early warning	all disaster management agencies
SPARRSO	**need:** ALOS imagery (SAR data) **share:** NOAA imagery annual flood extent map annual crop productivity maps	**need:** no need perceived **share:**	
Sustainable Development Networking Programme	**need:** **share:** annual report, with lessons learned archived weather reports	**need:** early warnings situation reports **share:** early warnings situation reports telemedicine facilities	many GoB agencies, including Fisheries, Forestry, BBS, …
Sylhet City Corporation	**need:** vulnerability indicators, eg, mapstraining and awareness building materials**share:** database of buildings, infrastructure and utility lines	**need:** early warnings of flood, erosionsituation reports**share:** situation reports	

CDMP DMIC Needs Assessment

Institution	Risk reduction	Emergency Response	Information partners
WARPO	**need:** arsenic information, health issues, salinity intrusion erosion predictions, other BWDB data **share:** arsenic information, health issues, salinity intrusion erosion predictions NWRD data sets drought map groundwater zoning map	**need:** **share:** early warnings - weather	other Ministries BWDB
World Food Program	**need:** historical hazard/disaster database DoF food stocks inventory vulnerability information **share:** NGO coordination information vulnerbility maps emergency response plans and procedures	**need:** early warnings situation reports damage/casualty reports other agencies' emergency repsonse activities relief resouce needs and availability **share:** NGO coordination information situation reports damage/casualty reports WFP response and intentions other agencies' emergency response activities	NGOs, MoFDM, UNDP, DMB, DRR, BMD, FFWC, DoF

Appendix C Information Flows Required by the Standing Orders on Disaster

Information Flow	Information Item
AFD -> IMDMCC	emergency activities
AFD -> MoFDM	emergency activities
AFD -> Navy	direction
AFD -> PMO	emergency activities
Air_Force -> Army	contact numbers
Air_Force -> IMDMCC	damage aerial survey
Air_Force -> MoD	rehab progress
Air_Force -> MoFDM	contact numbers
Air_Force -> Navy	contact numbers
Air_Force -> NDMC	damage aerial survey
Air_Force -> PMO	contact numbers
Ansar_HQ -> IMDMCC	loss, damage reports
Ansar_HQ -> MoFDM	loss, damage reports
Ansar_HQ -> NDMC	loss, damage reports
Army -> Air_Force	contact numbers
Army -> MoD	rehab progress
Army -> MoFDM	contact numbers
Army -> MoFDM -> NDMC	Army preparedness
Army -> MoFDM -> NDMC	rehab progress
Army -> Navy	contact numbers
Army -> NDMC	sitrep activities
Army -> PMO	contact numbers
Army -> PMO	preparedness
Army -> PMO	sitrep activities
BADC -> MoA	crop damage
BD_Betar -> communities	awareness
BD_Betar -> communities	evacuation orders
BD_Betar -> communities	warnings
BDR -> IMDMCC	loss, damage reports
BDR -> MoFDM	loss, damage reports
BDR -> MoFDM	situation reports
BDR -> MoHA	situation reports
BDR -> NDMC	loss, damage reports
BIWTA -> MoFDM	losses damage
BIWTA -> MoFDM	rehab progress
BIWTC -> IMDMCC	losses damage
BIWTC -> IMDMCC	rehab progress
BIWTC -> MoFDM	situation reports
BIWTC -> MoS	losses damage
BIWTC -> MoS	rehab progress
BIWTC -> MoS	situation reports
BMD -> Air_Force	warnings
BMD -> BD_Betar -> communities	weather bulletins
BMD -> BDR	warnings
BMD -> BIWTA	weather bulletins
BMD -> BRCS	weather bulletins

Information Flow	Information Item
BMD -> BTV -> communities	weather bulletins
BMD -> CPP_HQ -> CPP_field -> communities	weather bulletins
BMD -> DMB	weather bulletins
BMD -> DRR	weather bulletins
BMD -> FFWC	weather bulletins
BMD -> mass_media -> volunteers -> communities	warnings
BMD -> MoD	weather bulletins
BMD -> MoFDM	warnings
BMD -> Navy	warnings
BRA -> IMDMCC	losses damage
BRA -> IMDMCC	situation reports
BRA -> MoFDM	losses damage
BRA -> MoFDM	situation reports
BRA -> NDMC	losses damage
BRA -> NDMC	situation reports
BRHD -> DMB	situation reports
BRHD -> MoFDM	losses damage
BRHD -> NDMC	losses damage
BRHD -> NDMC	situation reports
BRTA -> IMDMCC	situation reports
BRTA -> MoFDM	losses damage
BRTA -> MoFDM	situation reports
BRTA -> NDMC	losses damage
BTV -> communities	awareness
BTV -> communities	evacuation orders
BWDB -> MoWR	request IndiaWLs
BWDB_field -> UNOs	situation reports
BWDB_field -> UzDMCs	assistance requests
CD_HQ -> IMDMCC	loss, damage reports
CD_HQ -> MoFDM	loss, damage reports
CD_HQ -> NDMC	loss, damage reports
CPP_field -> BRCS	damage reports
CPP_field -> BRCS	resource requests
CPP_field -> CPP_HQ	damage reports
CPP_field -> CPP_HQ	evacuation plans
CPP_field -> CPP_HQ	situation reports
CPP_field -> DMB	situation reports
CPP_field -> DRROs	damage reports
CPP_field -> UNOs	damage reports
CPP_field -> UNOs	situation reports
CPP_field -> UPs	situation reports
CPP_field -> UzDMCs	damage reports
CPP_HQ -> BRCS	situation reports
CPP_HQ -> CPP_field	telecom links
CPP_HQ -> CPP_field -> communities	awareness
CPP_HQ -> CPP_field -> communities	warnings
CPP_HQ -> CPPIB	situation reports
CPP_HQ -> DMB	situation reports
CPP_HQ -> DRR	situation reports

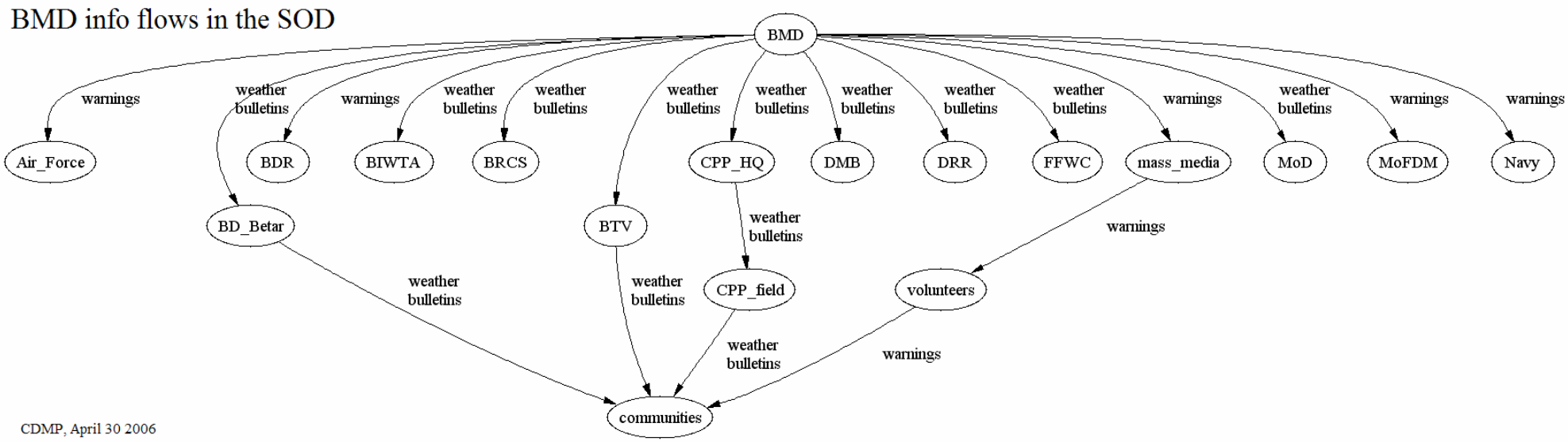
CDMP DMIC Needs Assessment

Information Flow	Information Item
CPP_HQ -> UzDMCs	best practices
CSDs -> DRR	relief inventories
DAE -> mass_media	awareness
DAE -> MoA	assistance requests
DAE_field -> DAE	relief proposal
DAE_field -> DAE -> MoA	crop damage
DAE_field -> DAE -> MoA	rehab progress
DCs -> MoFDM	losses damage
DCs -> MoFDM	resource requests
DCs -> UNOs	orders
Dist_Coms -> MoFDM	resource requests
Dist_Coms -> NDMC	resource requests
DMB -> BTV	awareness
DMB -> communities	awareness
DMB -> Districts	SOD
DMB -> foreign_missions	situation reports
DMB -> MoEd	awareness
DMB -> MoI -> mass_media	awareness
DMB -> NDMAC	problems
DMB -> NGOs	coordination
DMB -> UN_agencies	situation reports
DMB -> UNOs	SOD
DMB -> UPs	SOD
DMB -> villages	SOD
DoF -> DMB -> IMDMCC	affected areas
DoF -> IMDMCC	losses damage
DoF -> MoEF	losses damage
DoF_field -> DoF -> MoFDM -> DRR	food stocks
DoH -> DMB	casualties
DoH_field -> DoH	death documents
DoH_field -> DoH -> IMDMCC	rehab progress
DoH_field -> DoH -> MoHFW	casualties
DoL -> IMDMCC	livestock losses
DoL -> IMDMCC	saved livestock
DRR -> MoFDM	accounts
DRR -> MoFDM	recovery requirements
DRR -> MoFDM	relief preparedness
DRR -> MoFDM	relief requirements
DRR -> MoFDM	situation reports
DRROs -> DCs	damage reports
DRROs -> DMB	damage reports
DRROs -> DMB	situation reports
DRROs -> DRR	accounts
DRROs -> DRR	damage reports
DRROs -> DRR	relief reports
DRROs -> DRR	situation reports
DRROs -> UNOs	vulnerabilities
DRROs -> UPs	vulnerabilities
FFWC -> Air_Force	warnings

Information Flow	Information Item
FFWC -> BD_Betar	flood warnings
FFWC -> BDR -> UNOs -> communities	warnings
FFWC -> BRA	flood warnings
FFWC -> BTV	flood warnings
FFWC -> BWDB	flood warnings
FFWC -> CEs	flood warnings
FFWC -> DCs	flood warnings
FFWC -> DMB	flood warnings
FFWC -> DRR	flood warnings
FFWC -> foreign_missions	flood warnings
FFWC -> mass_media	flood warnings
FFWC -> Ministries	flood warnings
FFWC -> MoD	flood warnings
FFWC -> MoFDM	flood warnings
FFWC -> MoI	flood warnings
FFWC -> NGOs	flood warnings
FFWC -> PMO	flood warnings
FFWC -> President_Office	flood warnings
FFWC -> RHD	flood warnings
Fire_HQ -> IMDMCC	loss, damage reports
Fire_HQ -> MoFDM	loss, damage reports
Fire_HQ -> NDMC	loss, damage reports
IMDMCC -> AFD	assign duties
IMDMCC -> Dist_Coms	orders
IMDMCC -> DMB	monitoring
IMDMCC -> GoB_agencies	coordinate activities
IMDMCC -> NDMC	report progress
LSDs -> DRR	relief inventories
mass_media -> communities	warnings
MoA -> MoFDM	assistance notification
MoA -> NDMC	rehab status
MoFDM -> AFD	request support readiness
MoFDM -> BIWTC	request support readiness
MoFDM -> CPP_HQ	warnings
MoFDM -> DCs	request support readiness
MoFDM -> DCs	warnings
MoFDM -> Dist_Coms	orders
MoFDM -> DMB	open EOCs
MoFDM -> DMB	SOD
MoFDM -> DRR	open EOCs
MoFDM -> DRROs	telecom link
MoFDM -> GoB_agencies	warnings
MoFDM -> IMDMCC	Army preparedness
MoFDM -> IMDMCC	rehab progress
MoFDM -> IMDMCC	situation reports
MoFDM -> mass_media	warnings
MoFDM -> Ministries	warnings
MoFDM -> Navy	resource requests
MoFDM -> NDMC	situation reports

