

7 Safer Cities

Case studies on mitigating disasters in Asia and the Pacific

Can Small Be Beautiful? Community based flood mitigation in Bangladesh

Etched into the memory of Asraf Ali, was the day in 1987 when the banks of the mighty river Brahmaputra overflowed and washed away the family home. Only 13 years old at the time, he lost both his parents, and their small piece of land to severe flooding in the municipality of Gaibandha, in Bangladesh. He remained homeless until he moved to the centre of Gaibandha to seek work as a pushcart driver. Asraf eventually married. With his meagre savings, he managed to buy a small piece of land by the river Ghagot. Land was scarce, and his low income gave him few options to buy land to build his home. The land he could buy was flood prone, and each year, the river overflowed and inundated his small home. One day, opportunity knocked on his door. He heard of a pilot project initiated by the Bangladesh Urban Disaster Mitigation Program (BUDMP). The aim of this project was to build on existing indigenous techniques, and use the collective social organisation to develop a community-based flood mitigation strategy. Asraf became an active participant in a homestead raising activity that ensured his home would be safe and dry during the flood season. River soil would be supplied if he would be prepared to contribute his labour to raise the level of his home above the highest average flood level and plant trees to secure the mud. Today his homestead is free of inundation and his family safe.

Simple, traditional, household coping mechanisms can be implemented to prepare families like Asraf's for the arrival of seasonal floods. In the year 2000, the Asian Urban Disaster Mitigation Program (AUDMP) initiated collaboration with CARE Bangladesh to develop the Bangladesh Urban Disaster Mitigation Program (BUDMP) under the Asian Disaster Preparedness Centre (ADPC), core-funded by USAID/OFDA. Inspired by existing community initiatives of minor structural mitigation and flood proofing, BUDMP decided to let the communities decide how best to use the limited project budget to meet its needs. Indigenous knowledge, local materials and labour, and limited financial resources were identified to initiate a community based disaster management (CBDM) strategy in the selected municipalities of Bangladesh. It was an attempt to integrate and promote existing coping mechanisms in the community to demonstrate their effectiveness during annual flood season.



Abstract

This case study highlights how community-based disaster management (CBDM) interventions contributed to enhancing sustainable flood proofing measures in the selected municipalities of Bangladesh. The lessons learned through the BUDMP experience show how small-scale external interventions can encourage the community to integrate and build upon indigenous knowledge and techniques to achieve livelihood security.

The inside story

- 📁 The Existing Environment
- 📁 Building on Indigenous Practices
- 📁 Understanding Community Risk and Vulnerability
- 📁 Community Participation



Asraf Ali and his newly raised homestead.



The existing environment

Floods are part of every day life in Gaibandha, Tongi, Shahjadpur and Bhuapur. People have learnt to live with overflowing rivers and inundated homes. However, increasing urbanisation resulting in unplanned human settlement in these municipalities has contributed to increasing community vulnerability to flood hazards each year. These communities are exposed to a number of socio-economic, political and environmental factors hindering their ability to deal with risks. Following is the case for two of these municipalities:



Gaibandha

At first glance, Gaibandha resembles a laid back, sprawling rural village. A closer examination reveals a small, but bustling urban centre with an active local economy consisting of fishing, agriculture, and brick factories. This low-lying area is situated on the banks of the Brahmaputera River to the north of Bangladesh. Floods disrupt this municipality on an annual basis. Submerged, waterlogged roads not only put a stop to commerce, but also greatly hinder the everyday lives of the people in Gaibandha.



Tongi

Tongi, on the other hand, is a concentration of urban chaos. Rickshaws collide in a jam of colour, and the constant ring of bells reminds the driver in front to move. The numerous small shops hawking wares, from tin buckets to silk saris, indicates the diversity and variety that exists in this urban centre on the outskirts of the capital city, Dhaka. Situated near the river Turag, the people of Tongi experience flooding each year. Their homes become inundated, their roads waterlogged, and life literally grinds to a halt until the water levels subside. Recovery is time consuming and costly.





Building on indigenous practices

In Bangladesh, macro scale flood mitigation measures such as dam and dyke construction are currently being implemented. Financial resources are extremely scarce in Bangladesh and these initiatives do not always address household level issues. However, in Tongi, Gaibandha, Shahjadpur and Bhuapur, one can notice that indigenous coping strategies are currently being practiced. For example, river soil has been used to raise the narrow, unpaved roads and streets. Deep ditches also run along side the most frequently used roads, such as ones leading to schools used as multi-purpose community and evacuation centres. Some homesteads have also been raised. The BUDMP aimed to target such small-scale structural mitigation interventions of infrastructures with multi-purpose functions such as schools and roads. The strategy was to use existing indigenous coping techniques and integrate their practice at the community level.

