



CDMP's contributions in improving Disaster Management Education and Training Facilities in Bangladesh

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Foreword

This document presents CDMP II interventions those have been implemented under outcome 1 that aims to strengthen academic and training institutions' capacity so that they can contribute in generating skilled disaster management professionals and play roles in critical knowledge generation. The interventions are examined and presented in such a fashion so that the analytical narratives can show how the activities implemented through partnerships with these institutions are aligned with newly adopted *paradigm shift* approach of disaster management in Bangladesh. It starts by giving contextual accounts against which the interventions were designed and implemented, then *paradigm shift* approach is analyzed as to locate entry points for interventions, followed by brief descriptions on specific interventions and finally an explanation is given how all these interventions meet into a point of convergence and contribute in the *theory of change*.

One of the major purposes of documenting the list of accomplishments is to demonstrate that overall capacity development of disaster management systems builds on a number of different but connected small interventions. In this connection it can be said that CDMP's facilitation to open new disaster management departments in the universities, infrastructural improvement, support with resource materials, providing stipend and research grants, support to hold workshops, seminars, conferences, introduction of disaster management lessons in primary and secondary level textbooks (32 million students are now accessing those knowledge and resources) all collectively contributed in developing a strong and well-managed disaster management education and training systems/facilities in Bangladesh. The benefits of these interventions are myriad. Major benefits may include, the country for the first time will receive continuous supply of skilled human resources in different fields of disaster management, the Ministry of Disaster Management and Relief (MoDMR) will receive better technical support from the pool of resources that are retained in the universities. Therefore it could be said that for long term sustenance of disaster management actions and endeavor of the government and non-government agencies to develop a resilient society to disasters, outcome 1 interventions will have strong and positive contributions. Finally, success in these regards mainly happened due to sincere efforts given by the partner agencies; they deserve big congratulations and thanks for this.

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Introduction

Disasters have been the main contexts for centuries for Bangladesh communities within which they have been adapting to the challenges for everyday living and gradually strengthen capacities to thrive. Even the state capacity has evolved based on the lessons learned from success and failures of disaster management actions and process. The Bengal Famine of 1943, severe consecutive floods in the years 1953, 1954, 1955, severe cyclone in 1970, famine again in eighties (1974) due to Brahmapurta flooding and crop failure, widespread and prolonged floods in 1987, 1988, cyclone stricken in 1991, then cyclone Sidr in 2007 and Aila in 2009 are known all big triggering events in Bangladesh disaster history for the past half century. Although these events caused huge miseries in the lives of people but at the same time managing these events had been the opportunity for the people, state agencies and professionals to gain knowledge, experience that gradually assisted to developed nation's disaster management capacity. This is also true that state was not successful in all the cases, in terms of technical capacity and resource mobilization, to address the challenges. In these situations, donor and external partners extended their cooperation and attempted to assess the challenges and provided required support. Krug mission commissioned in 1957 by the United Nations to assess the causes of '53-'54-'55 floods and to propose the flood mitigation options, Flood Action Plan (FAP) developed by donor consortia immediate after '87-'88 floods are

two major examples where donor communities put serious efforts to help Bangladesh people to handle disasters more effectively. But the recommended interventions provided mixed results at the end. In these times disaster management had been considered as standalone activities relied heavily on relief and recovery operations, which has gradually been progressed to emerge as disaster risk reduction focused disaster management actions in current times.

This brief disaster account mentioned above got two dimensions, (i) physical contexts that act as spawning grounds of disasters and (ii) the way these have been managed. The relative location of Bangladesh in the context of Indian sub-continent, implementation of inappropriate development projects in the delta and flood plains, high concentration of population and growth of economic activities in high risk zones have contributed in making the factors right for making the country and her population vulnerable to disaster risks. This means the first dimension (i.e. the physical context of disaster occurrence) is still valid for Bangladesh, but significant improvements happened it managing disasters. It also suggests that Bangladesh will not be disaster free country in future and people of this country has accepted this hard fact and trying to devise tools and approaches so that people can live and thrive with disasters. But operational transformations from post-disaster recovery to pre disaster risk reduction



approach is not an easy and straightforward task, it rather requires serious lessons learning from the past disaster records and experiences, scale-specific, deep contextual risk assessments, critical examination of social dimensions of disasters, clear understanding about the impact situations and continuous monitoring of examination of approach and operation of agencies in handling disaster situations. The academic institutions and the training agencies got the right mandates to work in these domains in order to play roles like, (i) critical knowledge generation and inform the policy planners about the right set of choices to be made and (ii) contribute in producing new disaster management graduates and train and refresh existing professionals for better service delivery. In this backdrop, CDMP II considered that capacity enhancement of education and training institutions is the key to ensure strong disaster management capacities of the nation and therefore devote a major emphasis in this regard.

In this backdrop, this document highlights some key activities and results that Comprehensive

Disaster Management Programme (CDMP II) have implemented and achieved under its Outcome 1 coverage¹. Within the scope, Outcome 1 facilitated to implement a number of interventions in the field ranging from incorporating DRR in primary and secondary education curriculum to disaster management policy formulation activities at national level. CDMP has elapsed over a decade (2003 to 2014) in Bangladesh² and at this last leg of the project it becomes necessary to undertake a stocktaking exercise on what have been achieved by Thematic Area 1 popularly known as Outcome 1 (OC 1) and how activities under this component contribute in developing and strengthening the capacity of institutions so that the agencies and their professionals could act more effectively to apprehend, assess, manage disaster impacts both at national and local levels. However, a brief critical review has put at the beginning and then the key interventions are illustrated; this two stage discussion may help to settle the OC 1 activities within broader DM conceptual and activity framework.

¹ CDMP activities are spread over 6 outcome areas, where Outcome 1 focuses on developing and strengthening of professional and institutional network on disaster management in Bangladesh, please see more on <http://www.cdmp.org.bd/>.

² CDMP is a pioneer programme where it rolled out its activities at national level before the introduction of HFA1 in the international level.

Capacity gap of the institutions before CDMP II starts working in education and training sector

The project proposal of CDMP II gives space and elasticity that is comfortable enough to accommodate program components as per the situation demands. Accordingly CDMP undertook baseline assessments by employing Sunny Jagollis in 2010 to know the state of institutions which contributed in designing the approach and interventions in regards to professionalizing disaster management education in Bangladesh. His inventory results suggested that the institutional capacity to train and develop Disaster Management (DM) professionals and to contribute in generating critical knowledge in different fields of DM in Bangladesh is poor. He mentioned, *curriculum in academic institutions are overcrowded, expertise of the staff were not up to the mark, institutional commitments were weak, relationship with external stakeholders were minimum and financial viability feeble*. Jagollis (2010) also suggested giving emphasis on quality improvement aspects in the educational institutions so that these institutions can play important roles in professionalizing DM education in Bangladesh. The same observations are also reflected in other documents like Inception Report of CDMP II. It said that poor performance in research got a bearing on teaching quality in Bangladesh. This gap is also connected with poor quality publications. As a result of this capacity gap, all major national reporting requirements are still

carried out in Bangladesh through donor supports, in many instances by opening up a new project to develop the document. For example, the HFA report, the Second National Communication for UNFCCC, the SAARC Framework of Action (for better disaster management) all were developed through project supports, which could easily be produced by the DM professionals working in the universities and other related research institutions but that did not happen in recent times.