Information Flow	Information Item
MoFDM -> NGOs	coordination
MoFDM -> NGOs	warnings
MoFDM -> PMO	situation reports
MoFDM -> UNOs	request support readiness
MoFDM -> UzDMCs	telecom link
MoFL -> NDMC	relief programs
MoHA -> IMDMCC	rehab progress
MoHA -> MoFDM	rehab progress
MoHA -> NDMC	rehab progress
MoHFW -> DCs	medical personnel
MoHFW -> NDMC	health activities
MoI -> mass_media	warnings
MoWR -> BWDB -> FFWC	direction
MoWR -> NDMAC	advice
MoWR -> NDMC	advice
Navy -> Air_Force	contact numbers
Navy -> Army	contact numbers
Navy -> MoD	rehab progress
Navy -> MoFDM	contact numbers
Navy -> MoFDM	sitrep activities
Navy -> NDMC	rehab progress
Navy -> PMO	contact numbers
Navy -> PMO	sitrep activities
NDMAC -> NDMC	advice
NDMC -> Dist_Coms	orders
NDMC -> IMDMCC	directives
Police_HQ -> IMDMCC	loss, damage reports
Police_HQ -> MoFDM	loss, damage reports
Police_HQ -> NDMC	loss, damage reports
UNOs -> DCs	Disaster Action Plan
UNOs -> MoFDM	losses damage
UNOs -> UPs -> communities	warnings
UPs -> UNOs -> DCs -> MoFDM	losses damage
UzDMCs -> UNOs	damage reports
VDP_HQ -> IMDMCC	loss, damage reports
VDP_HQ -> MoFDM	loss, damage reports
VDP_HQ -> NDMC	loss, damage reports

Appendix D Standing Orders on Disaster Graphs Information Flow Graphs



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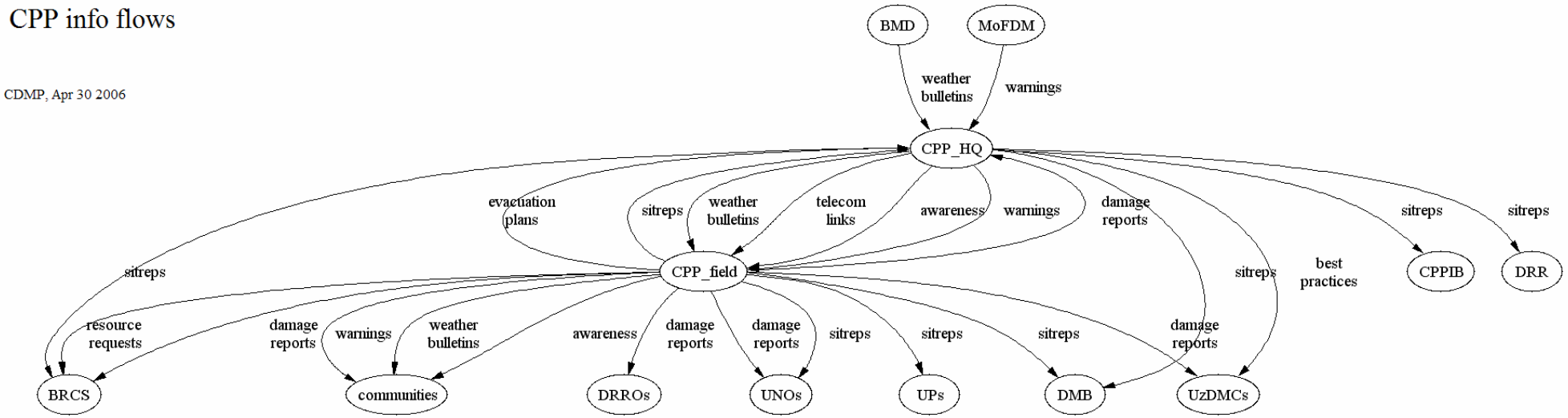
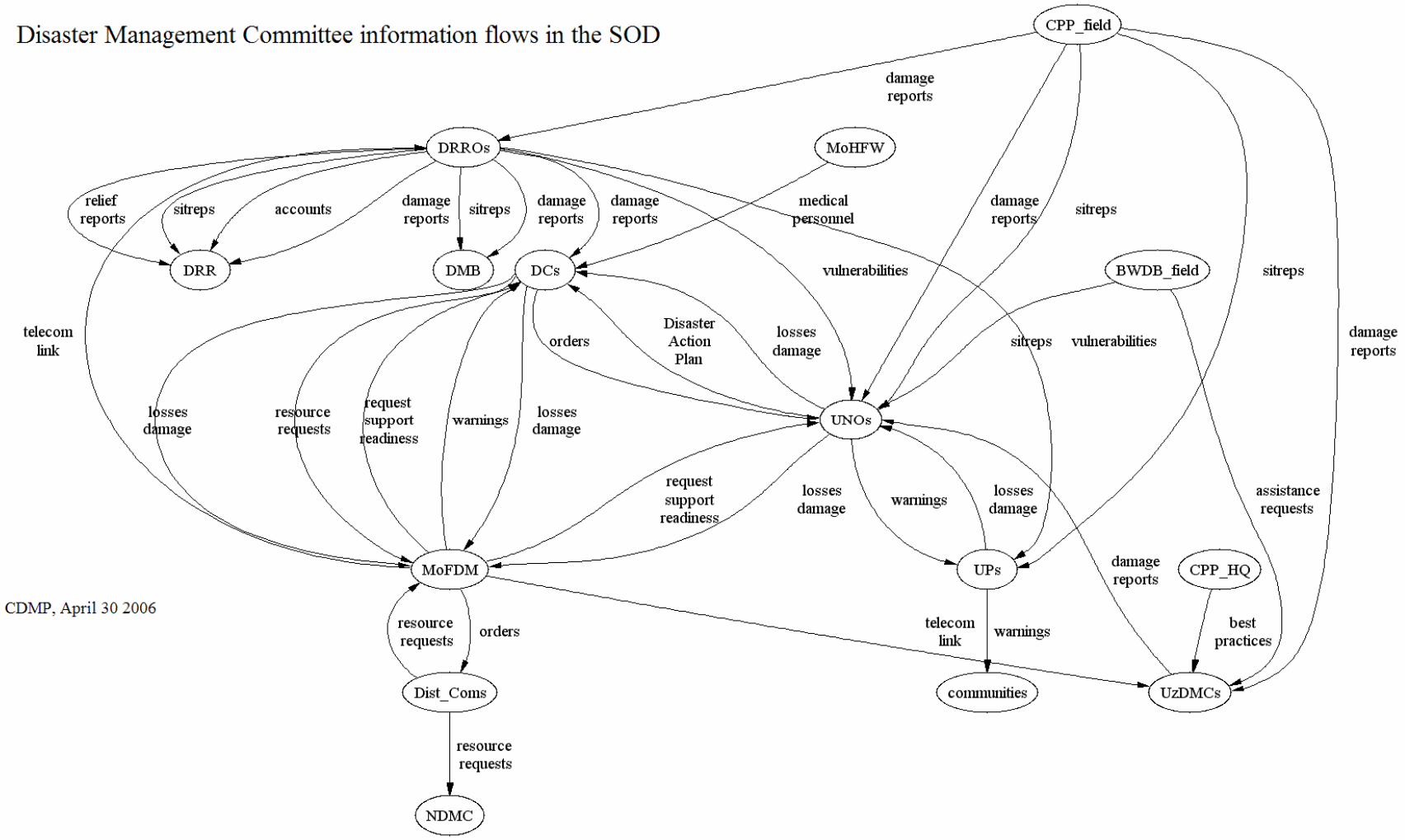
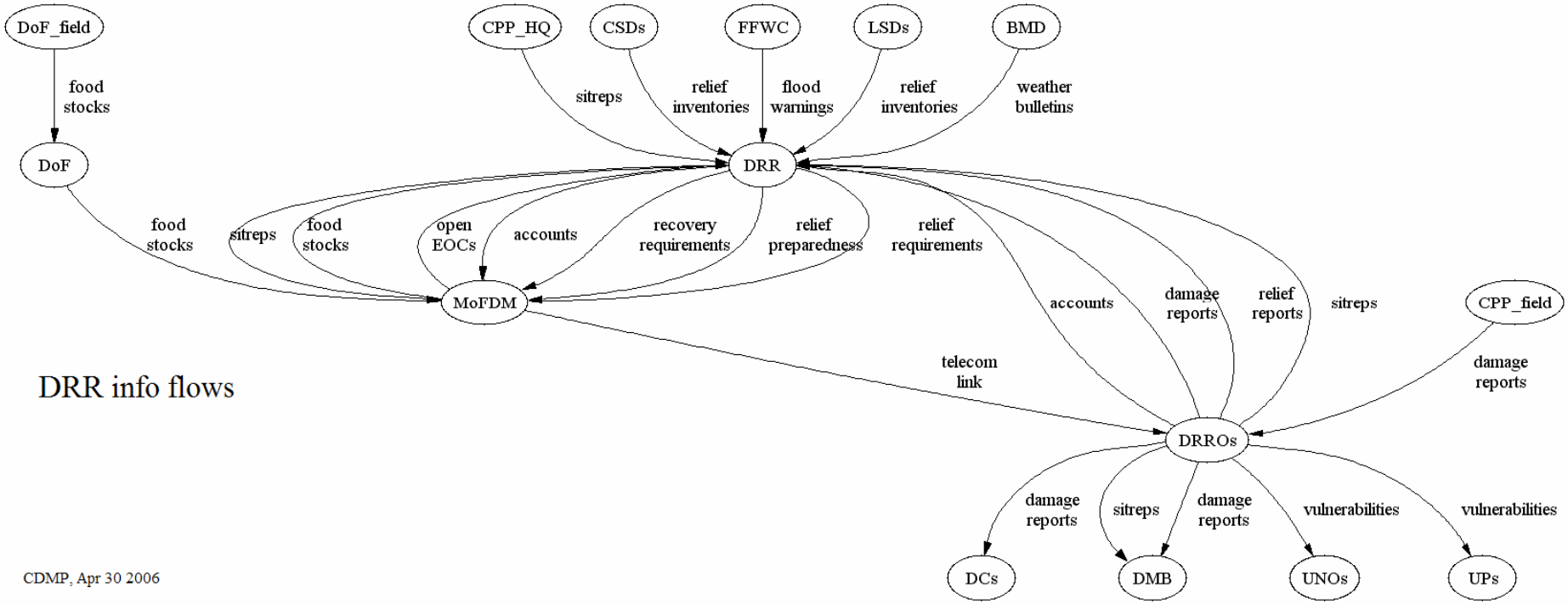
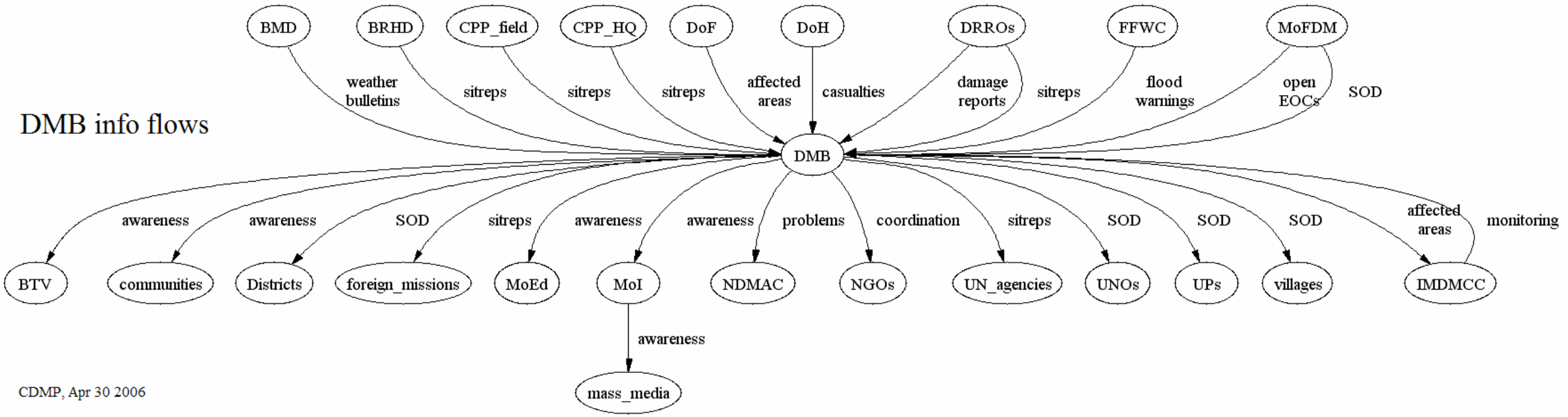
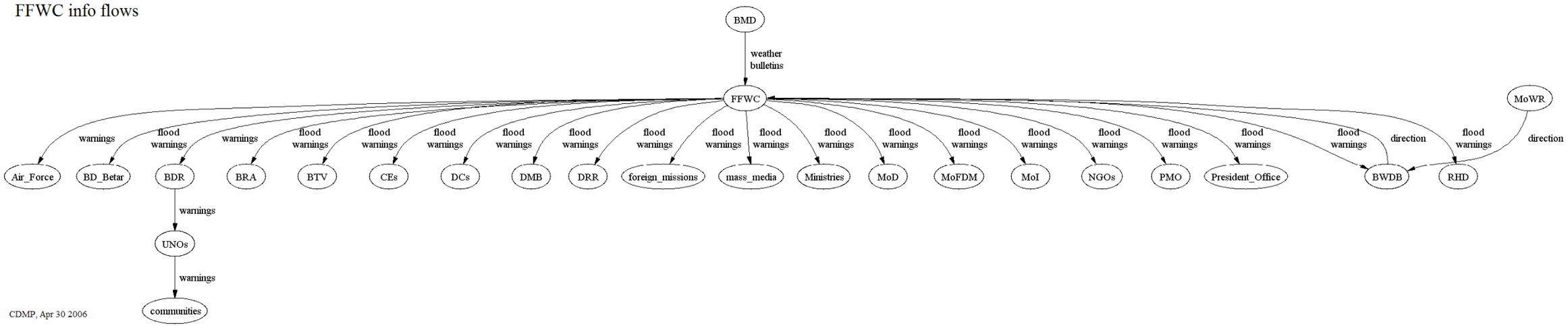


