

Challenges of Integrating Disaster Risk Management and Climate Change Adaptation Policies at the National Level: Bangladesh as a Case

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Abstract

Disaster management and climate change adaptation emerges as the greatest long term threats that are challenging overall development efforts of Bangladesh. Government of Bangladesh is playing a central role for disaster management and climate change adaptation. The Ministry of Food and Disaster Management (Mo FDM) and the Ministry of Environment and Forestry (Mo EF) are the two key ministries responsible for developing and implementing various programs and policies for disaster management and climate change adaptation respectively. This paper discusses the challenges for linking disaster management and climate change adaptation in Bangladesh. Structural arrangements, policy development process, funding arrangement of the Mo FDM and Mo EF have analysed to understand the challenges for integration. We find that to some extent Mo FDM and Mo EF are institutionally linked for policy development. However, there are scopes for further integration between the two ministries especially in the areas of inter-ministerial communication and collaboration. A new approach for institutional arrangement is needed which is flexible enough to support continual collaboration of the two ministries.

Index terms— disaster risk reduction, climate change, disaster management, adaptation, sustainable development, Bangladesh.

1 I. Introduction II. Exploring the Concepts

Before the 1970s, disasters were viewed as natural events which were unavoidable and needed to be managed. Consequently there was no concept of prior management of risk reduction (White, 1945, Bankoff, 2001). Since 1980s views on disaster management has shifted sharply. According to the view ecological and socio-economic vulnerability of the disasters can be reduced through proper disaster management and planning (Torry, 1978, Hewitt, 1983, Gaillard, 2007, Weichselgartner and Obersteiner, 2002) .

United Nations International Strategy for Disaster Risk Reduction (UNISDR) defines DRR is "a concept and practice of reducing disaster risks through systematic efforts to analyze and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of people and property, wise management of land and the environment and improving preparedness for adverse events are all examples of disaster risk reduction" ??UNISDR, 2009 Challenges of Integrating Disaster Risk Management and Climate Change Adaptation Policies at the National Level: Bangladesh as a Case ue to geographic location, high population density, wide spread poverty and poor infrastructure, Bangladesh is historically vulnerable to natural and manmade disasters. Recently, climate change has added new dimensions to the country's already existing socio economic and environmental vulnerability. Various scientific research indicate that Bangladesh is highly likely to be one of the worst victims of climate change ??GOB, 2009). Climate change is posing serious threats to country's overall

programs and policies for development (GOB, 2009; GOB, 2011). Considering the disasters and anticipated impacts of climate change, the government of Bangladesh has prioritized and strengthened the areas of policy development both for the disaster management and the climate change adaptation. Two separate ministries, namely the Ministry of Food and Disaster Management (MoFDM) and the Ministry of Environment and Forestry (MoEF) are primarily responsible for disaster risk management and climate change adaptation respectively. The programs and policies of the two ministries focus on to reduce vulnerabilities to achieve development goals of the country. Given the strong similarities in the nature of work of the two ministries, we argue that there is a need for further integration. We seek to explore the relationships between the two ministries and find out the scope for and challenges to integration. First we compare the theoretical concepts of DRR and CCA to understand the nature and scope of work. Secondly, we analyze the institutional framework and policy development, funding process for the ministries responsible for the DRR and the CCA in Bangladesh. We argue that there are scope and immediate need for further integration between the MoFDM and the MoEF, especially in the areas of knowledge sharing and policy development. However, considerable conceptual and structural challenges are evident for integration of the two ministries. DRR is multi-disciplinary in nature that includes disciplines like disaster management and mitigation (Pearce, 2003). DRR recognizes the importance of links between hazards, socio-economic and natural environment (Lewis, 1999; Khan and Shaw, 2007). DRR strategies include hazards, vulnerability and capacity assessment. Goals of disaster risk reduction strategies are to identify solutions for disaster risk and to improve community's ability to protect itself against disaster vulnerabilities (Wisner, 2004). However, to achieve the disaster management goals, it is important that the government and the development partner's disaster management strategies have to be properly linked with grassroots strategies. Local government role is crucial for effective implementation of DRR strategies (Anderson and Woodrow, 1989; O'rien et al., 2006).