Standing on such a state, CDMP started working with educational institutions of Bangladesh as part of developing facilities and to strengthen in institutional capacities that can help to make a difference in DM teaching/training, education, research and publications. Based on the lessons learned and suggestions received from different corners, CDMP developed a plan to work starting from primary to tertiary education level; also in parallel work with public training institutions. Partnership was developed with Ministry of Education³ as well for making the effort more strong, comprehensive and effective. It was also considered/planned that once the institutions are developed and strengthened, a network of these institutions will be established (called Bangladesh Disaster Management Education Research and Training, *BDMERT*) so that it can work as a national

³ In order to work with different departments/agencies like National Curriculum and Textbook Board (NCTB), Board of Intermediate and Secondary Education, Bangladesh Bureau of Education Information and Statistics (BANBEIS).

Think Tank for Bangladesh in the field of DM and provide necessary support to the government and other parties.

It is important to note that CDMP II entered into the capacity building in disaster management through education sector in a time when the Government of Bangladesh and other stakeholders are passing through a transitional phase in disaster management in terms of approach and actions to handle disaster situations in more effective manner. This change in approach is widely referred in Bangladesh as a technical jargon *Paradigm Shift* in disaster management, where the main attributes could be of three kinds, i.e. (i) DRR (disaster risk reduction) has got the prominence, (ii) CCA options received strong foothold, (iii) integration among development, DRR and CCA have been strongly considered. It is imperative to mention that focusing on a number of areas like improving the legislative framework, risk analysis capacity, critical knowledge generation and sharing, innovative program design, better integration and mainstreaming are the prerequisites in translating the attributes of *Paradigm Shift* into real actions/benefits. CDMP II conceived that both capacity enhancements of the education and training institutions that current *Paradigm Shift* approach demands and the general gaps identified by Jagollis (2010) are the key entry points to tackle all the challenges mentioned above. However, before reporting to individual interventions where OC 1 worked, brief discussion on *Paradigm Shift* has given in the following sections. This narrative analysis may help to show and argue how different actions that CDMP II implemented finally converged and contributed to ensure strong and well developed professional institutions in Bangladesh that are able to implement a comprehensive range of risk reduction

Before CDMP started working in Bangladesh, the disaster management curriculums in academic institutions were overcrowded, expertise of the staff were not up to the mark, institutional commitments were weak, relationship with external stakeholders were minimum and financial viability feeble.

- Jagollis 2010

programs and interventions at the national level, as well as contributing to regional actions, international learning and best practice.



District (disaster information) resource centre

Paradigm Shift in disaster management and Relevance with Outcome 1

It is widely claimed and also globally recognized⁴ that an evolution in disaster management concepts/approach and related risk reduction actions/processes (e.g. policies, institutions, governance, volunteerism, partnerships etc.) have occurred in Bangladesh over the last few decades. Figure 1 lists the major emergency management activities those elapsed in Bangladesh since 1970s. The figure also shows how those activities gradually evolved from (disaster) event-specific, unilateral *response-recovery* mode to disaster risk reduction (DRR) focused multilateral and *comprehensive* mode of disaster management activities. The Figure illustrated, by depending on some characteristic attributes (e.g. approach, application of knowledge and technology, state of capacity, policy framework,

systems and processes), how fundamental changes have taken place in Bangladesh from the past (i.e. 1970-2000; conventional approach of disaster management) to comparatively recent times (i.e. 2000-2015; CDMP I started in 2003). As mentioned in the earlier sections that this change in disaster management is widely termed as *Paradigm Shift* in Bangladesh, borrowed from academic vocabulary. The borrowing was inevitable since the principles of *Theory of Change* primarily comes from the critical theoretical examinations and narratives expressed in the writings of DM scholars (e.g. Pressure and Release Model by Wisner et al. 1994, fundamental questions raised by Quarantelli 1998) which remain at the foundation of risk reduction planning and activities. In addition



References:

- Wisner, B., Blaikie, P. (1994). *At Risk: Natural Fayards, people's vulnerability and disaster*. Rout ledge. London.
 Quarantelli, E.L. (1998). *What is a disaster? Perspectives on the question*. Rout ledge. London.

⁴ Ban Ki Moons, the Secretary General of the UN lauded Bangladesh for success in disaster risk reduction for her communities. Visit <http://www.dhakatribune.com/bangladesh/2014/apr/20/ban-ki-moon-lauds-bangladesh>, accessed on 15 May 2014.

Major activities	Time	Attributes	
<p>CPP: Cyclone Preparedness Program formed in 1972: formation of early warning</p>	1970	<p>Key features of response and recovery based DM in Bangladesh</p> <p>Approach</p> <ul style="list-style-type: none"> - Relief and response activities after disaster occurrence was the main approach - Central Government operated; participation of stakeholders was minimum <p>Application of knowledge and technology</p> <ul style="list-style-type: none"> - DM was region focused, development of coastal embankments, Flood Control Irrigation and drainage projects were done using the then knowledge and technology. Public participation and proper assessment of physical systems were absent. <p>State of capacity</p> <ul style="list-style-type: none"> - Lack of capacity resulted to loss of hundreds of thousands of human lives <p>Policy framework</p> <ul style="list-style-type: none"> - Non-existent <p>Systems and processes</p> <ul style="list-style-type: none"> - Central government through district offices carried out relief/response activities 	
<p>Cyclone Shelter: Cyclone shelter based DM in 1980s. CPP spread over 11 coastal districts</p>			
<p>Government and Non-Government Cooperation: Government policy to add non-government resources with government funding boost up poverty and vulnerability reduction activities which helped the country to ensure declining trend in terms of human casualties and economic loss due to the occurrence of disasters.</p>			1980
<p>DMB: Creation of Disaster Management Bureau (DMB) in 1993</p>			1990
<p>Social Safety Net in Disaster Management: Government aligned its poverty reduction actions with disaster vulnerability issues. Vulnerable Group Feeding (VGF), Vulnerable Group Development (VGD), Gratuitous Relief (GR), Test Relief (TR) and alike more than 30 programs aimed to attain two-fold aim, i.e. poverty reduction and addressing community vulnerability.</p>	2000		
<p>CDMP I: CDMP I formulated and signed in November 2009. It focused on strengthening capacity of DM system to reduce risks and improve response and recovery activities. The program adopted all hazard, all risk, all sector approach and created a foundation for comprehensive method to address disaster impacts. Disaster Management Committees (DMCs) are more capable and active.</p>	2001	<p>Key features of disaster management activities in a Paradigm Shift phase</p> <p>Approach</p> <ul style="list-style-type: none"> - Comprehensive (all hazard, all phases, all areas) - Strong partnership - Effective policy framework - Mainstreaming DRR/CCA in regular activities <p>Application of knowledge and technology</p> <ul style="list-style-type: none"> - Better techniques for vulnerability assessment and innovations for more effective response - Improved warning and communication systems <p>State of capacity</p> <ul style="list-style-type: none"> - Disaster Management in education curriculums from primary to tertiary level - Developed special funding modalities for DRR and CCA; development of climate fiscal framework is underway <p>Policy framework</p> <ul style="list-style-type: none"> - DM aligned sectoral policies - Poverty-environment-climate-disaster issues are mutually addressed - International policy drivers (e.g. HFA, MDG, UNFCCC, CBD) are amalgamated <p>Systems and processes</p> <ul style="list-style-type: none"> - New institutions created (DDM, MoDMR) - DM through committee systems at different tiers - Activities are rural focused - Go, NGO cooperation 	
<p>CDMP II: CDMP II aimed at scaling up its predecessor program, i.e. CDMP I. It also targets to further reduce country's vulnerability to adverse natural and anthropogenic events. Major activities are (i) development of DM regulatory framework and rules, (ii) disaster and Climate Change impact assessments on systems and sectors, (iii) CDMP got innovations like designing parachute having capacity to drop small quantity of goods, introducing Urban Volunteers, design/apply small tools/devices for efficient rescue operations, introducing IVR systems, distributing satellite phones to coastal fishermen. CDMP contributed in extending 3 to 5 days lead time of flood forecasting. (iv) Development of vulnerability assessment tool and approach like CRA, RRAP. (v) Capacity development of local and national level institutions, (vi) Rural Risk Reduction schemes (water supply, infrastructure development etc.) and extended safety net programmes. Local Government agencies like Upazila, Union Parishads</p> <p>During this time addressing climate change induced challenges received great attention among the stakeholders. NAPA, BCCSAP, two National Communication papers for UNFCCC, Climate Public Expenditure and Institutional Review done.</p>	2005		
<p>DM, Everyone's Business: A cultural shift in actions of different agencies and also at community levels took place where entities put emphasis on DRR.</p>	2010		
<p>NPDM (2015-2020): Preparation of second version of National Plan of Disaster Management (NPDM) 2015-2022 is underway.</p>	2015		
	2020		