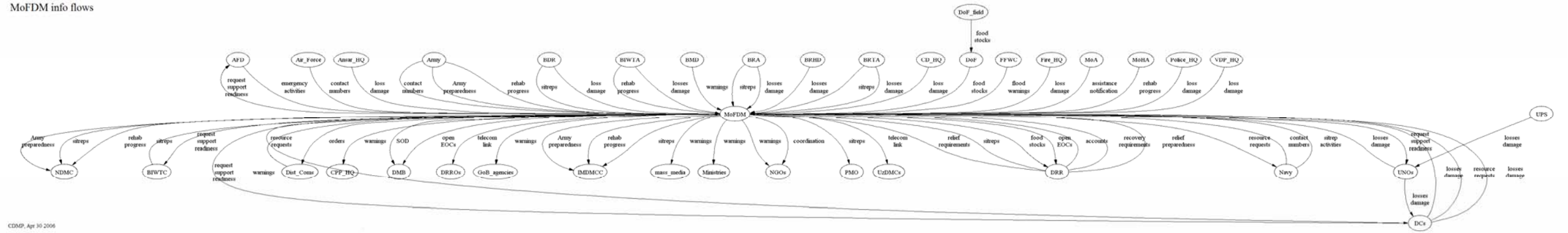

Disaster Management Committee information flows in the SOD
CPP_field
damage reports
DRROs
MoHFW
relief reports
sitreps
accounts
damage reports
sitreps
damage reports
damage reports
medical personnel
damage reports
sitreps
DRR
DMB
DCs
vulnerabilities
BWDB_field
sitreps
telecom link
orders
Disaster Action Plan
losses damage
sitreps
vulnerabilities
damage reports
losses damage
resource requests
request support readiness
warnings
losses damage
UNOs
request support readiness
losses damage
warnings
losses damage
assistance requests
MoFDM
UPs
damage reports
CPP_HQ
CDMP, April 30 2006
resource requests
orders
telecom link
warnings
best practices
Dist_Coms
communities
UzDMCs
resource requests
NDMC


DoF_field
food stocks
DoF
food stocks
CPP_HQ
CSDs
FFWC
LSDs
BMD
sitreps
relief inventories
flood warnings
relief inventories
weather bulletins
DRR
sitreps
food stocks
open EOCs
accounts
recovery requirements
relief preparedness
relief requirements
MoFDM
accounts
damage reports
relief reports
sitreps
CPP_field
damage reports
telecom link
DRR info flows
DRROs
damage reports
sitreps
damage reports
vulnerabilities
vulnerabilities
DCs
DMB
UNOs
UPs
CDMP, Apr 30 2006

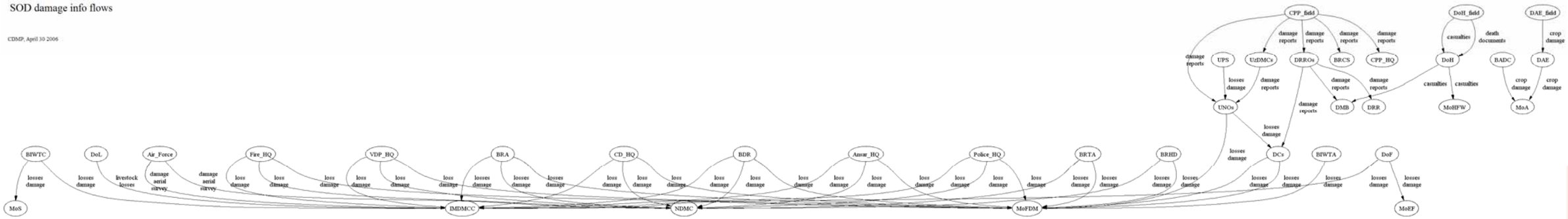

DMB info flows
BMD
BRHD
CPP_field
CPP_HQ
DoF
DoH
DRROs
FFWC
MoFDM
weather bulletins
sitreps
sitreps
sitreps
affected areas
casualties
damage reports
sitreps
flood warnings
open EOCs
SOD
DMB
awareness
awareness
SOD
sitreps
awareness
awareness
problems
coordination
sitreps
SOD
SOD
SOD
affected areas
monitoring
BTV
communities
Districts
foreign_missions
MoEd
MoI
NDMAC
NGOs
UN_agencies
UNOs
UPs
villages
IMDMCC
awareness
mass_media
CDMP, Apr 30 2006

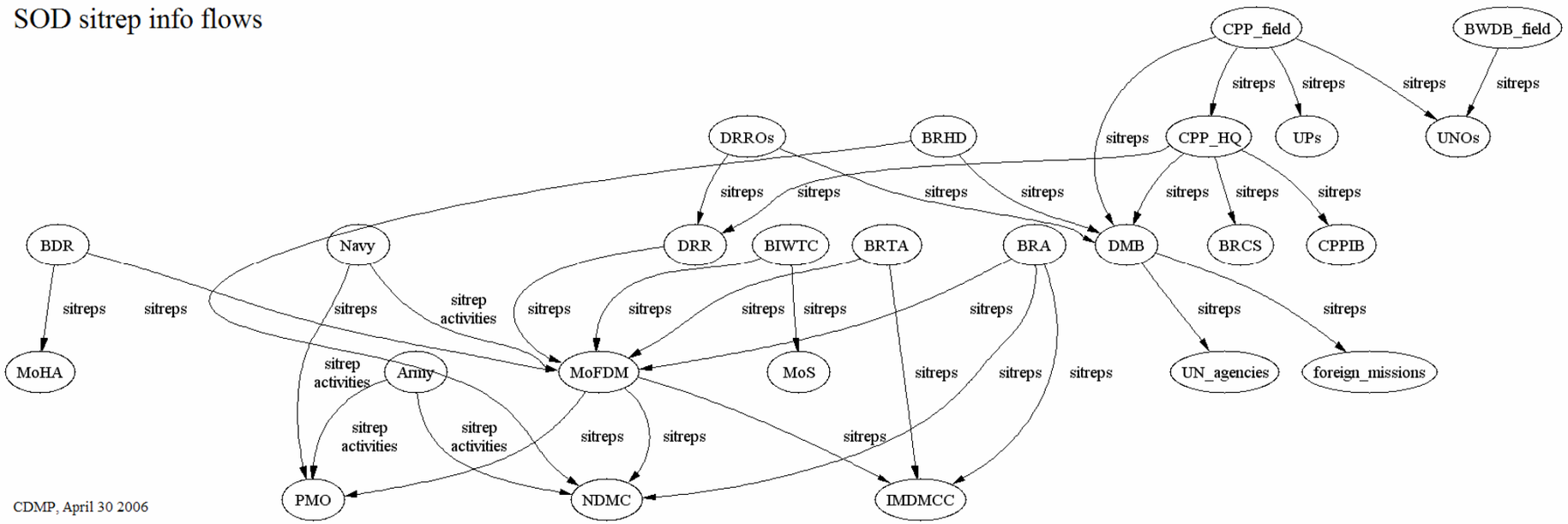

FFWC info flows
BMD
weather bulletins
FFWC
MoWR
warnings
flood warnings
direction
Air_Force
BD_Betar
BDR
BRA
BTV
CEs
DCs
DMB
DRR
foreign_missions
mass_media
Ministries
MoD
MoFDM
MoI
NGOs
PMO
President_Office
BWDB
RHD
UNOs
communities
CDMP, Apr 30 2006

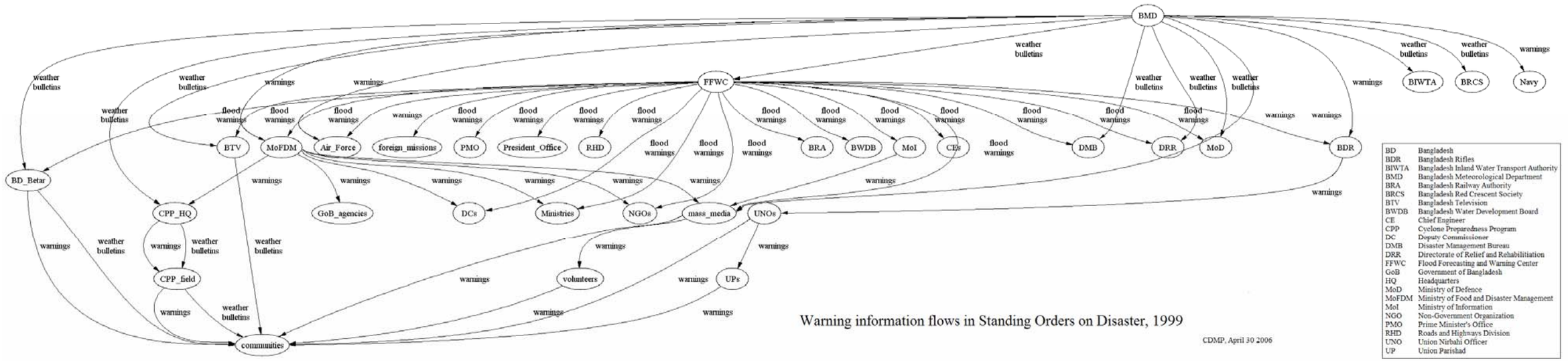
MoFDM info flows



SOD damage info flows




SOD sitrep info flows
CPP_field
BWDB_field
DRROs
BRHD
CPP_HQ
UPs
UNOs
BDR
Navy
DRR
BIWTC
BRTA
BRA
DMB
BRCS
CPPIB
MoHA
Army
MoFDM
MoS
UN_agencies
foreign_missions
PMO
NDMC
IMDMCC
sitreps
sitrep activities
CDMP, April 30 2006