Unsound disaster management policy and practices might increase disaster risk and disaster losses. Therefore, to reduce the vulnerability and to ensure sustainable development it is important to have a proper disaster management policy. For the development and implementation of an acceptable DRR it is important to involve the affected community, government sector, professional and private sectors and development partners (UNISDR, 2009). The objective of DRR is to create resilient community by reducing natural and manmade hazards vulnerability through proper development policies and efforts (Smith and Petley, 2009).

The IPCC defines "climate change adaptation is the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (IPCC, 2001). Adaptation includes deliberate or intent adjustments in a biological and social system due to changed environmental circumstances (Gallop 2006; Nelson et al. 2007; cited by Adger et. al. 2009). Adaptation along with mitigation is an important policy response to protect the society and the ecosystem from the future threat of climate change.

2 III. Similarities and Difference-Disaster

Risk Reduction () and Climate Change Adaptation (CCA) A good number of researchers, practitioners and policy makers have recently focused on the similarities and difference between DRR and CCA (Schipper and Pelling, 2006, Birkman et al., 2009, O'Brien et al., 2006, Mercer, 2010, Schipper, 2009). These researchers have found that while there are some political and physical distinctions between the scopes of each field, there are key areas of similarities. For example both DRR and CCA focus on risk management and sustainable development. Researchers advocate the increased convergence, whilst recognizing the difference between DRR and CCA agendas (Djalante and Homalla, 2009, Mitchell and van Aalst, 2008) and discussions have occurred across academics, governments, NGOs and development agencies on how to achieve sustainable integration (Mercer, 2010, Birkmann and von Teichman, 2010, Gero et al., 2011).

One conceptual distinction is that DRR addresses all types of hazards that include natural and manmade hazards while CCA mainly focuses on the dynamics of climate. Adaptation is viewed as a long term process for adjustments to both extreme events as well as incremental changes which are not necessarily always negative; whereas disaster is always negative (Schipper, 2009).

Some key terms are being used and understood differently by different communities in practice of DRR and CCA which could create some misunderstanding and confusions. For example, one of the well-recognized terms which have an entirely different meaning in CCA and DRR context is 'mitigation'. Under the CCA context, mitigation means "reduction of greenhouse gas emission", while in DRR "mitigation means the set of activities to reduce expected impacts of hazards" (Schipper, 2009).

Again the key actors of climate change adaptation and disaster management are different. Climate change research and programs are highly influenced by academics, scientists, donor agencies, and some specialized NGOs. Climate change adaptation policies in Bangladesh clearly influenced by top-down approach (Burton et al., 2002). On the other hand for the DRR it is the local level from where all the planning and programs starts. Due to difference in actors for the climate change adaptation and disaster risk reduction, there are differences in legislation and approaches.

Another distinction between CCA and DRR is that people can relate to disaster risk management as a tangible concept with which they have direct or indirect personal experiences. On the other hand, concept of climate

change is difficult to understand. Climate change is a vague concept for many (Schipper, 2009) . The similarities and differences of CCA and DRR are summarized in Table 1.

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4 IV. Methodology

The objective of the study is to determine the scope and challenges of integrating the two government ministries responsible for developing and implementing disaster risk management and climate change adaptation programs and policies in Bangladesh. To address the objective, a number of data collection methods and techniques were applied. Secondary data were collected from various published documents of Bangladesh government and development partners. ? The data collected for this research are mainly qualitative type. After conducting a literature survey and content analysis, the scope of and challenges to integration of DRR and CCA in Bangladesh were identified and explained.