- *National Development Program (NDP)* is a non-government voluntary development organization established in 1989 which aims for the development of socio-economic conditions of the rural poor.
- *Bangladesh Unemployed Rehabilitation Organization (BURO, Tangail)* and *Committed Organization for Development Extension Services (CODES)* are partner organizations assisting CARE Bangladesh to increase the livelihood security of the rural poor in disaster prone areas.

Lessons Learned



Existing community initiated practices are sometimes the most effective. Community based flood mitigation strategies should adopt, build upon and strengthen this local knowledge and promote its integrated use at the household level.

Building Trust and Linking the Community

CARE Bangladesh is respected and trusted within Gaibandha, Tongi, Shahjadpur and Bhuapur. They have earned this trust through different developmental and emergency projects that have successfully assisted to increase livelihood security in disaster prone communities. Whilst implementing the BUDMP, CARE has extended this trust by inviting the active participation of local partner non-government organisations (PNGOs), Gano Unnayan Kendra (GUK), the Association of Rural Development (ARD) and the community.

- *Gano Unayan Kendra (GUK)*, established in 1984, believes in equal participation, access and control over the resources, and facilities of people. It advocates community participation for effective people-focused development. It also promotes the sharing of ideas and information, and the formation of relationships between local, national and international development agencies.
- *Association of Rural Development (ARD)* is located in Tongi and is involved in community-based development in rural areas. ARD advocates a participatory approach to community development and believes in building the capacity of the people to reduce dependency and promote self-reliance.



(top left) Laying drainage pipes, (top right) Using mud to raise road, (bottom) Finished raised and drained road

Defining Homestead



A house consists of an enclosed garden, courtyard, cooking space, communal latrine and tube well. Several family homes are usually clustered together to make a homestead. This living arrangement supports the collective social organisation of families, extended families and community members, as found to be culturally practiced in Bangladesh.

Defining Flood Proofing



A structural mitigation technique used to protect infrastructure from the affects of floods. In Bangladesh, indigenous flood proofing techniques include homestead, road, latrine and tubewell raising above flood levels commonly experienced by the community.

A Memorandum of Understanding (MOU) with the government of Bangladesh allowed CARE to implement intervention work at the municipal level. The Standing Orders for Disaster in Bangladesh mandates the Disaster Management Committee (DMC) at the municipality level to be responsible for disaster mitigation. Together, the MOU and Standing Orders for Disasters provides the political backing needed for intervention and successful implementation of projects at the Municipal and Ward level. This is an example of top-down approaches supporting the initiatives of bottom-up strategies to promote integrated and participatory disaster management at the community level. The process is aimed to link policy to practice through active political will and community participation. Municipal level DMC's have a responsibility to support local level participation to build communities resilient to flood hazards.

Networks developed between the DMC, CARE, municipal PNGO's, and the community facilitated the participation of religious groups, schools, businesses, professionals, civil society groups and other community members. These were the key stakeholders in the communities of Gaibandha, Tongi, Shahjadpur and Bhurapur. Facilitating these networks was crucial to the BUDMP as the involvement of each group can affect, influence and motivate different sectors of the community.



Community courtyard meetings

Step1 Build trust and allow the community to express their views about the goals and objectives of the BUDMP

Step2 Choose volunteers from the community for establishment of municipal disaster management committee

Step3 Analyse the causes and the resulting problems faced by the community through the use of PRA tools and the use of information collected to develop a Vulnerability Assessment

Step4 Build leadership and enhance coordination, roles and responsibilities of CBO's

Step5 Encourage people to voice their criticisms and share feedback through focus groups held in the field

Step6 Prepare a Municipal Contingency Plan that identifies roles and responsibilities of all stakeholders involved

Step7 Begin implementing structural flood proofing measures upon community suggestions and recommendations collected in Vulnerability Assessment