BMD
FFWC
BTV
MoFDM
Air_Force
foreign_missions
PMO
President_Office
RHD
BRA
BWDB
MoI
CEs
DMB
DRR
MoD
BDR
BIWTA
BRCS
Navy
BD_Betar
CPP_HQ
GoB_agencies
DCs
Ministries
NGOs
mass_media
UNOs
CPP_field
volunteers
UPs
communities
weather bulletins
warnings
flood warnings
Warning information flows in Standing Orders on Disaster, 1999
CDMP, April 30 2006
BD Bangladesh
BDR Bangladesh Rifles
BIWTA Bangladesh Inland Water Transport Authority
BMD Bangladesh Meteorological Department
BRA Bangladesh Railway Authority
BRCS Bangladesh Red Crescent Society
BTV Bangladesh Television
BWDB Bangladesh Water Development Board
CE Chief Engineer
CPP Cyclone Preparedness Program
DC Deputy Commissioner
DMB Disaster Management Bureau
DRR Directorate of Relief and Rehabilitation
FFWC Flood Forecasting and Warning Center
GoB Government of Bangladesh
HQ Headquarters
MoD Ministry of Defence
MoFDM Ministry of Food and Disaster Management
MoI Ministry of Information
NGO Non-Government Organization
PMO Prime Minister's Office
RHD Roads and Highways Division
UNO Union Nirbahi Officer
UP Union Parishad

Appendix E National Level Institutional ICT Capacity Data

CDMP DMIC Needs Assessment

1	Name of the Institution:	Chittagong City Corporation (CCC), Andarkilla, Chittagong	DRRO, Chittagong
2	Location / Address:	Office of the Superintending Engineer (Elect.), CCC, Lalkhan Bazar, Chittagong, Bangladesh.	Old Bangladesh Bank, Court Hill, Chittagong
3	Purpose:	City administration, planning, development, tax realisation, disater related activities	DRR administration
4	Contact	1) Md. Shaheedullah, S. Engineer (Elect.) 2) Bibek Kanti Das, AE	Bazlul Haider Patuary
5	Tel, email:	630739, 650252 (Res.) 627761, Fax:031-610007, ullah-s2005@yahoo.com	1711332810
6	staff:	500 +5000	7 officially, 15 unofficially
7	computers	300	Nos. – 2 (one is a DMIC)
8	Network?	n	n
9	Internet?	1 broad band and some dial up	y, 56kbps
10	web site?	www.ccc.org.bd	
11	T&T phones?	200	2
12	fax?	y, several	1
13	mobiles?	90% of staff	3
14	Institutional %:		
15	Personal %:	about 100%	100%
16	VHF/UHF sets?	100+	n
17	VHF/UHF?	Repeater, 50 skm	n
18	HF network?	n	n
19	point-to-point HF?		n
20	HF transceivers?	n	n
21	Licensed HF ops?	n	n
22	Interviwer:	Nizam	Sid
23	Date:	5-Apr-06	5-Apr-06

1	Cyclone Preparedness Program	Dhaka City Corporation	Dept of Mass Communication, M/O Information
2	Bangladesh Red Crescent Society, 684-686 Bara Maghbazar, Dhaka 1217	Nagar Bhaban, Fulbaria, Dhaka 1000	AGB Building, Segunbagicha, Dhaka 1000
3	Disseminate BMD cyclone warnings	City administration, planning, development, tax realisation,etc.	Community communication organ of the MoI
4	Md. Nasir Ullah, Director	Md. Sirajul Islam, Chief Town Planner, Urban Planning Dept.	Md. Abdul Mannan, DG DoMC
5	9330188, 0189226824, cpp@bdmail.com	01715023000, 7110241	9347005, dgmascom@dekko.net.bd
6	Nos. – 29 in HQ, 150 total	11,900 total, 19 in department	Nos. – 1021: up to 12 in each of 64 districts
7	3	7	Nos. – 6 at HQ, 27 divisions and districts
8	n	LAN	n
9	y, 56kbps	Broadband	y, 56kbps
10		www.dhakacity.org	n
11	2	Many	2 in each district and HQ, 150 total
12	1	1	one at HQ and in each district
13	3 in HQ, 6 more in zonal	3	
14			
15	100%	100%	100%
16	93		1 per district
17	coastal zone	>100	
18	35	n	n
19	n	n	n
20	n	n	n
21	n	n	n
22	Sid/Aslam	Sid	Sid
23	30-Apr-06	24-Apr-06	3-Apr-06

1	Geological Survey of Bangladesh	ICDDR,B	Water Resources Planning Organization (WARPO)
2	153 Pioneer Road, Segunbagicha, Dhaka	ICDDR,B, Mohakhali, Dhaka	
3	A department of the M/O Power, Energy and Mineral Resources, responsible for collection of seismic data	Managemnet of diseases	Water Resources Planning
4	Afia Akhtar, DG	Dr. Steven Luby, Head of Program on Infectious Diseases and Vaccine Sciences	H.S. Mozaddad Faruque Director General
5			
6	500 including 150 officers		40
7		inadequate IT capacity	25
8	LAN		LAN
9	dial up		1 Broadband, 9 dial up
10	www.gsb.gov.bd		www.warpo.gov.bd
11	telephones (Land & Mobile)		12
12	y		2
13	y		many
14			1
15	100%	100%	90%
16	n	n	
17	n	n	
18			
19	n	n	
20	n	n	
21	n	n	
22	Sid, Mustafa & Nizam	Sid, Mustafa & Nizam	Sid
23	28-Feb-06	23-Feb-06	12-Apr-06

1	Bangladesh Water Development Board (BWDB)	Bangladesh Water Dev Board (BWDB)	Bangladesh Water Dev Board (BWDB)
2	Processing and Flood Forecasting Circle	Direcxtorate of O&M	
3			River management
4	Md. Sazedul Karim Chowdhury SE and NPD	Md. Makbul Hossain Director, O&M	Md. Ali Hossain, Chief Md. Abul Hashem, Deputy Chief (Agriculture)
5			
6	25	6	10
7	18	6	6
8	LAN	LAN	n
9	1 Broadband	1 Broadband	1 Broadband
10	www.ffwc.gov.bd	share with BWDB	share with BWDB
11	5	1	3
12	3	1	1
13	many	many	many
14	3		
15	80%		
16	86		
17			
18			
19	1		
20			
21			
22	Mustafa	Mustafa	Mustafa
23	12-Apr-06	27-Apr-06	27-Apr-06

1	Department of Agricultural Extension (DAE)	Roads and Highways Department (RHD)	Bangladesh Earthquake Society
2			Department of Geology, Dhaka University
3	Growth of agriculture	Communication	Research on Earthquake
4	Md. Shamsul Alam Additional Director (Ext.)	M. M. Masudul Huque Additional Chief Engineer	Dr. Aftab Alam Khan, VP
5			
6	150	200	
7	50	100	
8	LAN with field offices	LAN	
9	Broadband, 64kbps	Broadband, 70% dist. Dial up	dial up
10	www.dae.gov.bd	y, information on its infrastructure	www.geocities.com/bdeqsoc/, www.univdhaka.edu
11	100	250	
12	10	8	
13	Many		
14	1		
15	90%		100%
16			n
17			n
18			n
19			n
20			n
21			n
22	Mustafa	Mustafa	Sid & Nizam
23	27-Apr-06	30-Apr-06	6-Mar-06

1	CEGIS	DFID	DMI
2	Gulshan, Dhaka	Gulshan, Dhaka	Disa Mar and Bha Moh Dha
3	Flood and erosion warning information generation and dissemination.	Donor agency	Disa Mar poli guic
4	Mir Abdul Matin EMIN Project Manager	Yolande Wright, Johny Sarker	Moh Abu Sad Dire DMI
5	+88 02 8817648, mmatin@cegisbd.com	j-sarker@dfid.gov.uk	
6	100		
7	80	many	
8	LAN	LAN	LAN
9	Broadband	Broadband	Broa
10	www.cegisbd.comhttp://www.geocities.com/bdeqsoc/	www.dfid.gov.ukhttp://www.barc.gov.bd/	y
11	8 T&T lines	y	y
12	2, and EMIN has 2 more	y	y
13	90%	y	y
14	10%		
15	90%		
16	n	n	n
17	n	n	n
18	n	n	n
19	n	n	n
20	n	n	n
21	n	n	n
22	Sid	Sid	Sid
23	14-Mar-06	23-Mar-06	16-A

1	DRR	Bangladesh Agricultural Research Council (BARC)	Bangladesh Space Research and Remote Sensing Organization
2	Disaster Management and Relief Bhaban, Mohakhali, Dhaka	Farmgate, Dhaka	Agargaon, Dhaka
3	Management of disaster and relief	Research in Agriculture	provide remote sensing data and analytical services
4	Dr. Mohd. Shahadt Hossain Mahmud, Deputy Director, DRR	Md. Anwar Iqbal Member-Director (P&E)	A.H. Howlader, Chairman
5	9860130 info@drr.gov.bd		8115863, howlader@sparrso.gov.bd
6		40	169
7		50	50
8	y	LAN with 30 nodes	LAN
9	Broadband	Broadband	8x Broadband, all e-mail
10	www.drr.gov.bd/http://www.warpo.gov.bd/	www.barc.gov.bd	www.sparrso.gov.bd
11	y	50	12 & PABX
12	y	3	1
13	y	Many	80%
14		1	
15		90%	100%
16	n	n	n
17	n	n	n
18	n	n	n
19	n	n	n
20	n	n	n
21	n	n	n
22	Sid	Mustafa	Sid
23	21-Mar-06	26-Apr-06	15-May-06

1	Sustainable Development Networking Programme	Bangladesh Meteorological Department, BMD, MoD	Emergency Support Corps (ESC)
2	E17, Agargaon, Dhaka	Agargaon, Dhaka	House No.34/1, Road No. 11, Dhanmandi R/A, Dhaka-1209
3	Network development for environment awareness, education, health care, countryside development	Inform the nation of weather conditions and forecasts	Rescue & relief operations
4	Dr. Md. Hakikur Rahman, Project Coordinator	Md. Akram Hossain, Director	Mr. Aminul Kawser Khan (S21D), Coordinator, Emergency Support Corps
5	0189228039, hakik@sdnbd.org	8116634, bmdswc@bdonline.com directorbmd@yahoo.com	8157548, 01711234098, 01713038208, esc@agni.com
6	20 technical staff	Nos. 450 at HQ, 1057 total	3 & 100 voluteers
7	>20		
8	LAN with 180 nodes	LAN	
9	Micro-link to VSAT, 784/256 Kbps	Dialup	Dialup
10	www.sndp.org	www.bmd.gov.bd not functional	Under development
11	30	6	1
12	1	2, 30 teleprinters	n
13	20	y	2
14	50%		50%
15	50%	100%	50%
16	n	35	those of Radio Amateurs
17	n	n	n
18	n	n	n
19	n	n	n
20	n	n	those of Radio Amateurs
21	n	n	1
22	Sid	Sid	Nizam
23	15-May-06	15-May-06	28-Mar-06