Figure 1: Paradigm Shift in disaster management in Bangladesh.

Disaster Management (DM) actions in Bangladesh have gradually been evolved and aligned with concepts and theories and with international drivers like HFA, UNCCC principles.

to these theoretical underpinnings, international instruments like HFA, UNFCCC directives, MDG targets and targets come from national policy drivers of Bangladesh such as Perspective Plan, Visions 2012 etc. contributed in determining the attributes of new disaster management paradigm (known as Paradigm Shift). These principles and

targets are then fused to develop Bangladesh's own comprehensive disaster management model (Figure ???). Table 1 gives an example how activities that culminate the results for CDMP are strongly aligned to certain theoretical standpoints/propositions (specially the pressure and release model).

Table 1: The niche of CDMP actions against theoretical underpinnings.

No.	CDMP II Results	Relevance to Conceptual Framework (e.g. PAR Model)
1	Development of DM regulatory framework and Rules (e.g. DM Act 2012), support HFA activities	better and systematic protection from dynamic pressure and to address root causes
2	Produced disaster and Climate Change impact assessments/ reports on systems and sectors	better understand the risk environment/society
3	CDMP got innovations like designing parachute having capacity to drop small quantity of goods, introducing Urban Volunteers, design/apply small tools/devices for efficient rescue operations, introducing IVR systems, distributing satellite phones to coastal fishermen. CDMP contributed in extending 3 to 5 days lead time of flood forecasting.	resist hazards from turning into disasters
4	Development of vulnerability assessment tool and approach like CRA, RRAP.	better address disaster impacts
5	Contributed in developing new generation who are better informed/trained in DRR and CCA aspects (e.g. NCTB, Universities).	better addressing root causes
6	Capacity development of local and national level institutions like DMCs, national training institutions, service delivery agencies like FSCD, Ministries and academic institutions so that they are more capable of handling adversities.	for ensuring efficient services to reduce risks and disaster impacts

No.	CDMP II Results	Relevance to Conceptual Framework (e.g. PAR Model)
7	Rural Risk Reduction schemes (water supply, infrastructure development etc.) and extended safety net programmes.	address impacts conditions by addressing root causes of vulnerability and also tackle some dynamic pressure in disaster hot-spots rural areas
8	Commissioning and supporting research activities in areas of DRR and CCA (Earthquake risk map, building database for Dhaka, Chittagong; risk integrated strategic urban planning for 9 cities etc.).	science based understanding of the risks/ hazards to cater better preparedness actions/approaches. GAR (2013) had a call to develop robust risk assessment capacity.

This is important to mention that disaster situations induced from sudden big events (the communities were introduced with) now becomes more complicated and challenging with the emergence of climate change impacts (mostly slow onset prolonged events) in the region. Because the way Climate Change impacts are visible, perceived and recognized in recent times was not the case in the past. In addition unplanned development activities, concentrated financial investments in risk areas, change in the landuse pattern and breakdown of the physical processes and attributes

of deltaic plains made the whole situation worse and chronic in many places. Therefore, risk reduction culture that evolved from response-recovery mode did not able to capture all problem dimensions. At present these two dimensions (Figure 2) are made integrated by putting DRR and CCA together; the framework of this combination attempt is also called resilience framework. The very nature of this conceptual process is yet to be settled or received any concrete shape rather experts and professionals are continuously adding new elements into the Paradigm Shift



Graduation Ceremony of 1st batch of disaster management graduates, Patuakhali Science and Technology University

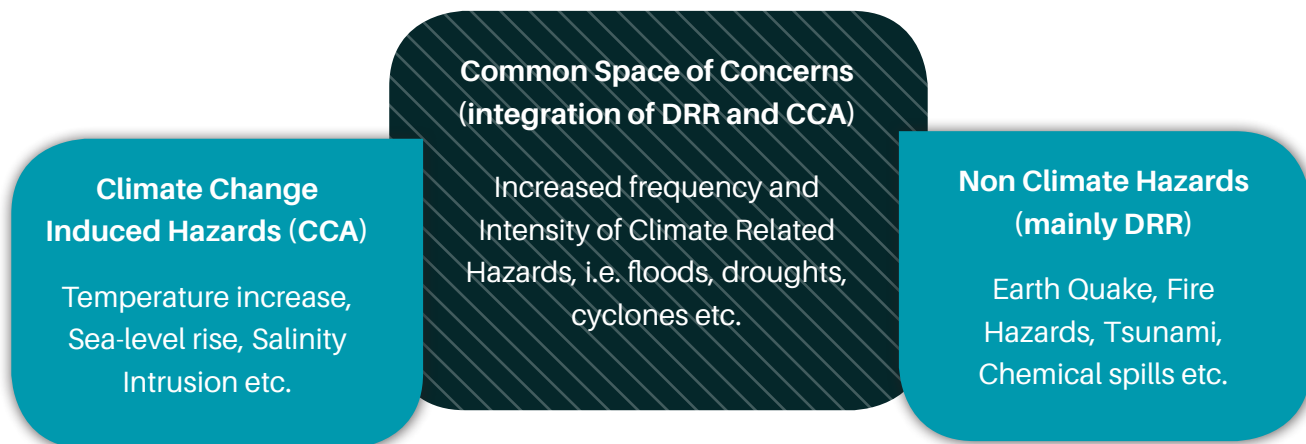


Figure 2: DRR, CCA and their integration.

and in the Resilience Framework. Thus it can be said that the process is still liquid in nature as it still accommodates elements and at the same time solid as it stands on some firm principles like vulnerability focused, pro-poor nature, geographical hot-spot based etc. CDMP from the beginning has been trying to invent tools, methods/techniques (e.g. CRA, RRAP, Climate Lens etc., please see www.elibrary.org.bd) to facilitate and strengthen the risk assessment process. Thus current actions related to DRR and CCA in Bangladesh capture many dimensions and elements aiming to develop Comprehensive Disaster Management Model that is appropriate to address the very nature of disaster impacts that happen in Bangladesh.