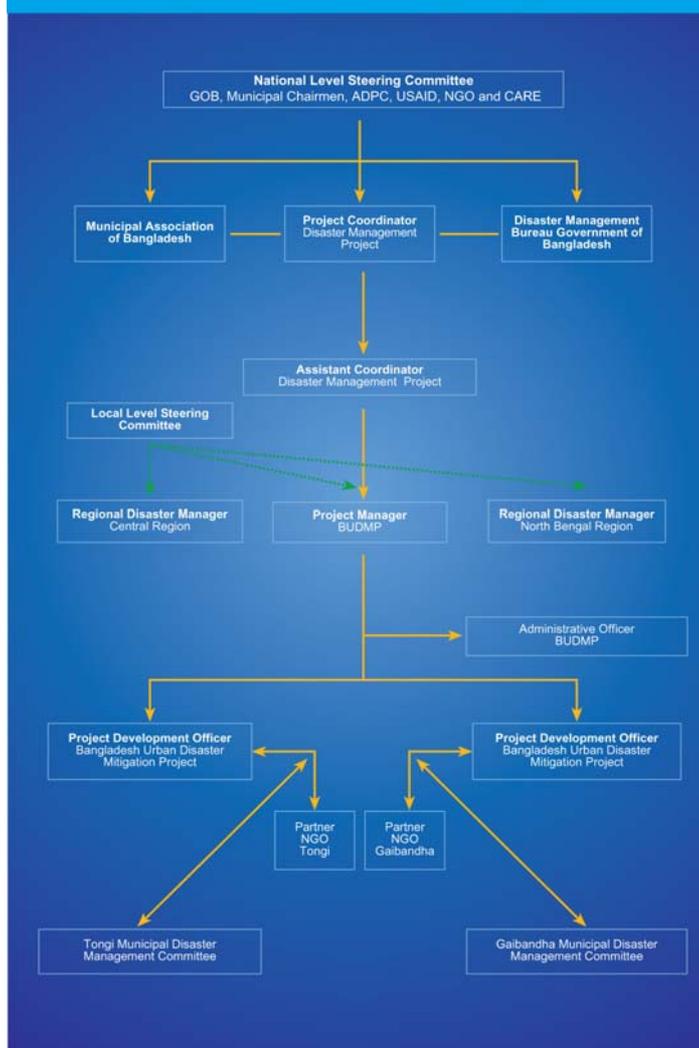
Lessons Learned



A community based disaster management project needs to build trust and establish formal links with a range of stakeholders to facilitate community participation.

Communities need to know how to use existing national policy mechanisms to motivate their municipal disaster management committees to take responsibility for effective implementation of local level flood proofing measures.

ORGANOGRAM Bangladesh Urban Disaster Mitigation Project



The Importance of National Disaster Policy

In accordance to the Standing Orders for Disasters – the DMC addresses national policy guidelines by developing a vulnerability assessment and contingency plan at ward level to ensure roles and responsibilities can be identified and acted upon.



Understanding Community Risk and Vulnerability

After the important political links from National to local level was initiated, and networks between key stakeholders established, the next step was to understand the community context in all project locations. To gain this unique community knowledge, information was collected in an attempt to understand the causes of vulnerability, which areas are most vulnerable, and the people most at risk, and to decide what to do.

Participatory Rural Assessment (PRA) tools were used to collect the information. These tools assist to gather perceptions, opinions, demographic and behavioural information about the community through a series of activities. The BUDMP employed the use of 6 PRA tools to extract the information needed to engage and better understand the community. The active participation of the community in the giving and collecting of data greatly enhanced the outcome of the BUDMP.

Training was provided to community and religious leaders to raise awareness of the importance of their roles. They are an influential sector of Bangladeshi society, and their active participation assists greatly to build community trust to facilitate the implementation of the project.

Vulnerability Assessments provide comprehensive information, organised to identify and prioritise physical areas, infrastructure and people most vulnerable to disasters. Trained DMC committee members, local BUDMP staff, and a number of young volunteers conducted some of the PRA activities and were responsible for overseeing the development and implementation of structural mitigation activities. It was hoped that through their training, they would be able to initiate the extension of future flood mitigation activities in these two municipalities. A baseline study was conducted at the community level with the help of newly trained staff and volunteers who provided an effective link to the grassroots community.

From the completion of the Vulnerability Assessment, it became clear that a Municipal Contingency Plan was needed. The data collected from the community showed some people knew what to do, but some were not so clear. The Contingency Plan identified 'Before Flood Time, During Flood Time, and After Flood Time' roles and responsibilities for all levels of the community. It also identified key vulnerable groups that need greater attention.



Baseline Survey. Consulting at the village level. Tapping into the community.



Problem Identification and Prioritisation. Determining community vulnerability through a participatory approach.



Focus group allows key stakeholders to meet and share ideas and concerns.



Religious Leaders have strong influence over the community.