1	Bangladesh Amateur Radio League (BARL)	Bangladesh Telegraph and Telephone Board , BTTB	Armed Forces Division (AFD)
2	222, New Elephant Road, Dhaka-1000, Bangladesh	Telejogajog Bhaban, 37/E, Easkaton Garden, Dhaka	Prime Minister's Office, Dhaka Cantonment, Bangladesh.
3	Society of Radio Amateurs in Banagladesh	Govt. owned Telecom Operator with a large backbone nfrastructure	Coordination of the Armed Forces of Bangadesh. Maintains disaster monitoring cell.
4	Engr. Sharif Ahmed (S21AS), President, BARL	Mujibur Rahman, General Manager (Trans. Region), BTTB	Lt Col Md. Abdur Razzak psc, GSO-1 (Jt Operations)
5	7100340, 8812693, 01711609516, s21as@yahoo.com	8311500, 8824131, s.alam@bttb.net	88754334, 01715000745, sim_nazrul@yahoo.com
6	100 members including 50 licensed members	22000	3 & some staff In monitoring cell
7	20	>500	2
8	n	LAN in main offices	
9	y, 20 members	Broadband	Broadband
10	www.barl.org	www.bttb.gov.bd	y
11	>50	Many, 270 exchanges	2 + 3 + PABX extns in monitoring cell
12	y	Many	1
13	60	Many	y
14		50%	
15	100%	50%	mostly personal
16	>25	Many	Many
17	Dhaka city		
18	n		
19	n		In all Cantts. & important locations
20	20		Many
21	50		not required
22	Nizam	Nizam	Nizam
23	27-Mar-06	2-Apr-06	19-Apr-06

1	Bangladesh Police, MoHA	CARE Bangladesh	Bangladesh Railway
2	Rajarbagh Police HQ, Rajarbagh, Dhaka	Pragati RPR Center (Level-12), 20-21, Kawran Bazar, Dhaka 1215	Chittagong Railway Building, Chittagong
3	Enforcement of the law of the country and maintenance of discipline and security	Humanitarian assistance	Communication
4	Md. Akkas Uddin Bhuiyan, Superintend of Police (Telecom)	Mr. Chitta Ranjan Biswas, Technical Coordinator (Humanitarian Assistance)	1) Mr. Khondaker Shahidul Islam, CSTE, CRB, Chittagong. 2) Engr. Md. Abul Kalam, DSE, Dhaka
5	9333625, 9332585 (Res.), Fax: 9344504	9112315, 8114207, biswas@carebangladesh.org	01711500201 & 880-2-9362260, 01711691567
6		1500	10000
7	Not many	>200	Many
8	n, WAN planned up to 15 diststricts	LAN in Dhaka HQ with 200 nodes	LAN connecting important stations
9	some	y	y
10	Under development	www.carebd.org	under development
11	up to Thana level	y including in 20 districts	y, BTTB phones at Div. Offices. 4E1s= 120 ch for network and 10 PABXs
12		1 in Dhaka	
13	about 30% of staffs	200	Mostly personally owned
14		5%	
15	100%	95%	
16	country wide	Many	
17	up to Police Out-posts	in 3 locations	
18	In 64 distts. & 9 battalions	26 locations in Bangladesh	
19		n	
20		>26	
21		n	
22	Nizam	Nizam	Nizam
23	5-May-06	9-May-06	10-May-06

1	Islamic Relief (UK) Bangladesh	Fire Brigade and Civil Defense Directorate	Local Govt. and Engineering Department
2	House# 24, Road# 5, Block-K, Baridhara, Dhaka-1212, Bangladesh	Fulbaria, Dhaka-1000, Bangladesh	LGED-RDEC Bhaban, Agargaon, Dhaka 1207
3	Humanitarian assistance	Fire fighting, Rescue operations	Development works
4	Mr. Md. Nurul Amin Bagmer, Programme Manager	Brig Gen Rafiqur Rahman, Director General	Engr. S.K. Amzad Hussain, Project Director, Secondary Towns Integrated Flood Protection
5	880 2 8819392, 9893458 Fax: 8825119, bna@islamicrelief.bd.org	9558880, 9555555 Fax: 9565657, dgfire@bttb.net.bd	78119437, Fax: 9120476, amzad@lged.gov.bd
6	258 incl. 20 in Dhaka	6000 including 1000 non-uniformed	16000 (18 in each UZ)
7	>200	A few	6/7 in Dist. & 1 in Upazilla
8	LAN	No	WAN, Dhaka-Kustia-Faridpur
9	y	y	200, B/band in Dhaka & dial up
10	http://www.barl.org/	http://www.bdrcs.org/	www.lged.org
11	2/ Nos. and 16 lines PABX in HQ		Dhaka - 100, Dists - 3, Upazilla - 1
12	1	1	up to dist. Level
13	21	25% of staffs	Up to SAE, Drivers
14			20%
15	100%	100%	80%
16	In 11 districts	130	No
17		Dhaka & Chittagong	No
18		No	No
19		No	No
20	Applied. DFID may assist.	12 sets faulty	No
21			No
22	Nizam	Nizam	Nizam
23	14-May-06	21-May-06	22-May-06

1	Directorate of Ansar and VDP	Sylhet City Corporation	Bangladesh Bureau of Statistics, Ministry of Planning
2	Malibagh, Dhaka, Bangladesh	Sylhet	Parishankhan BhabanE-27/A, Argargaon, Dhaka
3	Law and order situation management on call by others.		collecting, collating and dissemination of statistical data required for socio-economic development and policy formulation of the Government
4	Lt Col Faroque, Director (Training)	Md. Abul Kashem, Deputy Secretary and CEO	Md. Zobdul Hoque, Director MIS
5	7214924, 7214951-5/, info@ansarvdp.gov.bd, ansarvdp@yahoo.com	0821 816144	9133381, nawbbs@aitbd.net, bbsnaw@bangla.net
6	More than 15000		
7	up to district level	8	>500
8		No, by 2007	100 on a LAN, WAN with ERD
9	B/band in HQ and dialup in 5% dist.	No, by 2007	1 Broad band, many dial up
10	www.ansarvdp.gov.bd	n	www.bbs.gov.bd
11	3 upto dist, 1 upto 10% Upazailla, PABX in HQ & Academy	6	Many
12	2 in HQ & 1 in dist.level	2	7
13	30% of staffs	All	Mostly
14			10%
15	100%	100%	90%
16	75	No	No
17	3, HQ, Academy & CHT	No	No
18	Dhaka, CTG and Academy	No	No
19		No	No
20	3	No	No
21	No	No	No
22	Nizam	Sid	Sid
23	23-May-06	24-May-06	29-May-06

1	Department of Shipping	Bangladesh Inland Water Transport Corporation (BIWTC)	Directorate General of Food
2	141-143 Motijheel C/A, Dhaka-1000, Bangladesh	5, Dilkhusha C/A, Dhaka-1000, Bangladesh	16, Abdul Gani Road, Dhaka-1000. e-Mail :
3	regulatory responsibility	Water transportation	Food security and relief supply
4	Capt. A.K.M. Shafiqullah, Director General	Advocate Shamsur Rahman Shimul Biswas, Chairman, BIWTC.	Md. Zahid Hossain Director General
5	Tel: 9555128, Fax: 7168363, dosdgdbd@bttb.net.bd	9567780, 9554100, 9555031-3, Fax: 9563653, info@biwtc.gov.bd	info@dgfood.gov.bd Fax : +88 02 9554159, 9556067
6	100	3400	35
7	14	15	18
8	LAN with 5 nodes	No LAN	LAN
9	2 dial up	1 dial up	Broadband u/c
10	www.dos.gov.bd	Under development	www.dgfood.gov.bd
11	15	71	40
12	2	2	7
13	About 90% of Staffs	Many	Many
14			1
15	100%	Mostly personal	90%
16	No	No	n
17	No	No	n
18	No	y	n
19	No		n
20	No	23 + 27 MM	n
21	No		n
22	Nizam	Nizam	Mustafa
23	29-May-06	30-May-06	3-May-06

CDMP DMIC Needs Assessment

1	Bangladesh Red Crescent Society	Institute of Water and Flood Management
2	Moghbazar, Dhaka	
3	Poverty reducution, disaster preparedness and response	Water management research
4	A.S.M. Akram Secretary General (Acting)	Rezaur Rahman, Professor
5	684-686 Bara Maghbazar 1217 Dhaka (880) (2) 9330188 bdrcs@bangla.net	Bangladesh University of Engineering and Technology (BUET) Dhaka 1000, Bangladesh diriwfm@iwfm.buet.ac.bd
6	100	15
7	8	15
8	LAN with 30 nodes	LAN
9	Dial up, 11	Broadband
10	www.bdrcs.org	www.buet.ac.bd
11	10	1
12	(880) (2) 9352303/8311908	shares with BUET
13	Many	
14	20	
15	80%	
16		n
17		n
18		n
19		n
20		n
21		n
22	Mustafa	Mustafa
23	3-May-06	4-May-06

Appendix F Local Level Institutional ICT Capacity Data

CDMP DMIC Needs Assessment

1	Institution:	Livestock	Information Office	Relief and Rehabilitation Office	Panpatti Union Parishad
2	Address:	Patuakhali	Collectorate Building , 2nd floor	Collectorate Building , 2nd floor	Mid-Panpatti, Galachipa
3	Purpose:		Information	Relief and Rehabilitation	Local government
4	Contact:	District Live stock Officer	Senior Information Officer	Md. Harun ur Rashid, R.R Officer	Sekander Haolader, Member
5	Tel, email	0441-62582, 0176174427	0441-62460, 0175613864	0441-62394, 0176794599	
6	Number of staff:	5 (4+1)	15(14+1)	6	23(20+3)
7	No. computers	1	1	1	n
8	network?	n	n	n	n
9	Internet?	n	n	n	n
10	Web site?	n	n	n	n
11	land phones?	1	1	y	n
12	fax?	1	n	1 (o/o)	n
13	mobile phones?	3	4	y	5
14	Institutional Mobile %:				
15	personal mobile %:	100%	100%	100%	100%
16	VHF/UHF sets?	n	n	n	n
17	VHF/UHF network?	n	n	n	n
18	HF network?	n	n	n	n
19	point-to-point HF link?	n	n	n	n
20	HF transceivers?	n	n	n	n
21	Licensed operators?		n	n	n
22	Database? Accessible to others?	n	n	n	n
23	Data sharing?	y	y	y	y
24	Type of data?	What type of Cyclone?		direction of Cyclone	Destination of shelter
25	Data by Phone Link?	y	y	y	y
26	Your role? Any suggestion ?:	n	n	n	n
27	Field Researcher	nahid	nahid	nahid	nahid
28	Date:				

