

UAB Global Health Case Competition

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Disaster Management and Preparedness in Barguna District, Bangladesh

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Introduction

Thank you for participating in the 2012 UAB Global Health Case Competition! We hope that you will find this a challenging and rewarding experience. Please remember that this case represents a complex scenario which does not necessarily have a single correct or perfect solution, and thus encourages a balance of creative yet perceptive and knowledgeable approaches. Note that all characters, organizations, and plots described within the case are *fictional* and bear no direct reflection to any existing organizations or individuals.

Good luck!

Opening Scenario

It is one year after Cyclone Sidr devastated the southern coast of Bangladesh. Recovery has gone relatively well in terms of avoiding disease outbreak, ensuring adequate provision of water, sanitary waste disposal, and food to cyclone survivors and residents. Nevertheless, serious challenges remain with regard to physical and economic redevelopment of affected communities and their residents. In the Barguna district, many women, men and children are now entering their second winter with unsafe, inadequate shelter. During the rainy season, families struggle to stay dry and healthy, living under flimsy shelters built out of banana leaves, cloth and salvaged debris that cannot withstand heavy winds and rains. They remain extremely vulnerable to poor health, malnutrition, and future disasters in a region prone to environmental shocks. Parents worry for their children's health. Women continue to suffer from a lack of privacy, compromising their health and hygiene. Initial hopes of assistance in rebuilding have turned into disappointment and fear of the next disaster. Overall economic devastation has been estimated in the billions of US dollars, and money is slow to funnel in from international donors. With few existing resources to rebuild, little or no savings, and no means of earning wages, residents are increasingly desperate for help from the government and international community.

Assignment

A robust and well-coordinated redevelopment strategy in the most affected areas is urgently needed. Such a strategy must take into account survivors' evolving needs and circumstances and ultimately reduce their vulnerability to future environmental shocks. At the

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individual and community levels, sound design and implementation of such a strategy helps to restore citizens' confidence in local government response and mobilization. At a national level, it helps protect current development gains and minimize the amount of resources being diverted repeatedly into costly humanitarian responses.

The Barguna District Disaster Management Committee (DDMC; see Appendix A for committee structure) recognizes the need for urgent action to address these problems. As a member of the Barguna DDMC, you have been tasked, in conjunction with the other DDMC members, to present a detailed strategic plan to address redevelopment and recovery in the Barguna district over the next five years. Your plan should have specific short (Years 1 and 2), mid (Years 3 and 4), and long-term objectives (Year 5 and beyond) and a detailed plan as to how these objectives will be measured using specific indicators and a sound approach for sustainability beyond funded recovery period of five years.

Your plan should take into consideration the priority areas for redevelopment identified by the community (see page 8). In addition, you are also being asked to develop specific criteria on how the beneficiaries of the recovery initiatives will be prioritized. Given that you have limited funds of 20 million USD for the district's five-year plan, the Bangladeshi government recognizes the importance of collaborating and combining resources with the local, national, and international non-governmental organizations (NGOs), particularly since many of the NGOs are already involved in these rebuilding activities. You will present your final action plan to the Project Implementation Committee, which is designed to provide oversight and transparency and is comprised of local community leaders from Barguna, government officials, and local and

international NGO representatives. You will need to be able to justify the decisions that you make towards the development of your final strategies, and you must also be prepared to explain details of your choices. You will also need to take into account the various groups and stakeholders affected by your decisions.

Comprehensive Disaster Management Programme (CDMP)

Traditionally, the government of Bangladesh has taken a reactive approach in dealing with natural disasters with a focus on relief and rehabilitation activities. The need for a proactive approach became apparent in the 1990s and facilitated a paradigm shift to the comprehensive approach of identifying hazards and mitigation strategies, building community resilience and integrated and coordinated response efforts. Globally, the CDMP is considered an innovative program and has motivated other at risk countries to initiate their own disaster risk reduction efforts.¹ There are several critical components of the CDMP that are relevant to you as a member of the Barguna DMMC.