It suggests that in the current contexts, actions are not solely focusing on achieving fixed targets like reducing risks or only to undertake response and recovery activities immediate after disaster occurrence. Actions rather now focusing on identification of risks and vulnerability of the community and systems as continuous process and the develop community led approach to tackle that. As a result, CDMP II attempted to provide solutions through innovations like how to improve warning signals, how to provide

extended and reliable lead time flood forecasting, how to design parachutes that can air drop smaller quantities of relief goods, how to bring new volunteerism concept for urban areas, how peace time (non-disaster time) activities could be linked with ensuring better performances during disaster times and so on. Government has also come forward to respond very effectively by aligning sectoral policies so as to support disaster management activities, created funding mechanisms for disaster risk reduction, currently working to develop climate fiscal framework so that disaster management vis-à-vis climate change activities are entered into national budgeting process. All these changes in DM are mainly locally spawned (i.e. the innovations and related conversions in actions) and is broadly termed as paradigm shift by CDMP in its concepts and actions as mentioned before. This is the premise, CDMP is currently trying to reduce vulnerability and risk of the community by enhancing the capacity of the community and their agencies, provide better access to information and necessary resources assuming the fact people must have the capacity to co-exist with challenges (of disasters) in an ever changing ecological, physical, social and production modalities.

Paradigm shift and CDMP Contributions

In these premises and reflecting on the need, CDMP II conceived that institutional capacity development especially the education and training institutions is necessary for developing DM professionals in Bangladesh. CDMP's supports in this regard has two-fold aim; first to generate skilled DM professionals who are informed about Paradigm Shift and new, multiple nature of impact situations and related adaptations issues; also secondly to facilitate refreshing the existing DM professionals with contemporary knowledge, tools and techniques used in the fields of disaster management.

In doing that, wide array of interventions were implemented by CDMP II with the support of partner education and training institutions such as NCTB at primary, secondary and higher secondary levels, Universities for tertiary education and government training institutions at national level. Improvement in the academic curriculum, support for improved teaching and learning facilities (e.g. spatial analysis laboratory establishment), support with physical

resources and knowledge materials, financial support for the students (specially who comes from the government agencies) with regards to tuition fees and research grants, assistance for holding conferences, seminar and workshops in the academic departments are some key activities which have been implemented through partner agencies. In parallel, CDMP II created some standalone facilities aiming to help all these institutions as external aide. Development of e-Learning facilities on Disaster Management, creating e-platforms for storing and disseminating DM knowledge products (e-library) for students and teachers are some key achievements in this regard. This means that both externally (e.g. by developing standalone facilities) and internally (e.g. working with the partners), CDMP II has created an enabling atmosphere so that the institutions can be grown and develop their capacity for partaking important roles in developing skilled and knowledge professionals in the fields of Disaster Management. These issues are discussed in more detail in the following sections.



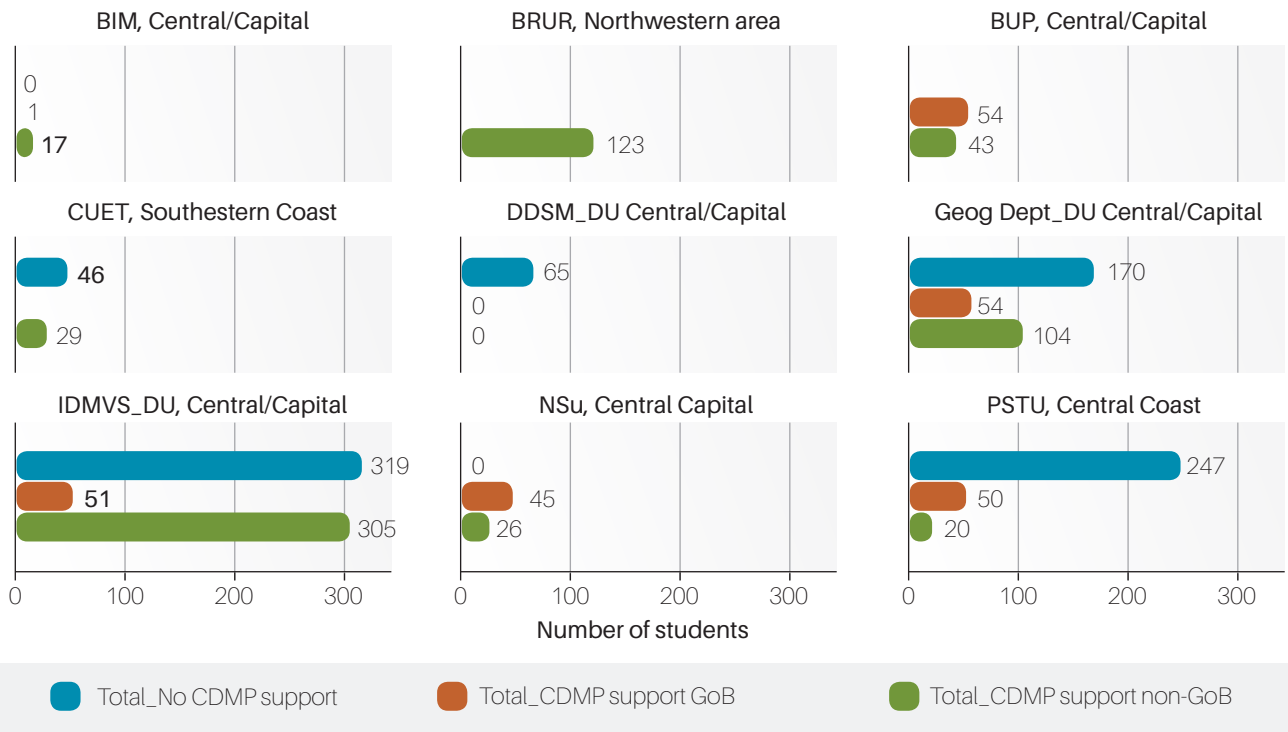
CDMP II contributed in developing DM professionals in Bangladesh

CDMP II developed partnership with 17 universities (most of them are public except North South University) of Bangladesh to help creating an enabling atmosphere for generating disaster management professionals. These universities

