



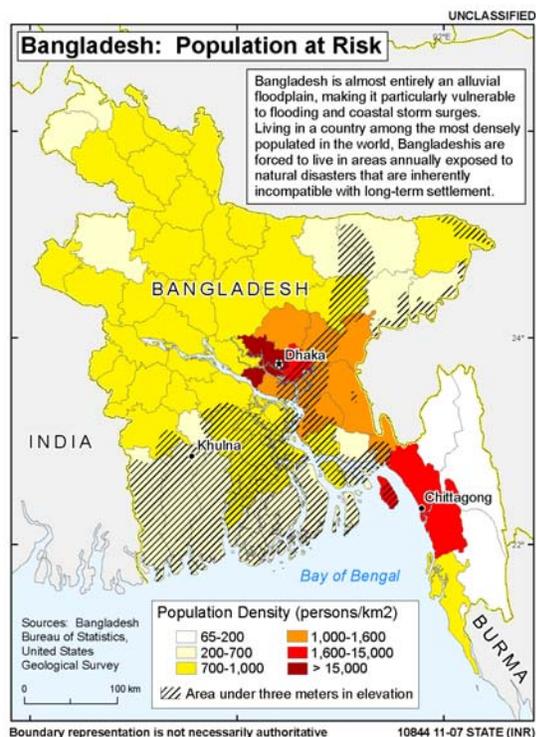
Bangladesh: Cycle of Vulnerability

December 6, 2007

On November 15, 2007, Category 4 Tropical Cyclone Sidr made landfall in southern Bangladesh, leaving more than 3,200 people dead and 1,000 people missing, with an additional 8 million affected. Despite this toll, an estimated 40% of the people living on the coast were successfully evacuated in the day-and-a-half preceding the storm, illustrating the progress Bangladesh has made in disaster response. Past Category 4 cyclones have taken between 50 to 150 times more lives than Sidr did. Despite improved disaster mitigation efforts, why do so many Bangladeshis remain severely at risk during flooding associated with cyclones and seasonal monsoon rains?

Dealt a bad hand...

With a Gross National Income of US \$480 per capita and a population density exceeding 1600 people per square mile, Bangladesh is among the poorest and most densely populated countries in the world. 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. Even in a normal year, up to half of Bangladesh is flooded, and more than ten million people live in areas of high risk, with landless, impoverished fishermen, and tenant farmers most exposed to natural hazards. Competition for scarce land and access to resources has forced settlers to build their dwellings in coastal areas that are inherently incompatible with 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.



Impoverished, landless, migrants...

Though Bangladesh may be unavoidably a victim of its overall geography, there are a number of deep-rooted economic, social, and cultural factors that contribute to its people's vulnerability. As many as 60% of Bangladeshis are impoverished, surviving by

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farming subsistence plots or land owned by others. Land ownership is often not formally established, and disputes among residents, powerful landlords and government agencies are common. As a result of this uncertain land tenure, people fear seizure or occupation of their land should they leave it, even temporarily, to seek refuge from an impending cyclone. Even more vulnerable are the landless seasonal migrant workers who travel to southern Bangladesh to fish and perform agricultural work. Migrants usually live in temporary structures far from villages, and though their numbers are often not officially accounted for, their presence temporarily swells the population of southern Bangladesh by as much as 30%.

Bangladesh's poor generally live in houses constructed from materials (such as bamboo or metal sheeting) which cannot withstand strong storms. The poor who do have assets (such as cattle, possessions or crops) generally have no savings, and face a total loss of their assets during extreme weather. A loss of assets, combined with shocks to both individual income generating activities and overall market activity, can push working poor communities into complete economic dependence. In past cyclones, a desire to protect one's assets—for example, by securing livestock on raised platforms—has often delayed or prevented evacuation.

Since 1991, the donor community, including the United States and the European Commission, has supported disaster-preparedness to mitigate the impact of cyclones. Improvements include the construction of earthen berms (similar to levees) that provide both protection from storm surges and elevated routes for evacuation; disaster shelters on stilts that accommodate several hundred refugees each; and a modernized early-warning system that combines weather satellite data with radio, television, and neighborhood messaging to provide information about evacuations. Even with these improvements in place before Cyclone Sidr, unknown numbers of the poor still live without radios, televisions, or telephones, rendering it impossible to reach large segments of the at-risk population.

Children, women, tradition...

Of the estimated 6 million people displaced or made homeless by Cyclone Sidr, half are children, many younger than five. Without access to clean water and sanitation, younger children are especially vulnerable to life-threatening diarrhea and other waterborne illnesses. Those who are orphaned face an increased risk of abuse and exploitation.

Though several universally common issues cause many floodplain dwellers to ignore evacuation warnings (such as having nowhere to go or not enough time to get to shelters), there are several factors unique to Bangladeshis that contribute to their disinclination to evacuate.

- Not enough cyclone shelters exist to accommodate potential evacuees during a major cyclone; at least 1,500 additional shelters are needed. Studies show that even where shelters exist, the typical Bangladeshi will not travel farther than one mile to reach them.
- Data indicate Bangladeshi women are reluctant to enter shelters typically utilized by men (such as *madrassas*) or where men and women will be in close physical

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contact. Women are more inclined to use shelters when families evacuate together, or when shelters allow for male and female separation.

- Due to the frequency with which Bangladesh suffers natural disasters, many residents living in flood-prone areas exhibit a resigned attitude toward risk, prompting them to endure losses without employing available mitigatory measures.

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