PRA Tools

- ✦ Base-line survey: semi-structures household interviews
- ✦ Wealth ranking to identify available resources
- ✦ Transect walks
- ✦ Social mapping
- ✦ Problem identification and prioritisation
- ✦ Focus group discussions



Community Participation

When key target areas and local resources were identified, it was time to prioritise community needs and decide how, and what to flood proof in Gaibandha, Tongi, Shahjadpur and Bhuapur. Focus group discussions provided a constructive medium to facilitate discussions to decide what to do. Key disaster stakeholders were invited to share their experiences, ideas and expectations of the BUDMP. Mr Sabur, Municipal Chair and Chair of the DMC in Gaibandha was one of the participants in the focus group meetings. He knew something must be done to deal with the worsening flood situation, however the hurdle of money always seemed too great to overcome. Through the focus group, he was able to see that by building on existing flood proofing practices and using a small financial leverage provided by the BUDMP, his municipality could achieve some positive results.

Indigenous Flood Proofing Techniques

- Roads leading to selected schools were raised and protected to become multi-purpose flood evacuation shelters.
- Communal facilities were raised to ensure safe evacuation.
- Drains were built to remove excess water in raised areas.
- Culverts were placed where relevant to allow excess water to drain.
- Public Latrines and shower places were built on raised demonstration homesteads to improve sanitation facilities during flood season.
- Public tube wells were built on raised homesteads to reduce contamination of drinking water.
- Traditional Homestead community clusters were raised to demonstrate the effectiveness of indigenous mud raising techniques for flood proofing.

'The coping mechanisms of the community are often under-valued and at times ignored'
-Bali Lessons Learned Workshop October 2002

Their participation promoted a sense of ownership of the project because their concerns were aired, discussed and acted upon. They also become actively involved in the decision-making of project outputs and activities, whom should be involved, and how best to



Raising roads leading to schools to ensure safe passage during floods.

Lessons Learned



Community participation engages the people and encourages ownership and responsibility over the project and promotes resilience and sustainability.

mobilise the BUDMP funds and the small financial resources collected within the community.

Together, decisions were made to spend some resources attending to public areas and services such as roads, schools, drainage, latrines, and tube wells.

Homestead raising not only flood proofed the living space of people, but also ensured that the small home gardens, latrines, and water supply shared by the community was kept safe. This served to supply the community with food during the prolonged flood periods, lasting for several months. Raised latrines and showers ensured a standard of sanitation could be up kept to prevent the spread of water borne diseases. Raised tube wells protected clean water sources from contamination.



Homestead raising

In Tongi, the central primary school was raised along with the roads leading to and from the school to ensure people could reach this community evacuation centre during a flood. Raised roads also provided a safe place to keep livestock and store feed during prolonged flooding. In Gaibandha, because the population is dispersed, more primary schools were raised; some on 10 metre concrete poles on the outskirts of the municipality, and the others in the middle of town using mud. In Shahjadpur and Bhuapur similar activities were done.

The right to participate and the power to make decisions was a valuable strategy of the BUDMP. It allowed a low-income pushcart driver to contribute to his own flood proofing measures to ensure his livelihood security. Asraf, through his homestead unit, could also share a safe place, food security, safe sanitation and clean drinking water with his wider collective community, indicating that the benefits of BUDMP have reached out. Promoting small steps based upon participatory decision making and consultation can lead to a community empowered to initiate their own flood preparedness measures, and resilient to tackle disasters.

Familiarity and relevance to the peoples immediate livelihood security attracted the communities of all participating municipalities to actively participate in the BUDMP.



Community participation

Identifying and mobilising resources

In Gaibandha municipality, CARE and partner NGO's determined community resources of 218,142 cubic feet of soil, 3,429 labourers, and a small budget of 327,423 Taka could be mobilised to implement a series of minor structural flood proofing activities. 22 local people were selected to manage the distribution of soil, budget and labour; and to oversee the implementation of the project. CARE and AUDMP provided additional financial contribution. Small scale external interventions can make significant contributions to existing effective practices at the community level.

'... it is the responsibility of the community and local government in any disaster to assume primary goals, establish programs, develop priorities and distribute resources.'

-Bali Lessons Learned Workshop October 2002

Knowing and working with your limitations

Bangladesh faces many development challenges. Floods are merely the tip of the iceberg, and they uncover a myriad of interconnecting issues and problems. Each member of the municipalities of Gaibandha and Tongi has a role and responsibility to each other, which will assist in building the capacity of the community to cope in a disaster situation. The BUDMP focuses on these different roles and responsibilities and tried to link them together to promote a

better understanding of how each individual, household, and community perceives their vulnerability and what they can do to build their resilience.