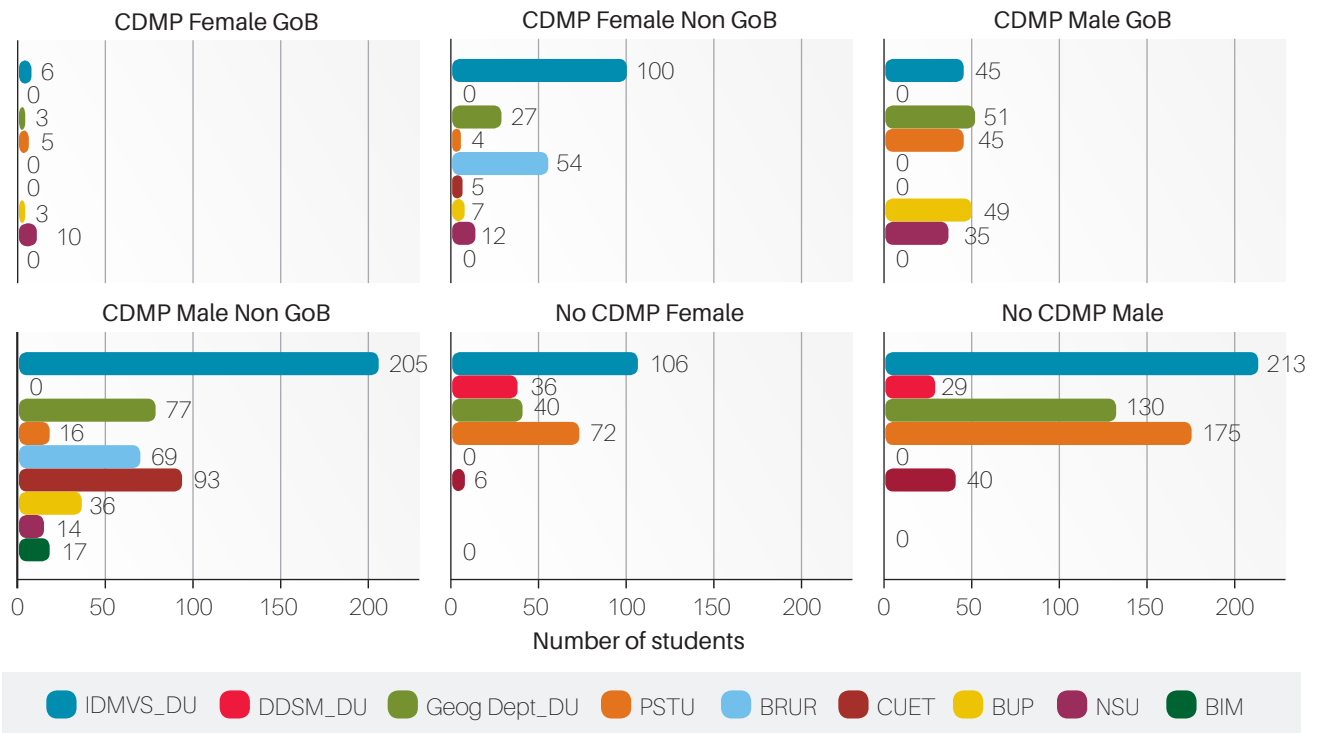
run programs through different departments and institutes like Masters, Post Graduate Diploma (PGD), Undergraduate Bachelor Programs and Certificate Courses. Higher level research activities such as PhD and MPhil degrees on disaster

Table 2: Status of student enrolments

Name of Institute or University	Without CDMP Support			CDMP Supported						Total (CDMP supported)
	Total students			GoB			Non-GoB			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
University of Dhaka, Institute of Disaster & vulnerability Studies	213	106	319	45	6	51	205	100	305	356
University of Dhaka, Department of Disaster Science and Management	29	36	65	0	0	0	0	0	0	0
University of Dhaka, Department of Geography and Environment Science	130	40	170	51	3	54	77	27	104	158
North South University			0	35	10	45	14	12	26	71
PSTU	175	72	247	45	5	50	16	4	20	70
BRUR							69	54	123	123
CUET	40	6	46				93	5	29	29
BUP				49	3	52	36	7	43	95
BIM	0	0	0	1	0	1	17	0	17	18
Grand-total_Passed	95	20	115	104	15	119	172	71	243	362
Grand-total_current	492	240	732	142	16	158	355	138	424	582
Grand-total	587	260	847	246	31	277	527	209	667	944



Graphs by Institutions and Regions



Graphs by Beneficiaries

Figure 3: Enrolment of students by regions (above) and students by gender (below)

management related fields are also being supported by these institutes. CDMP II has been working with these institutions since 2009, when CDMP II started for institutional capacity building activities in Bangladesh. During CDMP II tenure, the partner universities trained/produced about 1924 disaster management professionals, ranging from Masters degree holders to Certificate course attendees. Out of this 1791, about 52.7% of them received direct financial support from CDMP among which (25.42%, 240 numbers) professionals are females. It is noteworthy that majority of the females who got their degrees from these universities came from non-government service backgrounds (87.08% non government and 12.91% from different government service sectors). CDMP maintained strong partnership with public training institutions in Bangladesh, which played important roles in developing skills and professional knowledge of the GoB professionals on disaster management issues. Curriculum development, conducting ToTs,

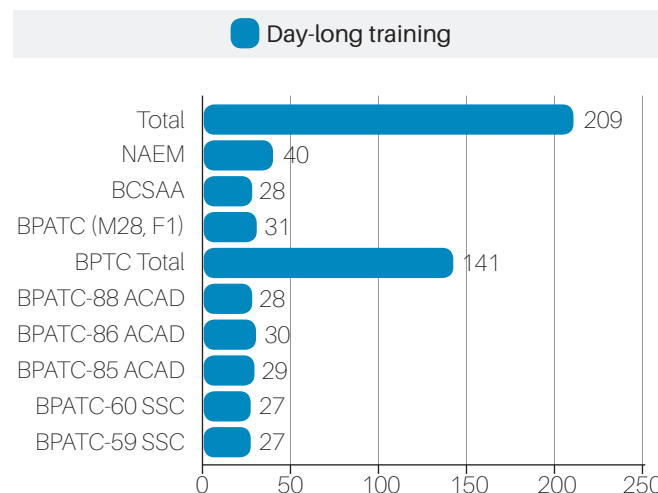


Figure 4: Professionals received training from public training institutions.

supply of resource materials, establishing e-Learning centres are some key activities that CDMP II did through the partnerships with these institutions. As a result, the training institutes are now able to conduct training programs on disaster management for different level of government officials. Figure 4 shows that a total of 209 government officials received trainings from different training institutes.

Skilled and trained professionals are currently giving leadership in disaster management in Bangladesh.