1	Project Implemantation Office	UNO Office	Panpatti Union Parishad	Save the Children	Deputy Director (Agriculture)	District Education Office
2	Galachipa, Patuakhali	Galachipa, Patuakhali	Galachipa, Patuakhali	Galachipa, Patuakhali	Khamarbari, Patuakhali	Patuakhali
3	Implemantation		Local government	Food, Sanitation, Health & Disaster	Agriculture	Education
4	A.B.M. Siddik	Mesbah Uddin, UNO	Md. Shamsuzzaman, Chairman	Gopi Nath Roy, Programme Officer	S.M. Nazrul Islam	Md. Anwar Hossain, District Education Officer
5	0188219205	04424-56201	04424-56171, 0188156742	0179661545	0172172674	0441-62418, 0176272827
6	2	17(16+1)	24(21+3)	18(13+5)	45(43+2)	13
7	n	2	n	1	3	4
8	n	n	n	n	n	n
9	n	n	n	n	n	n
10	n	n	n	n	n	n
11	n	1	n	n	2	1
12	n	1	n	n	1	n
13	y	12	3	16	5	7
14						
15	100%	100%	100%	100%	100%	100%
16	n	n	n	n	n	n
17	n	n	n	n	n	n
18	n	Bangladesh	n	n	n	n
19	n	n	n	n	n	n
20	n	100	n		n	n
21	n	n	n	n	n	n
22	n	n	n	n	n	n
23	n	y	n	y	n	n
24		Preparedness & direction of cyclone				n
25	y	y	y	y	y	y
26	need Manpower, Phone, Fax, PC	via Internet	n	need Fax	needs Wireless, metroloical data.	needs network
27	nahid	nahid	nahid	nahid	nahid	nahid
28						

1	Upazilla Engg. Office	Cyclone Prep. Prog. (CPP)	Dakhin Panpatti Kharida Primary School	Statistics Office	Public Health & Engg. Department
2	Galachipa, Patuakhali	Couurt Building, Galachipa, Patuakhali	Kharida, Panpatti, Galachipa, Patuakhali	Naogaon Sadar	Manda, Naogaon
3	Local Govt.	Cyclone Preparedness and response	Education		Supply of sanitation and drinking water
4	Shushanta Ranjon Roy	Md. Shahabuddin Mia, Asst. Director	Abdul Mannan, Head Master	Md. Harun Or Rashid	Md. Aminul Islam, SAE
5	04424-56330, 0188176433	04424-56354, 01722486490			
6	18	5	8(7+1)	3	6
7	2	n	n	n	n
8	n		n	n	n
9	n	n	n	n	n
10	n	n	n	n	n
11	1	1	n	n	n
12	n	n	n	n	n
13	9		n	3	1
14					
15	100%	100%		100%	100%
16	n	y	n	n	n
17	n	35 sq.km	n	n	n
18	n	1, Galachipa	n	n	n
19	n	n	n	n	n
20	n	y	n	n	n
21	n	n	n	n	n
22		n	n	Conventional records, within departments	Conventional records
23		y	n	Share with Agri, DRRO, Area Office	with district office
24		By mobile and Fax	Direction of Cyclone, strength & coverage		Water & sanitation
25	y	y	n	y	y
26	need Internet, Fax	need Mobile phone and Fax	Cyclone info for preparation & response		
27	nahid	nahid	nahid	Saifullah	Saifullah
28				22/3/06	22/3/06

1	Barendra Multipurpose Dev Authority	Public Health & Eng. Department	BADC	Statistics Office	Bangladesh Rural Development committee	DRR office
2	Naogaon	Naogaon	Naogaon	Manda, Naogaon	Naogaon	Naogaon District
3		Supply of sanitation and drinking water	Production & sale of seed		Credit, nutrition, agriculture	relief, rehabilitation and other activity
4	Md. Shamsul Huda	Md. Ataur Rahman	Md. Afzal Hossin	Shudarshan Kumer Pramanik	Md. Shirajul Islam	Md. Rafiqul Islam, DRRO,Naogan
5	0741-52179	0741-5267	0741-52941		0741-53006	0741-52287
6	13	8	5	3	15	6
7	2	2	n	n	y	ν
8	n	n	n	n	n	ν
9	n	n	n	n	n	ν
10	n	n	n	n	n	ν
11	1	1	1	n	1	
12	n	n	n	n	1	ν
13	9	4	3	n	15	2
14					7%	
15	100%	100%	100%		93%	100%
16	n	n	n	n	n	n
17	n	n	n	n	n	n
18	n	n	n		n	n
19	n	n	n	n	n	y
20	n	n	n	n	n	y
21	n	n	n	n	n	y
22	Some	Conventional records, yes.	n	n	Some records	y
23	with DD Agriculture	with PIO, DRRO		if agreed by authority	if agreed by authority	
24		Area affected			Loss, How many	
25	y	y	y			y
26						Training for Phone link
27	Saifullah	Saifullah	Saifullah	Saifullah	Saifullah	Saifullah
28	23/3/06	21/3/06			23/3/06	

CDMP DMIC Needs Assessment

1	Upazilla agriculrure office	Project implement Office	Kusumba Union Parishad	Tatulia Union Parishad	DWAO
2	Manda upazila, Naogaon	Manda upazila, Naogaon	Manda upazila, Naogaon	Manda upazila, Naogaon	Jamalpur
3	enhance crop production & other ag activity	relief and rehabilitation activity			Women & Children
4	Md. Nuruzamman Sarker, U. A. officer, Manda , Naogaon	Easin Ali, PIO, Manda, Naogaon	Md. Mokbul Hossain Paramakin, Chairman,	Md. Sayedur Rahman, Chairman,	Nasrin Jahan, DWAO
5	52015-25				0981-634141, 0172473540
6	48	2	24	24	12
7		ν	ν	ν	1
8	ν	ν	ν	ν	n
9	ν	ν	ν	ν	n
10	ν	ν	ν	ν	n
11	l	ν	ν	ν	1
12	ν	ν	ν	ν	n
13	48	1	4	6	6
14					
15	100%	100%	100%	100%	100%
16	n	n	n	n	n
17	n	n	n		n
18	n	n	n	n	n
19	n	n	n	n	n
20		n	n	n	n
21	n	n			n
22	traditional system /file. If others want.	data as file and to DRRO, UNO.	No database. Available to UnO or PIO offices.	Can share.	VGD & damage related data in file
23	if official procedure maintained then we used it.	collect data through union parishad.	collect data from UP members and share it with PIO and NGOs.	Share if officially approved	y
24		Prediction, Vulnerability, Damage, relief, rehabilitation actions	Prediction information, relief and rehabilitation measures	Prediction information, relief and rehabilitation measures	In emergency, Health, food, medicine and relief related data
25	y	y	y, if permitted	y	y, training req'd
26	need phone, email, wireless, geolog. survey	awareness, info by mobile /more available		logistic and technical support by GoB	
27	khalid	khalid	khalid	khalid	Muzahid
28					21/3/2006

1	Dept. of Agriculture Extension	Upazilla Women affair's Office	Upilla Live Stock Office	Project Implemantation Office	BURO,Tangail
2	Jamalpur	Sarishabari	Sarishabari	Upazilla Parisad, Sarishabari	Station Road, Sharisha Bari, Jamalpur
3	Agriculture	Women & Children	LiveStock	Project Implemantation & oyhers	Micro Finance and Other Program
4	Md. Bashir Uddin, DD	Kamrunnahar, UWAO, Snigdha Chanda	Dr, Wahidul Islam, Vetenary Surgeon	Md. Hamidul Hoq, PIO	Md. Samiul Islam (Branch Manager), BURO, Tangail
5	0981-63344, 0175-937989	0176094545, 0176033681	09827-56080, 0177-987192	0171-336478	0175193898
6	40	4	11	2	9
7	4	n	n	n	n
8	n	n	n	n	n
9	n	n	n	n	n
10	n	n	n	n	n
11	5	n	n	n	n
12	1	n	n	n	n
13	5	2	6	1	y
14					20%
15	100%	100%	100%	100%	80%
16	n	n	n	n	
17	n	n	n	n	n
18	n	n	n	n	
19	n	n	n	n	n
20	n	n	n	n	
21	n	n	n	n	n
22	In computer & office file	In office file	In office file	In office file	Disaster related data only prog. period
23	y	y	y	y	
24	affected land, crops damage, prediction of flood/ water level, rain,	relief &rehabilitation info	damage data, flood prediction and flood duration	damage data, flood prediction and flood duration	Damage Information
25	y, training required	y, training required	y, training required	y, training required	
26	Info about rehab activities needed.		rehab equip. like boat, vehicles required	extra unit & mitig team with equip & training.	need flood prediction and damage report
27	Muzahid	Muzahid	Muzahid	Muzahid	Muzahid
28	22/3/2006	23/3/2006	24/3/2006	23/3/2006	

1	DRRO	RDRS, Bangladesh	Agricultural Office	BRAC	PIO
2	Dist. Relief & Rehabilitation Office, Lalmanirhat	??	Hatiabandha, Lalmonirhat	Hatiabandha	Hatiabandha, Lalmonirhat
3		Social improvement			
4	DRR Officer	RDRS Officer	Mr. Shasty Chandra Roy, Agr. Extn Officer	Mr. Altaf Hossain, Area Manager	Md. Abdul Khaleq (Office Assistant)
5	059161386(off), 0171865987(per)	61542 (0591)	,0178282959	,0176147395	,0178616552
6	6	284	35	62	2
7	n	9	n	1	n
8	n	y	n	n	n
9	n	n	n	y	n
10	n	n	n	n	n
11	1	4	1	n	n
12	n	1	n	n	n
13	y	120	15	25	2
14		10%		40%	
15	100%	90%	100%	60%	100%
16	n	n	n	n	n
17	64 country wide	n	n	n	n
18	n	n	n	n	n
19	n	n	n	n	n
20	n	n	n	n	n
21	n	n	n	n	n
22	hand written	Disaster information sends to head office & district office. Then they send other organization	Other institute can get this realeted information	Not accessible to others	Collect inforation & share it with others
23	number of affected during emergency	Guiding normal Union Level target group	Essential to know how much area flooded	List of affected people	sometimes info to NGO/RDRS etc.
24	Weather forecast				
25	y	y, will get good result		y, but if facility	y, but facilities ?
26	Improve information system,PC will help	Use mobile to share data -GOB & NGO			for time / flexibility of data computerised system
27	Siddique	Siddique	Siddique	Siddique	Siddique
28	14/3/06	14/3/06	15/3/06	15/3/06	15/3/06

1	Upazilla Statistics Office	BROB (UCC AID)	District Information Office	TMSS	Gangachara Jute P. Office	UNO Office
2	Hatiabandha, Lalmonirhat	Hatiabandha, Lalmonirhat	Mission Road, Lalmanirhat	Kuratari, Lalmanirhat	Gangachara, Rangpur	Gangachara, Rangpur
3			Govt.Publicity	Women right and poverty elevation		
4	Md. Abdus Salam	Md. Anwarul Karim, Asst. Village Development Officer	Md. Mohsin Reza, Dist. Information Officer	Md. Abdur Razzak, Section Manager	Nargis Bau	Md. Siddiqur Rahman
5			0591-61466	0178639156	01716205042	0521-63029, 0521-63080
6	2	16	7	10	26	12
7	n	n	n	n	1	1
8	n	n	n	n	n	n
9	n	n	n	n	n	n
10	n	n	n	n	n	n
11	n	n	1	n	n	n
12	n	n	n	n	n	n
13	n	3	3	2	5	4
14	n			50%		
15	n	100%	100%	50%	100%	100%
16	n	n	n	n	n	n
17	n	n	n			
18	n	n	n	n	n	n
19	n	n	n	n	n	n
20	n	n	n	n	n	n
21	n	n	n	n	n	n
22	n	n	n	n	n	n
23	Lack of man power, we can get info	n	n	n	y	y
24						
25	y, but communication gap	n	y, Govt. should encourage	Facility not available	y	y
26		Govt.should create employment	PC and Internet required	Local representative in policy		
27	Siddique	Siddique	Siddique	Siddique	Md. P. Reza	Md. P. Reza
28	16/3/06	16/3/06	23/03/06	23/03/06		