V. Scope of Work for the Ministries Responsible for DRR and CCA in Bangladesh

Geographic location and river morphology contribute to recurring natural disasters in Bangladesh. Abnormal rainfall and earth quakes in the adjacent Himalayan range add to prevalence of disasters. According to the disaster management bureau, the major hazards in Bangladesh include floods, cyclones, riverbank erosion, storm surge, flash flood, drought, landslides, fire, and infrastructural collapse, ongoing and apprehended climate change effects are predicted to contribute to further disaster risks (GOB, 2011).

The effect of climate change have become more and more visible in last few decades in the forms of changing pattern of rainfall and temperature, prolonged drought, untimely flooding, and increased frequency and intensity of cyclones. Climate change in future will add some more disastrous events and increase intensity and frequency of current natural hazards which will have significant implications on physical, social and economic systems ?? Over time, Bangladesh has managed to develop somewhat efficient institutional mechanism, both at national and regional level, to response and recover effectively after extreme climatic events (Khan and Rahman, 2007). Following colossal floods in the 1980s, the government with support from the United Nations Development Program (UNDP) developed a flood action plan that initiated a proactive culture of disaster management. At that point the government introduced number of institutes for forecasting for example the Flood Forecasting& Warning Centers and initiates some pilot projects to reduce vulnerability and disasters risk. A catastrophic cyclone in the 1991 spurred additional actions. With help from the UNDP, the Government established the Disaster Management Bureau. The main objective of the bureau was reducing the human, economic and environmental costs of disasters and strengthening national capacities as well as cross-sect oral partnerships. The new bureau became the institutional foundation towards integrated approach to disaster management. Between 1994 and 2002, the UNDP supported the development of policies that empower and ensure better coordination of government departments responsible for disaster management. In the early 2000s, the disaster management approach was further consolidated. The government established the National Disaster Management Council (NDMC) that embraced civil society organizations and local government authorities into disaster management. The UNDP supported this consolidation through the multi-donor Comprehensive Disaster Management Programmer (CDMP). This Programmer led to revised policies, strategies and mechanisms for disaster management in details. Bangladesh became a pioneer among the least developed countries in prioritizing disaster risk reduction in national fiscal planning (UNDP 2010).

In Bangladesh at national level, the Ministry of Food and Disaster Management (MoFDM) and the Disaster Management and Relief Division (DM&RD) coordinate overall disaster management efforts. The Earthquake Preparedness and Awareness Committee (EPAC), the Cyclone Preparedness Program Implementation Board (CPPIB), the Cyclone Preparedness VI. Current Institutional Framework for the and the in Bangladesh CCA DRR entation Board (CPPIB), the Cyclone Preparedness Programmer Policy Committee (CPPPC) also coordinates with the Disaster Management Bureau (DMB) for implementations of their respective policies and programs. The NGO Coordination Committee on Disaster Management (NGOCC) reviews and coordinates the activities with the NGOs (as shown in figure 1).

At every district, sub-district and union level there are disaster management committees. The Disaster Management Bureau (DMB) provides all the support required by all the disaster management committee. In 1997, the ministry issued a Standing Orders on Disasters (SOD) which describes in detail the duties and responsibilities of all the concerned government agencies for disaster management. Institutional arrangements for disaster management at national, sub-national and regional level in Bangladesh are shown in figure 1. In 2005, the Bangladesh government has developed the National Adaptation Program of Action (NAPA), 2005 after consultation with communities across the country, professional groups, members of civil societies and following the guidelines of the United Nations Framework Convention on Climate Change (UNFCCC). After the climate change Conference of the Parties 13 (COP13) at Bali, Indonesia, in 2007, the Bangladesh government increasingly felt the need for a climate change strategy to coordinate the activities in support for the Bali action plan. The Bangladesh Climate Change Strategy and Action Plan (BCCSAP) have developed in line with the NAPA, Bangladesh. Table 3 shows the key drivers for the major policies and strategies for DRR and CCA.