New Disaster Management Departments and Institutes Established

It's a big satisfaction for CDMP II that the partner universities took all required actions for establishing new Disaster Management Departments (one in Dhaka University another in Begum Rokeya University, Rangpur, and third one in BUP) and institutes, where CDMP provided necessary technical and financial support. The institute IDMVS (Institute of Disaster Management and Vulnerability Studies) is established in Dhaka University has been admitting students since 2009. The courses that the institute supports like Masters, post graduate Diploma and Certificate on Disaster Management received huge attention from professionals and government officials. It is important to note that since its establishment, the institute mobilized resources from different sources and did not fully depend on donor support for building up processes/actions. IDMVS produced 440 graduates from 2009 to date using own resources and received financial support for 350 (44%) from CDMP II. This estimate shows that IDMVS as a government entity can run their programs sustainably. This institute initially provided major emphasis on Post Graduate Diploma programs (from 2009 to 2012) and then gradually it expanded their coverage.

Recognizing the national need for science based disaster management professional development, Dhaka university opened a new Department (named Department of Disaster science and Management), which received its first batch of students in 2012/13. A Spatial Analysis laboratory (equipped with GIS, Remote Sensing, GPS and Geophysical data analysis capacities) was established in the department in 2013/14 with the support from CDMP II. In addition, Department of

Geography and Environment, Dhaka University also introduced a two year long Masters program on Disaster Management. They enrolled first batch of students in 2010, where the total number of students were 92.

Begum Rokeya University located in Rangpur is the second public university that opened a new Disaster Management Department. In 2009/10 session the Department received 30 students, then in 2011/12 and 2012/13, 46 and 47 students got admitted in this department. Bangladesh university of Professionals (BUP) opened a Masters program on Disaster and human Security Management. They started student enrollments from 2012/13 sessions. Two batch of students are currently participating the course, where 100% of the course participants receive tuition fees support from CDMP II.

Patuakhali Science and Technology University (PSTU) accommodated a faculty on Disaster Management into their academic programs and curriculum. This faculty offers different disaster management related courses to the students through their Post Graduate Diploma and BSc (honors) level programs. This Disaster Management faculty also organized 5-day long professional training on disaster management (ToT style) in 2009. Among the private entities/ universities, CDMP provided support to Department of Public Health, North South University in their program titled "Training on Emergency Health Care Management for the Disaster Victims after Natural Disasters in Bangladesh". In first two batches, 24 and 47 professionals received training.

Digital Knowledge Products (E-Library) and DM learning through E-Platforms

Ensuring supply of knowledge and learning products is a pre-requisite for good training and education. In this respect, CDMP has developed a web based facility where all CDMP knowledge products could be achieved and retrieved with search facilities. CDMP produced more than 200 knowledge products on different thematic areas, mostly focusing on local level disaster impacts and risk assessments, risk reduction action plans, adaptation planning aspects; in addition some national level knowledge products (e.g. impact studies and policy oriented publications) are also produced. All these knowledge products have been uploaded for dissemination to the trainers, trainees and researchers for wider use (please visit <http://kmp.dmic.org.bd/>). The facility also gives opportunities to disseminate knowledge products of other stakeholders. CDMP's attempt to make these field based knowledge products available through internet based facilities would create an enabling environment for the academicians and researchers to amplify existing understandings of disaster and climate change induced vulnerabilities of the communities. In parallel CDMP II also archive disaster impact database at local scale in the form of "situation report". The researchers could easily gather impact data for certain disasters for certain dates from the facilities.

Another important internet based facilities that CDMP developed is e-Learning course on Disaster Management. These facilities may help

the professionals working at different tiers and at different locations to learn disaster management aspects through easy, succinct and updated materials and contents. Introduction to Disaster Management (IDM) and Comprehensive Disaster Management (CDM) are two parts that comprise this e-Learning course. The first part introduces the learners with fundamentals and primary concepts and methods of disaster management,



Figure ??. Reference materials support



Figure ?? e-learning on disaster management

while the second part includes more critical and advanced aspects. The learners could choose either Bangla or English language to undertake the course. This e-Learning course could be done from home, through 11 e-Learning centers distributed across Bangladesh and also from other places of the world.

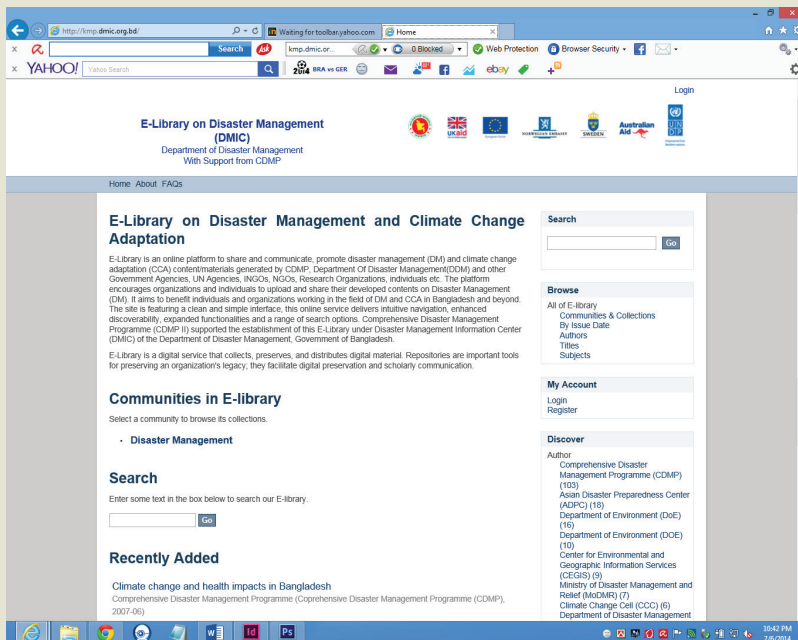


Figure ?? e-library on disaster management knowledge materials

Digital knowledge products and e-learning on disaster management are aligned with "Vision 2021" objectives of the government

DRR and CCA in school curriculums

Inclusion of disaster risk reduction and climate change adaptation issues happened in the primary, secondary and higher secondary education levels through the partnership between CDMP and National Curriculum and Textbook Board (NCTB). By the year 2014 (books distributed in January) NCTB had distributed 320 million books among 30 million (in exact figure it is 30,680,172) students where, with the support of CDMP II, disaster management issues had been incorporated in 31 subjects (primary level

9, Secondary level 14 and higher secondary level 8) by 2012-2013. At this moment curriculum revision process is in progress, inputs will be incorporated in the textbooks and children will get this revised version of textbooks from 1 January 2015. NCTB is also facilitating to write supplementary learning materials (e.g. stories, poem, novel focusing on disaster issues) which is planned to be published by June 2014 and distributed by September 2014 among the students.

Primary and secondary students are now learning disaster management lessons



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32 million school-going children are now accessing to disaster risk reduction knowledge through classroom learning materials.