1	BRDB	District Women Affairs Office	Peoples Oriented Program Impln. (POPI)	LGED Office	LGED Office	Proshika
2	Gangachara, Rangpur	Rangpur	Rangpur	Gangachara, Rangpur	Gangachara, Rangpur	Milon Moar, Shirajgonj
3		Women Affairs	Women Affairs	Women Affairs	Women Affairs	Microcredit, Health, Training, Plantation
4	Md. Abul Fazal	Shamim Ara Begum, Dist. W.A Officer	Rashidul Islam	Md. Bashir Uddin Sarkar, SAE	Md. Bashir Uddin Sarkar, SAE	Amerat Hossain, Area Manager
5	0521- 65628	0521- 62404	0171467937	0521-65995	0521-65996	0751-63281
6	7	15	10	20	20	5
7	1	1	n	1	1	1
8	n	n	n	n	n	n
9	n	n	n	n	n	n
10	n	n	n	n	n	n
11	n	2	3	1	2	1
12	n	n	n	n	n	n
13	2	5	3	3	3	5
14						
15	100%	100%	100%	100%	100%	100%
16	n	n	n	n	n	n
17						
18	n	n	n	n	n	n
19	n	n	n	n	n	n
20	n	n	n	n	n	n
21	n	n	n	n	n	n
22	n	n	n	n	n	files
23	y	y	y	y	y	y, with other organization
24						
25	y	y	y	y	y	y, need training
26						need ahead info, facilities NGOs suitable.
27	Md. P. Reza	Md. P. Reza	Md. P. Reza	Md. P. Reza	Md. P. Reza	Shafiqul
28						22.03.06

1	No. 5 Khokshabari Union Parishad	BDRB	BRAC	SHARP	ASA
2	Khokshabari union 5, Shirajgonj	Upazilla parisad Shirajgonj	Circuit House, Shirajgonj	Fakirtola Poly Tech Instiute, Khoksabari, Shirajgonj	Masimpur (Mousuma Hall), Shirajgonj
3	Activities of Union Parishad	DRRO teport, visit to field	Microcredit, Edu, Training, women affairs	Disaster, Microcredit, sanitation	Microcredit, Health, Training
4	Md. Shahadat Hossain, Secy, Union Parishad	Md. Abdus Salam	Md, Alauddin	Md. Golam Kibria/ Quamrul Islam	Md, Monowar H. Fakir, Office Asst. & PC Operator
5		1715162949	01751-62509, 0174-122019	0175164312, 017151-63150	asasiraj@bttb.net.bd 0751-64315
6	11	9	35	16	12
7	1	2	1	4	1
8	n	n	n	y	n
9	n	n	n	n	n
10	n	n	n	www.sharpbd.org	n
11	n	1	1	1	1
12	n	n	1	n	n
13	1	1	30	12	8
14			23%		
15	100%	100%	77%	100%	100%
16	n	n	n	n	n
17					
18	n	n	n	n	n
19	n	n	n	n	n
20	n	n	n	n	n
21	n	n	n	n	n
22	files	files	files	files and computers	some data in files
23	y, with other organization	y, with other organization	y, with others	y, with others	y, with others
24	true data neded	Erosion area map/data neded	Erosion area map/data neded	Information reqiuired ahead, quickly during emergency	erosion related data
25	y, need training	y, need training	y, need training	y, need training	y, need training
26	True data neded, Internet and phone needed	Fax, information needed early	info by mobile, Internet, required ahead	Personal radio system, mobile, Internet needed	Correct info, facilities required, well ahead
27	Shafiqul	Shafiqul	Shafiqul	Shafiqul	Shafiqul
28	23.03.06	22.03.06	23.03.06	23.03.06	21.03.06

Appendix G Community ICT Capacity Data

CDMP DMIC Needs Assessment

1	Name of respondent:	Md. Ruhul Kuddus	Md. Zakir Husain	Md. Mizanur Rahman	Md. Shahjahan Mullah	Md. Idris Miah	Ansar Ali Peda
2	Location/ Address:	Chatlakhali, Baherchar, ChotoBaishdi, Galachipa	Charmontaz, Galachipa	PIO office, Galachipa	Ratanpur, Galachipa	Panpatti, Galachipa	Panpatti, Galachipa
3	Vocation:	UP Member	UP Secretary	Office Asst.	Carpenter	Business (fish)	Farmer
4	Gender	M	M	M	M	M	M
5	Age (years) :	34	32	42	58	46	45
6	Own a mobile phone?	y	y	y	n	n	n
7	Have you access to a mobile phone?	y	y	y	y	y	y
8	Monthly mobile phone expense?	300	900	600		50	70
9	How do you charge your phone battery?	Generator at Bazar	Solar power	AT Govt. Quarter			
10	Have TV?	n	n	y	n	n	n
11	Have access to a TV?	y	y	y	n		n
12	How often watching?	1/2	3	1/2			
13	When?	at night		at night			
14	Have am/fm radio?	n	y	n	n	y	n
15	How often listening?		2			1	
16	When listen to radio?					morning & night	
17	Do you have Internet access? Speed?	n	n	n	n	n	n
18	have VHF/UHF sets?	n	n	n	n	n	n
19	Access to Repeater?	n	n	n	n	n	
20	have HF Transceiver?	n	n	n	n	n	n
21	licensed radio Operator? Call sign?	n	n	n	n	n	n
22	read /write Bangla?	y	y	y	n	y	n
23	Read English chars?	y	y	y	n	y	n
24	Would take part in disaster mitigation activities? How?	y, member of Red Creseant, awareness	Awareness generation, Miking, Drum beating		Awareness generation	Awareness generation	To inform public
25	Would submit disaster related data by SMS?	y	y	y			n
26	Suggestions?			Training necessary			
27	Field Researcher	Nahid	Nahid	Nahid	Nahid	Nahid	Nahid
28	Date:						

CDMP DMIC Needs Assessment

1	Md. Mizanur Rahman	Abdul Aziz Hawlader	Md. Babul Haolader	Md. Idris Sikder	Md. Mizanur Rahman	Mojibor Rahman	Kari Md. Maznu	Md. Abdur Rab Haolader
2	Panpatti, Galachipa	Panpatti, Galachipa	Gupter Haola, Panpatti, Patuakhali	Kharida, Panpatti, Galachipa, Pauakhali	Kharida, Panpatti, Galachipa,Pauakhali	Kharida, Panpatti, Galachipa Pauakhali	Kharida, Panpatti, Galachipa, Pauakhali	Kharida, Panpatti, Galachipa,Pauakhali
3	Teacher	Farmer	Fisherman	Fisherman	Farmer	Farmer	Imam	
4	M	M	M	M	M	M	M	M
5	39	60	35	45	40	39	38	60
6	n	n	n	n	n	n	n	n
7	y	y	y	y	y	y	y	y
8	60	150	300	50	40	100	70	300
9								
10	n	n	n	n	y	n	n	n
11	y	n	n	y	y	y	n	n
12	1		n	1	1/2	2	n	
13	at night			at night	at night	afternoon		
14	y	n	n	y	y	n	n	n
15	1		n	1	1/2			
16	at night			at night	at night			
17	n	n	n	n	n	n	n	n
18	n	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n	n
21	n	n	n	n	n	n	n	n
22	y	y	y	y	n	y	y	y
23	y	y	y	y	n	y	y	n
24	y, awarenes s	To inform public	Awareness & Rescue program	Awareness	Awareness & voluntary service	Voluntary service	Informs in the mosque everyday	No, old.
25	n	n	n	y, but no phone	y, but no phone	n	n	n
26			Information Centre is necessary			Powerful signal is necessary		
27	Nahid	Nahid	Nahid	Nahid	Nahid	Nahid	Nahid	Nahid
28								

CDMP DMIC Needs Assessment

1	Md. Al Amin	Md. Babul Gazi	Muslem Matbar	Md. Nazrul Islam	Md. Ismail Hossain	Md. Nasiruddin	Md. Shamsul Alam	Md. Babul Hossain
2	Kharida, Panpatti, Galachipa, Pauakhali	Kharida, Panpatti, Galachipa, Pauakhali		Hazi Gobidhapur , Kusumba Manda, Naogaon	Volam, Mandha, Naogaon	Shahapur	Check Sapail, Tatulia , Manda, Naogaon	Savail, Tatulia , Manda, Naogaon
3	Teacher	Farmer		Van Puller	Business & agriculture	Agriculture	agriculture & bussiness	agriculture
4	M	M	M	M	M	M	M	M
5	20	40	70	28	28	40	48	35
6	n	n	n	n	n	n	y	n
7	y	y	y	y	y	y	y	y
8	300	150	100	50	200	200	300	300
9								
10	y	n	n	n	n	n	y	y
11	y	y	n	y	y	n	y	y
12	1/2	1/2	n	1/2	1/2		1	2
13								
14	y	n	n	n	y	n	y	y
15	2	1/2		1/2	1/2	1/2	2	3
16	morning & night							
17	n	n	n	n	n	n	n	n
18	n	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n	n
21	n	n	n	n	n	n	n	n
22	y	y	y	n	y	y	y	y
23	y	y	y	n	n	n	n	y
24	Awareness & voluntary service	Awareness during emergency	Inform during emergency	y, Rescue, Volunteer	Volunteer	Volunteer	info delivery, rescue, rehab	Local volunteer
25	y, need phone	n		n	y	n	y, need phone	y, need phone
26							Need training	Need training
27	Nahid	Nahid	Nahid	Saifullah	Saifullah	Saifullah	khalid	khalid
28				25/3/06	24/3/06	24/3/06		

1	Mst. Aklima	Bishu	Md. Abdul Mazid& Shamsul Hoque	Shafiqul Islam & Bablu	Rakib-uzzaman	Monjurul	azharuddin
2	Savail, Tatulia, Manda, Naogaon	Monarpara, Binafor Union, Ajgol Digha, Sarisabari	Sonakanda , Soakoir, Sarisabari	Boyna, Rudra Boyna, Pugol Digha, Sarisabari	Chanpara, Binnafor, Pugol Digha, Sarisabari	Ramchandr akhali, Pugol Digha, Sarsabari	Hasa Monzaila, Caparkona, Duail, Sarisabari
3	Women's member UP	Agriculture	Agriculture & Jute Labour	Agriculture	Student	Agriculture	Agriculture
4	F	M	M	M	M	M	M
5	40	40	40	32	23	33	66
6	n	n	n	n	y	n	n
7	y	y	n	n	y	n	n
8	300				600		
9					at residence		
10	n	n	y	n	n	y	n
11	y	y	y	n	y	y	n
12	1/2	3	2	3	1	1	
13		Night		y	n	Night news	
14	y	n	y	y	n	n	n
15	2		2	1/2			
16				Night			
17	n	n	n	n	n	n	n
18	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n
21	n	n	n	n	n	n	n
22	y	y	y	y	y	y	n
23	n	y	y	y	y	y	n
24	Volunteer rescue, rehab, women's affairs	n	y, info about affected people	y, physical support	y, affected people selection	y	y
25	Need phone	y, training required	y, training required	y, training required	y, training required	y	y
26				Want Mobile, fax	need info training		
27	khalid	Muzahid	Muzahid	Muzahid	Muzahid	Muzahid	Muzahid
28		24/3/2006	24/3/2007	25/3/2008	25/3/2009	25/3/2010	25/3/2011