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6 IX. Scope for and Challenges of Integration a) Scope of the work

There are similarities and differences in the nature and scope of the work of DRR and CCA in Bangladesh (see table 2). At national and regional level, CCA mainly focuses on the issues related to climatic where-as DRR focuses on any kind of manmade and natural disasters. Moreover, climate change information and projects have developed at a global scale, where-as the disaster management approach is mainly based on disasters which happen locally, regionally and nationally. One of the key differences is DRR focuses on emergency management and recovery along with long term sustainable development, whereas CCA mainly focuses on long term sustainability.

7 b) Administrative challenges

As Table 3 shows, in Bangladesh different administrative bodies with different values and principals are responsible for disaster risk management and climate change adaptation projects. Consequently, the management approach is different with different values and principles. At the same time, some area of the works for the DRR and CCA are complementary to each other, different administrative and management approaches might lead to contradicting strategies while implementing projects at the field level. For example, CCA goals mainly focus on long term adaptation whereas quick recovery from disaster is vital for DRR. It is beyond the scope of this paper to find out whether this kind of contradictions exists at the projects implementation stage. Further empirical research is recommended to find out the possible contradictions of DRR and CCA approach at project implementation stage.

8 c) Communication of risk and planning tools

Bangladesh has a long experience of disaster response and recovery. The country's institutional arrangements for disaster management are somewhat well organized. A good number of disaster management projects have been successfully developed and implemented at regional and community level with the support of the government, NGOs and donor agencies (ACI, 2010).

On the contrary the concept and institutional arrangement for climate change adaptation in Bangladesh is relatively new. Yet interactions between the ministries responsible for climate change adaptation and disaster management in Bangladesh are limited. Lots of employees at the government level are confused about the concept of climate change (Khan and ??ahman, 2007, Mirza, 2003).

9 d) Incoherent policy approach

An obstacle to integration of DRR and CCA can be seen in the fragmentation of development of policy from global to national level. The institutional frameworks and policy development for DRR and CCA are done mostly by different institutions with different values as illustrated in table 3. Consequently, integrating DRR and CCA become more difficult as the respective projects and policies have been developed often following the guidelines and the policies of the different institutions and legislative bodies (see table 3).

10 e) Different sources of funding

Different bodies are finance different projects related to DRR and CCA in Bangladesh. CCA adaptation projects are highly influenced by their donors. The World Bank (WB) plays a critical role in the disbursement and approval of the projects. On the other hand, DRR projects are mainly approved by the government at a national level and funded by the national government and international agencies (GOB, 2010). Again, at present, the funding agencies for DRR and CCA in Bangladesh are different with different norms and values. The best possible institutional arrangements for approving and funding for DRR and CCA projects is beyond the scope of this paper. However, we suggest that institutional arrangements at an international and national level for funding for both DRR and CCA projects need to be rearranged to achieve further coordination and integration.

11 f) Community involvement

Community participation in project development stages especially for the CCA is minimal. Greater integration of DRR and CCA can be achieved with community participation into the project planning, development and implementation stages. Communities generally do not differentiate the risks like DRR and CCA legislative bodies (Gero et al., 2010). Thus community involvement in policy development will result in robust, comprehensive and sustainable risk management. At the same time community involvement in policy development would create a link between DRR and CCA. Considering the scope of work and current institutional arrangement, it seems that the two ministries responsible for the DRR and the CCA in Bangladesh would/should remain separate for some time in future. However, there are immediate need and prospect for greater integration between the two ministries. More linkage between the ministries in terms of policy development and exchange of knowledge would

reduce possibilities of duplication of efforts, increase efficiency and cost effectiveness. Evaluation of institutional arrangement is necessary to find out feasible ways for improved communication and coordination between the ministries.