The first stage in the planning process for comprehensive disaster management in Bangladesh is the community risk assessment (CRA). The CRA is conducted at the community level with the purpose of identifying, analyzing, and evaluating the vulnerabilities, hazards, and risks in their own communities. The assessment is done through an approach that uses participatory methods that includes all community members. The purpose of conducting the CRA is to combine scientific data with local knowledge to form an accurate assessment of the community. Once the CRA has been completed, the communities can develop a Risk Reduction Action Plan (RRAP) that lists the disaster reduction activities that the community considers to

be the priority activities to undertake.ⁱⁱ The Local Disaster Risk Reduction Fund (LDRRF) is the mechanism in which communities can apply for funding for the priority activities identified in the RRAP. The LDRRF was established by the Government of Bangladesh and external donors to provide grants to the most vulnerable in the community and to broaden and strengthen their coping capacities against disaster and climate change. Once funded, the local disaster management committees implement the projects with assistance from the Bangladeshi government and local, national, and international NGOs. Each community's RRAP is consolidated into the respective district's RRAP which in turn informs the national action plan thereby insuring local communities are driving policies and actions at the national level.ⁱⁱⁱ

Case Background

Background on Bangladesh

Bangladesh is one of the poorest and most densely populated countries in the world with a Gross Domestic Product (GDP) of US \$1,700 per capita and a population exceeding 158 million people. Located between the Himalayas and the Bay of Bengal and with three mighty rivers (Ganges, Brahmaputra, and Meghna) converging on its territory, Bangladesh is vulnerable to floods, torrential rains, erosion, drought, and cyclones. Compared with countries in which river deltas, alluvial plains and coastal areas make up only a small portion of their total land mass, Bangladesh is almost entirely an alluvial floodplain, making it especially vulnerable to flooding disasters.^{iv}

In a normal year, up to half of Bangladesh is flooded, and more than ten million people live in areas of high risk. Competition for scarce land and access to resources has forced settlers to build their dwellings in coastal areas that are unsustainable for long-term occupancy and

remote from safe shelter and communications. Complicating matters, Bangladesh has an underdeveloped system of land tenure and property rights, rendering many of its poorest landless; these families end up living on sandbars or swamplands that disappear during even minor floods. The result of Bangladeshis' frequent experiences with natural hazards is an ever growing number of people incapable of fully recovering from multiple economic shocks.^v

Cyclones in Bangladesh

Of the 508 cyclones that have originated in the Bay of Bengal in the last 100 years, 17 percent have hit Bangladesh, amounting to a severe cyclone almost once every three years. Of these, nearly 53 percent have claimed more than five thousand lives. Some of the most devastating natural disasters in recorded human history have occurred in the area that now forms Bangladesh. Most notable is the 1970 Bhola cyclone that claimed over 500,000 lives and is considered one of the worst natural disasters in modern times. As a result of the Bhola cyclone, the government constructed more than 200 cyclone shelters in coastal areas in the following 30 years and created a cyclone preparedness program in 1972. By the time the next destructive cyclone came through in 1991, thousands of volunteers from the cyclone preparedness program were able to warn people of the cyclone two to three days before the cyclone hit resulting in the evacuation of 350,000 people to safer shelter. Despite these measures, the 1991 cyclone still killed over 130,000 people.^{vi}

Cyclone Sidr

By the time Cyclone Sidr struck the southern coastal areas of Bangladesh on November 15, 2007, many important life-saving actions had been carried out. Due to early warning

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systems and disaster preparedness measures, up to 3 million people had already evacuated low-lying coastal areas, many finding shelter in anti-cyclone shelters. Local government officials and non-governmental organizations (NGOs) quickly moved relief supplies into areas expecting to be affected.^{vii} At the national level, the Bangladeshi government along with the armed forces and thousands of volunteers organized a massive humanitarian response.^{viii}

Despite preventive measures, as Cyclone Sidr tore through several coastal districts, it left enormous devastation in its wake. In total, 30 of Bangladesh's 64 districts were affected. Approximately 8.7 million women, men and children were affected, and about 4,000 people were killed as a result of the storm. One and a half million homes were partially or completely destroyed leaving millions without adequate shelter. This disproportionately affected the extreme poor who often live in thatched huts or wood framed houses with corrugated iron roofs. Following Cyclone Sidr, it was estimated that there were around 86,000 families that needed support from humanitarian organizations to rebuild their fully damaged houses and around 141,000 families needed help to rehabilitate their partially damaged houses.^{ix}

