

Hazard Mapping and Vulnerability Assessment for Flood Mitigation

Location:	Gaibandha municipality, northern Bangladesh ¹
Date:	2000-2005
Sector focus:	Flood hazard mitigation
Spatial focus:	Municipality and ward level

Bibliographical reference

Bangladesh Urban Disaster Mitigation Project (BUDMP), *Hazard Mapping and Vulnerability Assessment for Flood Mitigation*. Bangkok: Asian Disaster Preparedness Center/ AUDMP, no date.

Abstract

A full survey in all wards of Gaibandha municipality was conducted by volunteers trained in participatory and other data collection methods by the BUDMP. This survey was one of the bases for achieving the goals of BUDMP, which were:

- ♦ Establishment of community based flood mitigation and disaster preparedness system in the Tongi and Gaibandha municipalities.
- ♦ Replication of mitigation measures and disaster preparedness system to other municipal areas of Bangladesh.
- ♦ Improved capacity and skills of community (elected representatives, government officials and key players) to manage the risk and apply mitigation skills in the urban area.

Technical description

Hazard/risk type: River flooding (gradual on-set)

Type of assessment: Hazard mapping and vulnerability assessment.

CRA process

Training of interviewers and collection of background data. Participatory interviews and group exercises (see Methods below).

Methods used: Collection and analysis of background, *secondary data* (meteorology, geology, existing institutional flood preparedness arrangements; demographic data); *Transect walk and Exposure inventory* (to collect topographical data and see structures, infrastructure, lifelines, and assets that would be affected by flooding); *Social mapping* (to identify vulnerable groups, livelihoods at risk, and local institutions that would be disrupted by flooding, and also to identify the social resources available for coping with flood and carrying out recovery); *Problem Identification and Prioritization* (to assess the range of problems faced by the people in a given ward of the municipality and the place of flooding in this problem context); *Mobility chart* (to know where people would seek shelter in times of flood); *Wealth ranking* (to identify potential BUDMP beneficiaries); *Timeline* (disaster chronology 1991-2000); *Seasonal calendar* (as the flooding is highly seasonal); *Flood risk and resource maps* (done with the community) in at least three points in each ward.

Was livelihood analysis part of the process? No.

Was external specialist knowledge introduced? No.

Vulnerability analysis

Household wealth, location, knowledge of shelters, and resources available for coping were taken into consideration as determinates of social vulnerability.

Capacity analysis

Resources available: *Financial resources:* CARE/ USAID; *Human resources:* specialist trainers and analysts from the ADPC and municipality.

Limitations to capacity: Lack of updated secondary data.

Action planning and implementation

What actions were actually planned? The social mapping exercise gave rise to a series of “probable measures” for mitigation of flood risk in each of the 9 wards of Gaibandha municipality. Some of these were included in the final recommendations of the project and were implemented by the BUDMP. They ranged from raising roads and tube wells and latrines to above average flood level to drainage improvements, homestead raising, and raising embankments.

The project also provided assistance to the Municipal Disaster Management Committee in producing the Contingency Plan for 2002.

What actions were actually carried out? Yes, roads were raised as well as tube wells and latrines, drainage was improved, and embankments also raised.

Have these actions turned out to be sustainable? Yes, so far, but long term maintenance will depend on municipal finance.

Were there any unanticipated additional benefits of the actions? Municipal workers and officials are aware of and more proficient in participatory planning methods.

Were there any unanticipated negative consequences of the actions? N/A

Limitations on action/ sustainability of actions: Municipal finance is a limitation. Secondary centers such as Gaibandha do not have the resources of the capital city, Dhaka.

Indicators

The experience of the 9 wards during the monsoon seasons of 2003, 2004, and 2005 should provide a good indication of whether the BUDMP in Gaibandha municipality actually resulted in less flood impact – economic loss, loss of assets, loss of life, injury, and disease.

Contextual notes

Existence/ role of prior or contemporaneous conflict? Bangladesh was born as a nation in painful and destructive conflict as it became independent of Pakistan in 1971.¹ Apart from personal suffering, loss of family members, and painful memories, at a macro level Bangladeshi officials including municipal leaders are likely to manifest national pride that motivates them to work hard in a project such as this one.

Role of displacement/ relocation? Some in migration by landless and land poor due, in part, to recurrent rural floods and other hazard events.

Role of prior disaster & prior recovery attempt? Frequent flooding during monsoon rains.

Significant historical, geographic, economic, political, or cultural issues that influenced this instance of CRA and its consequences? N.A.

Strategic notes

How has this practice of CRA influenced change in policy and practice at the national level? BUDMP is a national urban program, so that the use of participatory methods in Gaibandha municipality incrementally raised the visibility of such methods at the national level. BUDMP Replication Phase has commenced in January 2003 and scheduled to be completed by the end of August 2003. Under this Phase, BUDMP expects to replicate the project activities in 5 other flood vulnerable small municipalities namely: Shahjadpur (in Sirajgonj District), Bhuapur (in Tangail District), Goalanda (in Rajbari District), Bhairab (in Kishoregonj District), and Dohar (in Dhaka District).²

How has this practice of CRA influenced change in policy and practice at local level? The Municipal Disaster Management Committee received new data and developed a new contingency plan. One of the initial steps of the Bangladesh Urban Disaster Mitigation Program (BUDMP) was re-activation of the Municipal Disaster Management Committees (MDMC) in the above two selected municipalities. The MDMCs now conduct regular committee meetings to discuss the connected issues to reduce the impact of floods. The MDMCs have already approved the mitigation and contingency plans prepared by the communities for the respective municipalities under the project and assisting the communities to implement the mitigation solutions.³

How has this practice of CRA influenced the level of organization and solidarity in the locality where it was carried out? Questionable because the participatory methods were only a part of the total survey; however, since Municipal Disaster Management Committees were re-activated, it is possible that the net result were a better organized populace in some of the 9 wards of the municipality.

Less divided along class, gender, age, ethnic lines? No, because the participatory part of this survey did not last very long.

More divided along these lines? No.

Are the people living in this area more able to speak out on issues that concern them? Possibly, to the extent that local people were attracted to the newly re-invigorated Municipal Disaster Management Committees as a vehicle for self expression.

Have new civil society organizations been created directly or indirectly because of this practice of CRA? Municipal Disaster Management Committees were re-launched. Other efforts at organization also followed. Phase II (2002 onwards) of the BUDMP undertook activities to create awareness among the vulnerable groups on the implementation of household level flood mitigation practices and to assist effective social mobilization within the target areas. BUDMP has successfully launched a series of awareness programs, involving teachers and school children from target communities. Project has also imparted training on "Role of Civil Societies in Urban Disaster Management" for the members of civil societies in both municipalities. Training on "Community Based Scheme Maintenance for Urban Flood Mitigation" through courtyard meeting has been organized to facilitate active community participation.

Lessons learned

- ♦ Participatory methods can be used to help plan even structural engineering interventions, not just "soft" flood risk reduction measures involving warning and human behavior.
- ♦ A strong and well organized local government structure is well suited to cross training in participatory methods and collaboration with NGOs.

Keywords

Flood, structural mitigation, municipality contingency planning, ward level data, volunteers, BUDMP.

Resource person(s)

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¹ <http://www.bangla2000.com/Bangladesh/war.shtm> .

² <http://www.adpc.net/audmp/aboutaudmp4.html> .

³ Ibid.