Risk Assessment capacity development through PhD, MPhil research grants

CDMP II attaches great importance to the need of developing research capacities of the academic institutions and researchers so that they can efficiently participate with enhanced capacity in risk assessment exercises, in building concepts, methods and also can contribute in better targeting and program planning. The Global Assessment Report 2013 (GAR13) also indicates that risk assessment remains at the heart of risk management and related planning. Efficient risk assessment exercises can only happen when the academic and research agencies got required capacities to play roles in this regard. In this backdrop, CDMP II supported 9 PhD candidates and 3 MPhil researchers from different universities of the country in different areas of disaster management. The major thematic areas of research where research grants have been given are (i) assessing and reassessing risks of disasters including climate change related uncertainties (hazards, vulnerabilities, exposure, capacity gaps),

(ii) evaluating disaster risk reduction policies and practices, (iii) improving the concept of resilience in the contexts of disaster management and climate change, (iv) vulnerability reduction through resilient/adaptive livelihoods processes, (v) better protection of the vulnerable populations and vulnerable livelihood groups, (vi) community level/based DRR & CCA practices. It is expected that this grants support may help the Ministry and other agencies who have been working in disaster management in two ways. Firstly, the results that are to be generated and published could be used as ready reference for building arguments and narratives for national policy formulation, program design and for national and international reporting. And secondly the research process under which the researcher goes through to accomplish his/her research work will expose/assist the researcher to develop his or her theoretical and technical skills and capacity which will be invaluable and strengthen the national technical capacity in areas of disaster management.

Capacity strengthening support to Local Government Institutions (LGIs)

Local Government Institutions (LGIs) play a crucial role in Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in Bangladesh. They are the major entities in the country who have been mediating between central government and the community people through different service delivery processes for the benefit of the disaster affected people. According to Standing Orders on Disaster (SOD), the LGIs are responsible for preparing a comprehensive disaster management action plan, awareness raising, and capacity building support to community, coordination among institutions, identifying risk and vulnerabilities. Hence, it is important for LGIs to understand their roles and responsibilities in the context of DRR and CCA in Bangladesh. In addition, local level DMCs (Disaster Management Committees) who act at the front line to help people reduce disaster impact need capacity development training where LGIs like NILG (National Institute of Local Government) have been playing important roles.

CDMP II, based on the Standing Orders on Disaster (SOD), provided support to NILG to develop an operational manual for the Union DMC where this manual will be used. NILG also contributed, with the support from CDMP, in training members of disaster management committees on their roles and responsibilities so that they can better perform in delivering services to the people during emergency need. This local government agency has already formed a pool of Master Trainers on disaster management consists of representatives from NGOs, Universities, and Government Organizations. The Master Trainers are being used in conducting DMCs training at local level.

Capacity enhancement of Local Government Institutions was at the central focus in CDMP's approach and actions.

Support universities to arrange workshops, colloquiums, conferences on disaster management

It is mentioned in the earlier sections that a number of universities have introduced different types of disaster management courses (e.g. Certificate course, Diploma, Masters) and have been running these courses for the last several years, where CDMP II provided all necessary supports. Capacity development of these new academic institutions and faculties hugely

dependent on the ability in undertaking high quality research which again related to degree and efficiency of exchanging information, ideas and knowledge among the peers through which knowledge could be produced. CDMP II contributed in filling gaps in this regard by supporting institutions in holding workshops, colloquiums and national and international



Institutional capacity and strength is dependent on professional's competence and maturity. CDMP's support to hold workshops, conferences thus contributed in developing string disaster management institution and professionals in Bangladesh

conferences so that discussions and critical reviews can take place. These meetings gave opportunities to young and senior disaster management professionals to get closer and to discuss and scrutinize the subject matters, thematic contents, teaching methods and

process towards improving and professionalizing disaster management education in Bangladesh. However, the title of workshops and conferences given below may indicate the relevance of the events towards the promotion of disaster management education systems in Bangladesh.

Table: Workshops, conferences arranged by different institutions.

Title of the workshop, conference	Date	Institution that arranged the event
Forty Years of Independence: Forty years of Disaster Management in Bangladesh	15 th December 2011	Centre for Disaster and Vulnerability Studies (CDVS), University of Dhaka
Round Table on 'Women and Girls as the Silent Force of Resilience'	22 nd May 2012	Centre for Disaster and Vulnerability Studies (CDVS), University of Dhaka
Disaster Management Training & Education: Learning Sharing with Sri-Lankan Delegation'	29th February 2012	Centre for Disaster and Vulnerability Studies (CDVS), University of Dhaka
'Disaster Risk Reduction: Institutional and Non-Institutional Measures in Bangladesh	24th January 2012	Centre for Disaster and Vulnerability Studies (CDVS), University of Dhaka
International Seminar on "Frontiers of Climate Change Adaptation and Mitigation in South Asia"	17th January 2013	Institute of Disaster Management and Vulnerability Studies, University of Dhaka
Seminar on Post-disaster Vulnerability and Crime	11th October 2012	Criminology and Criminal Justice Programme, Department of Sociology, University of Dhaka
International Saminer on DISASTER MANAGEMENT	6th October 2012	Bangladesh Public Administration Training Centre (BPATC), Savar, Dhaka
International workshop on "Human Security and Natural Disasters"	16th June 2012	Bangladesh University of Professionals (BUP)
2nd International Conference on "Environmental Technology & Construction Engineering for Sustainable Development 2012	10 th -12 th March 2012	Shahjalal University of Science and Technology Branch, Sylhet
1st International Conference on "Environmental Technology & Construction Engineering for Sustainable Development 2011	10 th -12 th March 2012	Shahjalal University of Science and Technology Branch, Sylhet

Support with Learning and Resource Materials

CDMP II has been trying to support both public and private universities, training institutes of the country who are (i) producing graduates students, (ii) commissioning research activities and (iii) provide training to the professionals in the field of Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA). Some of these institutions have incorporated DM/CCA course into their existing curricula and in some places new Department and institutions have been developed. CDMP II provided support to these institutes for their infrastructural

development, procurements of learning materials/ resources, conducted ToT (Training of the Trainers) and contributed in developing human resources. But it has been recognized that these academic departments and training institutes suffer from shortage of reference books/materials on DRR and CCA. In this regard CDMP II procured reference books for distributing among the institutions; the first lot of this kind has been distributed in 2011 and the second assortment has been procured in 2013 and already been distributed.

MD MAZRUZZAR	DM	Biological Hazard	Kamkumbar	22-06-13	23-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Protecting Bangladesh from natural disaster	Dr. A.M. Choudhury	24-06-13	26-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Environmental science	Dorothy F. BOORSE	24-06-13	26-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Biogeographical hazards	Grasema Alcantara	24-06-13	26-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	The science of and politics of global climate change	ANDREW DESSLER	24-06-13	26-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Packaging for Hazard	Dr. A.M. Choudhury	26-06-13	29-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Modern Physical Gas	Alan.H. STRATTON	26-06-13	29-06-13	Mamul	Mamul
MD MAZRUZZAR	DM	Environmental science	Richard T. WRIGHT	02-07-13	05-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Disaster management	T. SUNDAR	02-07-13	05-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Predicting the future of natural disasters	Dr. A.M. Choudhury	03-07-13	06-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Natural Disasters	Patrick L. ABBOTT	03-07-13	06-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Climate change	William James	03-07-13	06-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Disaster Management and Rehabilitation	Ratheeep Dasgupta	07-07-13	08-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	The hand book of the weather	Gennie McCall	07-07-13	08-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Applied Geography	X	07-07-13	08-07-13	Mamul	Mamul
MD MAZRUZZAR	GES	Applied Geography	Michael Pacione	09-07-13	10-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	water resources management	K.B. SAJJADUR RAHMAN	14-07-13	17-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Environmental science	Richard T. WRIGHT	14-07-13	17-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Environmental science	Dorothy F. BOORSE	14-07-13	17-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Arsenic Pollution	Peter Ravenscroft	14-07-13	17-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Geological HAZAR	MU. RAMKUMAR	14-07-13	17-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Fundamentals of Env. Pollution	KEISHA KANNAH	18-07-13	18-07-13	Mamul	Mamul
MD MAZRUZZAR	DM	Modern Physical	ANDREW DESSLER	14-07-13	16-07-13	Mamul	Mamul