12 X. Concluding Remarks



Figure 1:

1

[Note: Source:(Thomalla et al., 2006, Schipper, 2009)]

Figure 2: Table 1 :

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Figure 3: Table 2

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Key hazards identified by National Plan for Disaster Management (NPDM), 2010	Key hazards identified by Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009
Natural and manmade disasters	Natural disasters
Floods	Floods
Droughts	Droughts
Cyclones and storm surges	Cyclones and storm surges
River bank erosion	Change of river morphology
Salinity intrusion	Salinity intrusion
Earth quakes	Water pollution
Arsenic contamination	Erratic rain fall
Tsunami	Erratic tidal wave
Fire	Change in average temperature
Infrastructural collapse	Sea level rises
Landslide	Increase average temperature
	Salt water intrusion
	Land inundation
	Loss of bio-diversity

a) Institutional framework for DRR

Figure 4: Table 2 :

3

Bangladesh Climate Change
Strategy and Action Plan, 2009

Figure 5: Table 3 :

For the disaster management main funding sources are the government, the European Commission, the Department for International Development (DFID), UK and the United Nation Development Program (UNDP) (UNOPS, 2004). Bangladesh Climate Change Resilience Fund (BCCRF) is a multi-donor trust fund established by Sweden, The United Kingdom, Denmark, Switzerland and the European Union (EU) in 2010, together with the Government of Bangladesh and the World Bank (WB). The aim of the BCCRF is funding the projects which are recommended by the Bangladesh Climate Change Strategy and Action Plan. The fund is managed by the World Bank and the fund complements to the Bangladesh government's local fund for climate change adaptation (Sida, 2011). The World Bank (WB) does the Funding for the DRR and the CCA in Bangladesh are sourced from international donors, national budgets and private sector donors.

to reduce the vulnerability and to ensure sustainable development of the country.

[Birkman et al. ()] *Addressing the challenge: recommendations and quality criteria for linking disaster risk reduction and adaptation to climate change*, J Birkman , G Tetzlaff , K O Zentel . 2009. DKKV Publications Series. p. 38.

[Torry ()] 'Bureaucracy, community, and natural disasters'. W I Torry . *Human organization* 1978. 37 p. .

[Ipcc ()] *Climate change 2001: synthesis report. Summary for Policymakers. An assessment of the Intergovernmental Panel on Climate Change*, T Ipcc . 2001. p. 25.

[O'brien et al. ()] 'Climate change and disaster management'. G O'brien , P O'keefe , J Rose , B Wisner . *Disasters* 2006. 30 p. .

[Mirza ()] *Climate change and extreme weather events: can developing countries adapt? Climate Policy*, M M Q Mirza . 2003. 3 p. .

[Sida ()] *Common Donor Fund will assist Bangladesh to adopt*, Sida . <http://www.sida.se/English/Countries-and-regions/Asia/Bangladesh/Programmes-and-projects1/Common-donor-fund-will-assist-Bangladesh-to-adapt/> 2011.

[Mitchell and Van Aalst ()] *Convergence of disaster risk reduction and climate change adaptation. A review for DFID*, T Mitchell , M Van Aalst . 2008. p. .

[Gero et al. ()] *Disaster risk reduction and climate change adaptation in the Pacific: The challenge of integration*, A Gero , K Meheux , D Dominey-Howes . 2010. Sydney. University of New South Wales

[Mercer ()] 'Disaster risk reduction or climate change adaptation: Are we reinventing the wheel?'. J Mercer . *Journal of International Development* 2010. 22 p. .

[Schipper and Pelling ()] 'Disaster risk, climate change and international development: scope for, and challenges to, integration'. L Schipper , M Pelling . *Disasters* 2006. 30 p. .

[Burton et al. ()] 'From impacts assessment to adaptation priorities: the shaping of adaptation policy'. I Burton , S Huq , B Lim , O Pilifosova , E L Schipper . *Climate policy* 2002. 2 p. .

[White ()] *Human adjustment to floods: a geographical approach to the flood problem in the United States*, G F White . 1945. University of Chicago Chicago, IL.