In addition to many losing their homes, approximately 1.2 million livestock were killed and 2.4 million acres of crops were ruined. The loss of livestock is critical as it is considered a valuable household asset as well as a food source. Given that the areas affected only have one growing season, the destruction of the rice crop was particularly devastating. The majority of crops were nearly ready for harvesting and many families lost their food stocks due to their damaged homes. Water and sanitation was also an issue with drinking water being contaminated by saline and debris. Additionally, many latrines were partially or completely destroyed. Overall economic losses have been calculated at USD \$1.7 billion.^x

Impact of Cyclone Sidr in Barguna District

Barguna District, located in the southwestern part of Bangladesh, is one of 64 districts in the country. Barguna is located at the base of the Bay of Bengal, and sits at the mouth of the Payra, Bishkhali, and the Baleshwar Rivers. Given its geographic location, Barguna was one of the most affected districts by Cyclone Sidr. It is estimated that Sidr affected 217,279 households, which included 843,669 people (the total estimated population of Barguna in 2001 was 848,554).^{xi} Given the high percentage of the population that was affected by Sidr, Barguna also suffered the most casualties and injuries in the country, with 1292 deaths and 16,310 injuries. 191,657 homes were affected by the cyclone, with approximately half of those being fully damaged. Regarding infrastructure, 614 kilometers of roads were fully damaged, and 1294 kilometers of roadways were partially damaged. 230 schools were fully damaged and 335 were partially damaged in the district. Agriculture is the main means of livelihood. Sidr damaged 75,000 hectares of crops in this district (approximately 40,000 fully damaged and 35,000 partially damaged).^{xii}

Barguna District Risk Reduction Action Plan (RRAP)

The Barguna District Risk Reduction Action Plan is comprised of the RRAPs developed by the communities in the Barguna District and reflects the collective priorities that were established during the Community Risk Assessments in the year following Cyclone Sidr. The CRA also established that approximately 75,000 households are still without adequate shelter and access to safe water and that all of the communities in Barguna should have

exposure or be involved in the community preparedness efforts. Priority needs identified by the district CRA include:

- Housing needs: cyclone resistant housing components, raising of the home above storm surge level, forestation efforts to reduce impact of natural disasters
- Rebuilding livelihoods: agricultural risk reduction activities, livestock programs, other alternative livelihood options
- Access to safe water
- Community awareness raising and other disaster management trainings for the communities

Reducing Vulnerability to Disaster

There are two main strategies that are considered effective in reducing vulnerability to disasters: 1) decreasing the impacts of hazards on lives and resources through prevention, protection and preparedness efforts and 2) strengthening and diversifying livelihood options thereby increasing resilience to natural disasters.^{xiii} Given that funds are more available for emergency response than preparedness and risk reduction, it is important that disaster risk reduction activities are mainstreamed into relief and rehabilitation activities. It is also imperative to remember that all opportunities should be used to build back with a better capacity to withstand future disasters and to not rebuild risk.

Housing Assistance Programs

There is a limited amount of awareness among some NGOs and donor institutions on the concept of a core shelter. A core shelter incorporates durability and hazard resistance. The majority of the shelters that were built following Cyclone Sidr were transitional shelters which were not necessarily hazard resilient or durable in the long term. However, the quality was

compromised in order to provide minimal shelter to as many affected families as possible.

While this was good in the short and mid-term, in the long-term these shelters are likely to be damaged or destroyed in the next storm or cyclone. It will be important to take this into consideration to prevent unnecessary expenses in the long term due to repairing/replacing transitional shelters. Other important things to consider for the housing program:

- What type of housing design will be used? Costs and cyclone resilience varies by design. See for Appendix B for more details on different types of houses and costs.
- How will the housing programs be administered and money and resources distributed?
- Will beneficiaries receive training?
- Will beneficiaries have to pay something in kind? This could be in the form of money, materials or labor.