The BUDMP is a pilot demonstration project and shows that small initiatives can be successful. There is room for future mitigation activities, given the enthusiastic engagement of the community, and the beneficial outputs produced. The BUDMP experience shows that flood mitigation at the household level can be a simple and low-cost exercise.

Activities of the BUDMP

- Vulnerability assessment - to identify areas and communities most at risk
- Contingency plan - to provide a framework for community roles and responsibilities before, during and after a flood hazard
- Demonstration house raising - to demonstrate household level flood proofing
- School raising - to use as a safe and central evacuation centre and playground for children
- Road raising - to ensure people remain mobile, to house livestock, and store fodder during floods
- Improving drainage in vulnerable areas - to ensure excess run off is removed
- Latrine and shower places raising - to improve sanitation during a flood
- Tube well raising - to provide fresh and safe drinking water

Lessons Learned



Poverty contributes to community risk and vulnerability in Bangladesh. With limited resources available, the BUDMP addressed community issues through small and simple interventions with great success.

Conclusion

With limited financial resources, small, yet effective community interventions can still produce beneficial results. The BUDMP has successfully replicated this flood-proofing project in two other Municipalities. The ability to make decisions promoted community ownership of the project. Encouraging the community to participate, by deciding how to flood proof their municipality, strengthened confidence in their own capabilities to take responsibility during a flood situation. The experiences of Gaibandha, Tongi, Shahjadpur and Bhupur are evidence of the positive impact of community based disaster management strategies. Annual flooding no longer affects Asraf Ali and his family, and Mr Sabur can sleep soundly knowing he has contributed a small step to ensuring that at least some vulnerable groups will be able to seek shelter. The future holds hope for the people of all these municipalities, lessons can be learned through their cases, yet, preparedness does not stop at this experience. Small can be Beautiful.





Further References

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- Community participation in urban flood mitigation under BUDMP, pages 297-299

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BUDMP

The Bangladesh Urban Disaster Mitigation Project was launched March 2000 under the Asian Urban Disaster Mitigation Program (AUDMP) of the Asian Disaster Preparedness Centre (ADPC). The overall goal of this pilot project is to 'Minimise the impact of disaster on livelihood security of vulnerable households'. Both structural and non-structural flood mitigation measures were implemented in two Phases of this project.



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- Participating community, municipalities and local NGOs.

Safer Cities

Safer Cities is a series of case studies that illustrate how people, communities, cities, governments and businesses have been able to make cities safer before disasters strike. The series presents strategies and approaches to urban disaster mitigation derived from analyses of real-life experiences, good practices and lessons learned in Asia and the Pacific. This user-friendly resource is designed to provide decision-makers, planners, city and community leaders and trainers with an array of proven ideas, tools, policy options and strategies for urban disaster mitigation. The key principles emphasized throughout Safer Cities are broad-based participation, partnerships, sustainability and replication of success stories.

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AUDMP

The Asian Urban Disaster Mitigation Program (AUDMP) is the first and largest regional program implemented by ADPC. The AUDMP started in 1995 with core funding from USAID's Office of Foreign Disaster Assistance (OFDA) until 2005. The program was developed with the recognition of increased disaster vulnerability of urban populations, infrastructure, critical facilities and shelter in Asian cities. In an environment where good governance and decentralization are high in most countries' political agenda, AUDMP aims to demonstrate the importance of and strategic approaches to urban disaster mitigation as part of the urban development planning process in targeted cities of Asia.



AUDMP supports this demonstration by building the capacity of local authorities, national governments, NGOs, businesses and others responsible for establishing public and private sector mechanisms for urban disaster mitigation as part of city management. AUDMP also facilitates knowledge sharing and dialogue between key stakeholders to promote replication of AUDMP approaches to other cities and countries worldwide. Currently, the AUDMP approaches have been introduced and sustained by national partner institutions in targeted cities of Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Philippines, Sri Lanka, Thailand and Vietnam.

ADPC

The Asian Disaster Preparedness Center (ADPC) is a regional resource center dedicated to safer communities and sustainable development through disaster risk reduction in Asia and the Pacific. Established in 1986 in Bangkok, Thailand, ADPC is recognized as an important focal point for promoting disaster awareness and developing capabilities to foster institutionalized disaster management and mitigation policies.

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