[Gero et al. ()] 'Integrating community based disaster risk reduction and climate change adaptation: examples from the Pacific'. A Gero , K Méheux , D Dominey-Howes . *Natural Hazards and Earth System Sciences* 2011. 11 p. .

[Birkmann et al. ()] 'Integrating disaster risk reduction and climate change adaptation: key challenges-scales, knowledge, and norms'. J Birkmann , Von , K Teichman . *Sustainability Science* 2010. 5 p. .

[Gob (2012)] *Introduction to Ministry of Environment and Forest [Online]. Ministry of Environment and Forest, Government of Bangladesh (GOB). [Accessed, Gob . 2012. 19 April 2012.*

[Weichselgartner and Obersteiner ()] 'Knowing sufficient and applying more: challenges in hazards management'. J Weichselgartner , M Obersteiner . *Environmental Hazards* 2002. 4 p. .

[Djalante and Thomalla ()] *Linking Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA): The Experience from Indonesia*, R Djalante , F Thomalla . 2009.

[Schipper ()] 'Meeting at the crossroads? Exploring the linkages between climate change adaptation and disaster risk reduction'. E L F Schipper . *Climate and Development* 2009. 1 p. .

[Moef] 'National Adaptation Program of Action (NAPA)'. *Dhaka: Government of Bangladesh (GOB)*, (Moef), MO E A F (ed.) (GOB 2009)

[Ministry Forest] 'National adaptation programme of action (NAPA)'. *GOB 2005*, Ministry, G O B Forest (ed.) (Dhaka)

[National plan for disaster management. 13. GOB 2011. National plan for disaster management GOB 2010] 'National plan for disaster management. 13. GOB 2011. National plan for disaster management'. *GOB 2010*,

[Khan and Rahman ()] 'Partnership approach to disaster management in Bangladesh: a critical policy assessment'. M R Khan , M A Rahman . *Natural Hazards* 2007. 41 p. .

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- 278 [Thomalla et al. ()] 'Reducing hazard vulnerability: towards a common approach between disaster risk reduction
279 and climate adaptation'. F Thomalla , T Downing , E Spanger -Siegfried , G Han , J Rockström . *Disasters*
280 2006. 30 p. .
- 281 [Bankoff ()] 'Rendering the World Unsafe: Vulnerability' as Western Discourse'. G Bankoff . *Disasters* 2001. 25
282 p. .
- 283 [Gaillard ()] *Resilience of traditional societies in facing natural hazards. Disaster Prevention and Management*,
284 J C Gaillard . 2007. 16 p. .
- 285 [Hewitt ()] 'Seismic risk and mountain environments: the role of surface conditions in earthquake disaster'. K
286 Hewitt . *Mountain Research and Development* 1983. p. .
- 287 [Smith and Petley ()] K Smith , D N Petley . *Environmental hazards: assessing risk and reducing disaster*,
288 (Taylor & Francis) 2009.
- 289 [Aci ()] *Study Tour of Cambodia Delegation to Bangladesh and Viet Nam*, Aci . [http://www.
290 agrifoodconsulting.com/ACI/index.php?action=news_detail&id=28](http://www.agrifoodconsulting.com/ACI/index.php?action=news_detail&id=28) 2010.
- 291 [Undp ()] 'UNISDR Terminology on Disaster Risk Reduction. United Nation International Strategy for Disaster
292 Risk Reduction (UNISDR)'. Undp . <http://www.undp.org/content/undo/en/home/> *UNOPS 2004.*
293 *Comprehensive Disaster Management Programme (CDMP), Bangladesh. Excellencies operational para*
294 *resulted que important (UNOPS)*, (Bangladesh) 2010. 2009. 2009. p. 31. (Disaster risk reduction as
295 development)
- 296 [Md and Chowdhury ()] *Unjustifiable Bank domination over climate funds in Bangladesh*, Md , R K Chowdhury
297 . <http://www.brettonwoodsproject.org/index.shtml> 2009.