Student's register of borrowing of disaster management books (Begum Rokeya University Rangpur)

CDMP's learning materials support helped students in the new disaster management departments to access to latest books and knowledge materials

Establishment of BDMERT (Bangladesh Disaster Management Education Research and Training) Network

CDMP II has directly been working with 17 Universities and 11 training institutes in Bangladesh to ensure development of strong, well-managed, professional institutions that are able to contribute in supporting the government and other parties in defining effective disaster management approach (e.g. paradigm shift in disaster management), guide to develop necessary regulatory and institutional frameworks, designing appropriate programs for disaster risk reduction and climate change adaptation. In doing that these institutions have been contributing in producing efficient disaster management professionals through education and training, knowledge generation through research exercises, by providing intellectual support where necessary (e.g. supporting Bangladesh delegation to meetings like HFA, CoP of UNFCCC etc.). It is already been indicated in previous sections that CDMP II provided a range of supports to these institutions so that they can develop their technical capacity and professional attitude in the fields of disaster risk reduction and climate change adaptation. Curriculum development on disaster management from class III to tertiary level, partial tuition fee support for government officials and undergraduate students, research grants for diploma, undergraduate, MS, MPhil and PhD students, Class room development, GIS and Remote sensing lab establishment, library support, E-learning, E-library facility development are some key interventions that CDMP II implemented aiming to develop overall national capacity for

efficient handling of disaster induced threats. CDMP II initiated to tie all these academic and training institutions and their professionals together by developing a network called BDMERT so that they can use their resources collectively for making bigger impacts and contributions. The BDMERT would also aimed to act as national Think Tank when the country needs any critical appraisal of the phenomenon, facts and processes related to disaster risk reduction and disaster management. A number of formal meetings have taken place and draft constitution has been generated by June 2014 towards establishing this professional network. Finally, the network will be registered with government registration systems for its long term sustainability and to contribute more effectively in different areas of disaster management and climate change.

BDMERT is aimed to act as think task on disaster management concerns. Network members have been supporting and will continue backing MoDMR by doing critical appraisal of approach, actions and achievements

The Point of Convergence: Supporting Paradigm Shift through developing professional DM institutions in Bangladesh

The discussions given in the earlier sections indicate that CDMP II worked with universities, training institutions and other agencies like NCTB in order to attain a broader aim that aspires to develop a strong, well-managed and professional institutions in Bangladesh which are able to implement a comprehensive range of risk reduction programmes and interventions at national level,

as well as contributing to regional actions and international learning and best practice. In doing that, all necessary activities like gap analysis, activity design and implementation strategy were done in such a fashion so that these agencies are equipped and capable enough to be able to generate human resources who can implement DRR interventions (i.e. both natural and anthropogenic types of

1. Institutionalization and capacity building

- New DM education and training institutions developed
- Partnerships covered wide geographical range
- Curriculum standardization done
- Resource materials provided
- Physical resources and equipment support (GIS, RS lab establishment)
- Arranged ToT for faculty development

2. Mainstreaming

- Established new DM departments, institutes
- Public training institutes adopted DRR, CCA course
- NCTB incorporated DRR, CCA issues in school curriculums

3. Preparedness

- Training of GoB officials and also non-GoB officials
- Children got better DM knowledge

4. Information generation and management

- Establishment of web based e-Learning and digital library
- Establishment of district resource centers and e-Learning Centers
- Support Colloquiums and Dialogue (through workshops, seminars and conferences)

5. Partnership development

- BDMERT establishment
- Support for High Quality Research and Critical Knowledge Generation

The point of convergence

Professionalizing DM Education in Paradigm Shift Contexts in Bangladesh

- Incremental growth in human resource (DM professionals) development ensured; who are familiar with Paradigm Shift approach.
- Risk assessment capacity enhanced, the results are now applied to in better targeting problems
- Institutional capacity increased to undertake critical appraisal of disaster impacts
- Skilled DM professionals, increased risk assessment capacity, efficient information management collectively contributes in improving the systems and processes for more effective disaster management.

Figure 5: Contributions in the Theory of Change.

hazards) in a range of scenarios. However, it is important to note that institutionalization, capacity building, mainstreaming, information management, partnership development were the key principles while implementing intervention components through partnerships with the agencies so that the impacts are sustained and last for long. Figure 5 summarizes and illustrates how different activities performed by Outcome 1 contributed in attaining the said principles and to ensure professionalizing DM education in Bangladesh. It has already been mentioned in earlier sections that a range of activities have been implemented under institutionalization and capacity building component. These include introduction of improved curriculums in the institutions and to provide necessary support to implement the curriculums. Embedding the interventions within the existing institutional and budget frameworks ensured the mainstreaming of activities. It will also contribute to sustain a certain program once CDMP is over, because the component has been adopted as institution's own set of activity mandates. Similarly, enough emphasis was given in areas of information management and partnership development so that the institutions got the necessary additional support to implement high quality programs, either in knowledge generation or capacity development of professionals.

It is important to note here that the strength of DM education system in Bangladesh counts on the strengths of individual institution's capacity and contributions. Because, sharing of results on risk assessment/management, joint programming for wider impacts, and exchange of information for informed choices all in combination could ensure the strength of the system. Holding of regular

colloquiums/workshops/conferences/publications, exchange of expertise have happened among the members of DM network institutions during the project tenure. Therefore, the robustness of the results of Outcome 1 towards institutionalization of DM education in Bangladesh should be seen in a collective fashion and also in a way where elements/processes grew up within the existing institutional framework, not as externally imposed interventions. Thus, these professional institutions will be able to better participate in promoting and progressing paradigm shift approach of disaster management for making communities more resilient to disaster risks.

It is expected that new disaster management graduates passed from these institutions will fill in related skill gaps for different departments of the government and non-government agencies. In addition, the existing GoB professionals who took part in academic and training programs got the opportunity to gain DM knowledge and to refresh themselves on related aspects to better handle disaster risks at operational levels. Most important result in professionalizing DM education is lie in the fact that CDMP II facilitated to open new DM departments and institutions and introducing DM curriculums in different universities and training agencies which will help to continue and grow DM education and knowledge generation in Bangladesh and directly and indirectly help the professionals to bring changes in culture and attitude while partaking disaster management actions. These new establishments will ensure sustainability as well because these courses have institutionalized and mainstreamed, thus will last long even beyond the time when CDMP is no more working in Bangladesh.