Income Generating Activities

In the past, approaches to disaster management in Bangladesh have focused on response and recovery. Recently, the risk reduction agenda has recognized social and economic aspects of poverty as underlying causes of disaster risk, and that livelihood diversification – increasing options as well as income – is essential to helping communities prepare and cope with disasters. The additional income generated can be used in at risk communities to reduce their vulnerability to future disasters by repairing and strengthening homes, improving sanitary conditions and improved access to safe drinking water. The following income generating activities are based on the local needs, capacity and opportunities in Barguna. For more details on each of the activities listed below, please see Appendix C.

- Agricultural activities: homestead gardening, garlic and watermelon cultivation, early maturing rice cultivation, saline tolerant agricultural methods, tree planting
- Livestock interventions: livestock (cow, goat, sheep) and poultry (duck, hen, pigeon) rearing
- Apiculture
- Off farm activities: bamboo product-making (handicraft), matmaking, blanket making, curd production and seed preservation^{xiv}

Increasing Access to Clean Drinking Water

Lack of safe drinking water is a serious concern in the coastal regions of Bangladesh, particularly in the Barguna district. This is due to high levels of arsenic in the groundwater in some areas and increasingly more seawater (salinity) making its way further inland. The situation is especially dire following a natural disaster when traditional ponds or surface water bodies become inundated with sea water or are destroyed during a cyclone. There are many different ways to collect and treat water but many are not appropriate for Bangladesh due to cost or conditions. Another important consideration is maintenance. If there is not a clear plan for maintenance following installation then it is likely to break and fall into disrepair. The following methods are commonly used in Barguna:

- Rainwater harvesting
- Excavating or renovating ponds; pond sand filters
- Rooftop catchment areas
- Other innovative alternatives^{xv}

Community Based Disaster Preparedness Programs

Involving the community is a vital part of risk reduction activities, particularly because communities often have a host of local knowledge, resources, and creativity to contribute.

Additionally, community based preparedness programs can create a culture of prevention and empowerment that is inclusive of the most vulnerable in the community. It is imperative that families, communities and basic service providers understand the basic needs in health, nutrition, education, water management, hygiene and sanitation, and protection in a disaster situation. It is also important that a variety of methods are employed to educate and involve the community in risk reduction activities. By involving the community and increasing awareness, many households, despite economic constraints, will undertake risk reduction measures such as raising their household plinths, flood proofing latrines, etc. The activities below are examples of different ways to involve the community but this is not an exhaustive list of options.

- Production of hazard vulnerability maps
- Development and distribution of information, education, and communication materials
- Media campaigns
- First aid training and equipment
- School awareness education to institutions
- Other innovative alternatives

Incorporating the Most Vulnerable

How you select your beneficiaries is a key component of your strategy. There are different strategies for selecting beneficiaries to ensure that you are including the most vulnerable populations. The following are things you may want to consider:

- How will they be selected, i.e. do beneficiaries have to apply or will there be a nomination process?

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- How will money and resources be distributed and monitored for financial accountability?
- How many households do you plan to target?
- Given that Bangladesh has an underdeveloped system of land tenure and property rights how will you work with the Bangladeshi government to incorporate those who have no title for their land and often live in the most high risk areas?

Summary of Assignment

As a member of the Barguna District Disaster Management Committee, you have been tasked with developing and presenting a detailed strategic plan to address redevelopment and recovery in the Barguna district over the next five years. Your plan should have specific short (Years 1 and 2), mid (Years 3 and 4), and long-term objectives (Year 5 and beyond) and a detailed plan as to how these objectives will be measured using specific indicators and a sound plan for sustainability beyond funded recovery period of five years.

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^v Cyclone Sidr in Bangladesh: Damage, Loss, and Needs Assessment (April 2008), a joint study conducted by the Bangladesh government and the World Bank.

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^{ix} Bangladesh: Cyclone Sidr

^x Cyclone Sidr in Bangladesh: Damage, Loss, and Needs Assessment

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