CDMP DMIC Needs Assessment

1	Liton	Hafizur Rahman	Khatib Uddin	Shayanti Rani	Md. Ataul Gani	Jamal Uddin	Sotendronath Ray
2	Char Dasher Bari, Shataria/ Shat Poa, Sharisha Bari	Char Dasher Bari, Shataria/ Shat Poa, Sharisha Bari	Sinduna, Hatibanda, Lalmanirhat	Sinduna, Hatibanda, Lalmanirhat	Ward-2, Patikapara Union, Hatibanda, Lalmanirhat	Ward-3, Patikapara Union, Hatibanda	North Haldi Bari, Minduna union
3	Ag	College Teacher	Chairman	Commissio ner	Agriculture	Agriculture	Teaching
4	M	M	M	F	M	M	M
5	20	31	42	32	45	69	65
6	n	y	y	n	y	n	y
7	y	y	y	y	y	n	y
8		300	1200		600		300
9		Market	self		Home		shop
10	n	n	y	y	y	n	n
11	n		y	y	y	n	y
12	3	1/2	1	2	2	1	1
13							News time
14	n	n	n	y	n	n	n
15				2		1/2	n
16				Any time		Any time	n
17	n	n	n	n	n	n	n
18	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n
21	n	n	n	n	n	n	n
22	y	y	y	y	y	n	y
23	y	y	y	y	y	n	y
24	Voluntary Service if necessary	List flood effect people, relief	Discuss with others, find out ways	y	y, In rescue and relief	y, I wish to but over age	rescue, data collection
25	n	y, but do not know how to do	y, appears useful		y, to be shown	n	y
26	need flood prediction 15/30 days before flood	need flood prediction	Control erosion, flood, monga.				Make DMIC to collect proper information from people
27	Muzahid	Muzahid	Siddiq	Siddiq	Siddiq	Siddiq	Siddiq
28			17/3/06	17/3/07	22/3/06	24/3/06	24/3/06

1	Md. Fajlu	Ajijul Ishlam	Md. Akmal Hossain	Md. Khairujjaman	Md. Nizam Uddin	Md. Ekram	Abdur Rashid	Md. Rahim Boksh
2	Ward-3, Patikapara Union, Hatibanda	Ward-3, Patikapara Union, Hatibanda	NorthParulia, Patika Para Union, Hathibandha, Lalmonirat	Goddimari, Hatibandha, Lalmonirhat	East Shinduna, Lalmanirhat	Bara Bil, Gangachara, Rangpur	Thakuradah, Bara Bil, Gangachara, Rangpur	Bara Bil, Gangachara, Rangpur
3	Electrician	Hotel labour	Daily labour		Service	Labour	Business	Agriculture
4	M	M	M	M	M	M	M	M
5	42	37	35	33	50	27	38	60
6	n	n	n	n	n	n	n	n
7		n	n	n	n	y	y	y
8						100	900	100
9								
10	n	n	n	n	n	n	n	y
11	n	n	y	y	n	n	y	y
12		1	1			1/2	1/2	2
13		News time	evening	Eve & Night				
14	n	n	n	n	y	n	y	
15	n			n	1		1/2	
16	n	n	n	n	At News			
17	n	n	n	n	n	n	n	n
18	n	n	n	n	n	n	n	n
19	n	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n	n
21	n	n	n	n	n	n	n	n
22	n	y	n	n	y		y	y
23	n	n	n	n	y		n	n
24	Volunteer	Volunteer	Volunteer	Volunteer		Providing information	collect data and inform	
25	n	n	n	n		y	y	
26	free medical, food distribution during flood							
27	Siddiq	Siddiq	Siddiq	Siddiq	Siddiq	Md. P. Reza	Md. P. Reza	Md. P. Reza
28	24/3/06	25/3/06	25/3/06	22/3/06	17/3/06			

1	Piara Begum Akhand	Md. Hadayet Ullah	Md. Abdur Razak Master	Md. Liton
2	Ward 5, Natunpara, Khoksabari, Shirajgonj	Ward 5, Natunpara, Khoksabari, Shirajgonj	Khaliakura, 0172-351542, 0172-677566	Shailabari Puran Moza, Khoksabari, Shirajgonj
3		UP Member	Retired	
4	F	M	M	M
5	45	50	65	25
6	n	y	y	y
7	y	y	y	y
8	300	600	600	600
9	at house	other's house	other's house	at house
10	y	n	n	y
11	y	n	n	y
12	1	1	1	2
13				
14	y	y	y	y
15	1	1	1	1
16				
17	n	n	n	n
18	n	n	n	n
19	n	n	n	n
20	n	n	n	n
21	n	n	n	n
22	y	y	y	y
23	y	y	y	n
24	y, exchange of info	y, want to join	y, want to join	n
25	y	y, training required	y, prctice required	y, prctice required
26	Mobile needed, correct & 3 weeks ahead information	Dam required, information 3 weeks ahead	Dam required, information 3 weeks ahead	information ahead, need training
27	Shafiqul	Shafiqul	Shafiqul	Shafiqul
28	24/3/06	24/3/06	24/3/06	25/3/06

Appendix H Local level information source locations

River flood

District	Upazila	Union	Village/ mouza/ para
Jamalpur	Sarishabari	Pingna	Nalsunda
		Bhatara	Fulbaria Madhyapara
		Duail	Chaparkona
		Kamrabad	Sonakanda
		Awna	Kumarpara
		Mohadhan	Bongram
		Pugaldigha	Binna Phor
			Rudra Boyra
		Satpoa	Char Sarishabari
		Sarishabari Pourashava	Izara Para

Flash Flood

District	Upazila	Union	Village/ mouza/ para
Moulavibazar	Sreemangal	Kalapur	Baruna
			Hazipur
		Ashidron	Uttar Jamshi
			Harin Ghata
		Bhunbir	Bhunbir Pashchimpara
			Bhunbir Purbapara

Riverbank erosion

District	Upazila	Union	Village/ mouza/ para
Sirajganj	Sirajganj Sadar	Sirajganj Pourashava	Putiabari
			Raipur
			Roia Bari
		Khoksa Bari	Khoksa Bari
			Gonergati
			Shoilabari
		Ratan Kandi	Ratan Kandi
	Kazipur	Subhagachha	Subhagachha
			Boyrabari
			Ghati Subhagachha
		Natuar Para	Rehaisuriber Rehaisuriber (Purbo Para)
Faridpur	Faridpur Sadar	Digrir Char	Dhalar Mor
			Digrir Char
		North Channel	Tepra Kandi
			Boren Bishwas Dangi
		Faridpur Sadar	Bhajan Dangi
		Lakshmipur	Bhati Lakhsmipur
		Aliabad	Baitul Aman
		Ambikapur	Chhira Dangi
	Char Bhadrasan	Gajir Tek	Hajiganj
			Char Omodhya
		Char Bhadrasan	Badla Matabbar Dangi

CDMP DMIC Needs Assessment

Drought

District	Upazila	Union	Village/ mouza/ para
Chapai Nawabganj	Nachole	Nachol	Benipur
			Shibpur
			Kalahar
		Kashba	Kashba
			Gola Bari
		Nizam Pur	Bokultala
			Hatbakol

Monga

District	Upazila	Union	Village/ mouza/ para
Lalmonirhat	Hatibandha	Gaddimari	Dakhsin Dhaperhat
			Dhalaitari
			Kochuar Par
		Sindurna	Purba Sindurna
			Dakhsin Sindurna
			Holdibari
			Uttar Holdibari
		Patikapara	Uttar Parulia
			Dakhsin Parulia
			Patika Para
		Barokhata	Purbo Satdubi
Rangpur	Gangachara	Gangachara	Dhamur
			Bhotki
		Barobeel	Barobeel
			Thakuradaha
			Dakhsin Panapukur
			Ghaghattari
		Nohali	Purbo Kochua
		Kolkond	Dakhsin Kolkond
			Pirerhat
			Saot Para
			Master Para

Cyclone

District	Upazila	Union
Patuakhali	Galachipa	Panpotti
		Chalitabunia

Appendix I Institutions Covered at the Local Level

River Flood

Level	Institution
District	Women Affairs Office
	Agriculture Extension Office
	Relief and Rehabilitation Office
	Statistics Office
	BWDB
Upazila	UNO Office
	Family Planning Office
	Statistics Office
	BRDB
	PIO Office
	Livestock Office
	Fisheries Office
	Public Health Office
	Women Affairs Office
	BURO, Tangail (NGO)
Union	Union Parishads

Flash Flood

Level	Institution
District	Food Office
	Agriculture Extension Office
	Relief and Rehabilitation Office
	Information Office
	Statistics Office
	BWDB
Upazila	UNO Office
	Agriculture Office
	Engineer's Office
	Food Office
	PIO Office
	Livestock Office
	Fisheries Office
	Women Affairs Office
	Statistics Office
	KARITAS (NGO)
Union	Union Parishads

Riverbank erosion

Level	Institution
District	Women Affairs Office
	Relief and Rehabilitation Office
	Statistics Office
	BWDB
	BRDB
	Roads and Highway Department
	Agriculture Extension Office
	Land Office
	LGED
	Education Office
	BRAC (NGO)
	ASA (NGO)
	PROSIKA (NGO)
	SHARP (NGO)
	World Vision Bangladesh (NGO)
Upazila	UNO Office
	Fisheries Office
	Agriculture Office
	Engineer's Office
	Livestock office
	Education Office
	PIO Office
	Statistics Office
	PROSHIKA (NGO)
Union	Union Parishads
	Ratankandi Market Committee
	Faridpur Development Agency (NGO)

Drought

Level	Institution
District	Agriculture Extension Office
	Food Office
	Statistics Office
Upazila	UNO Office
	BRDB
	Women Affairs Office
	Statistics Office
	KARITAS (NGO)
	Trinomul (NGO)
Union	Union Parishads

Monga

Level	Institution
District	Food Office
	Relief and Rehabilitation Office
	Information Office
	Women Affairs Office
	Agriculture Extension Office
	BADC
	BRDB
	LGED
	Statistics Office
	RDRS (NGO)
	TMSS (NGO)
Upazila	UNO Office
	Statistics Office
	Public Health Office
	Agriculture Office
	Women Affairs Office
	Food Office
	PIO Office
	BRDB
	TMSS (NGO)
	BRAC (NGO)
	POPI (NGO)
Union	Union Parishads

Cyclone

Level	Institution
District	Women Affairs Office
	Agriculture Extension Office
	Education Office
	Relief and Rehabilitation Office
	Information Office
	Livestock Office
	BRDB
Upazila	UNO Office
	Engineer's Office
	PIO Office
	Fisheries Office
	Women affairs Office
	Agriculture Office
	Education Office
	CPP
	Save The Children (NGO)
	Association for Disaster Mitigation and Development (NGO)
	ASA (NGO)
Union	Union Parishads
	Educational institutions

Appendix J Checklist for Local Level Hazard Information

Local level DMIC needs assessment checklist

1. Frequency and time of occurrence of the hazard

2. Damages caused by the hazard
    - homestead
    - agricultural crops
    - agricultural land
    - roads
    - bridges and culverts
    - embankment
    - market places
    - schools
    - medical centres
    - etc.

3. Problems caused
    - loss of lives
    - crop loss
    - shortage of food
    - health problems
    - disruption in communication
    - lack of employment
    - problems in irrigation
    - etc.

4. Information needs

    4.1 For preparation
    - what type of information needed
    - from whom information desired
    - in what form information needed
    - what use will be made of the information
    - whether any information received at present

    4.2 For response

    - what type of information needed
    - from whom information desired
    - in what form information needed
    - what use will be made of the information
    - whether any information received at present

    4.3 For rehabilitation
    - what type of information needed
    - from whom information desired
    - in what form information needed
    - what use will be made of the information
    - whether any information received at present

[1] "Hazards of Nature, Risks to Development", World Bank, 2006
[2] "Disaster Response Operating Procedures", DFID Bangladesh, September 2005
[3] http://ocha.unog.ch/virtualosocc
[4] "CDMP DMIC ICT Strategy", UNOPS, June 2006