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## Bangladesh's Climate Change Emergency

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*As one of the countries most seriously affected by climate change and natural disasters, Bangladesh has been forced to be resourceful and resilient. Without outside help, however, the country of 160 million will not have the capacity to address climate-related environmental changes as their severity and frequency increase. The United States should augment its focus on adaptation measures when providing the South Asian nation with aid.*

In October, Bangladesh, Denmark, and the World Bank agreed to a plan that will make COP15, the UN's December 2009 climate change conference, completely climate neutral. Denmark, aiming to offset the emissions generated by the international conference, will distribute approximately 1 million dollars to Dhaka, Bangladesh's capital city. In recognition of Bangladesh's tremendous vulnerability to climate change, Denmark has allocated this money to replace the country's brick factories, which emit thousands of tons of carbon dioxide every year. Cleaner, more efficient factories will take their place.

**A Disaster-Prone Nation:** Although the efforts of the Danish government will have a positive affect on Bangladesh's environment, they are just one small step toward minimizing the disastrous effects of global warming on the developing nation. Bangladesh cannot take on the larger task itself. It has no choice but to look to the international community for assistance. With both humanitarian obligations and security interests in Bangladesh, the United States must help provide it with the resources and support needed to combat climate change, especially as the frequency and severity of natural disasters in the country increase.

The frequent occurrence of natural disasters in Bangladesh is not a new phenomenon. Floods, cyclones, and earthquakes have been realities of life for the people of this low-lying, impoverished county since its formation. In fact, the 1970 cyclone played a major role in the creation of the Bangladeshi state, as frustrated West Bengalis—still citizens of Pakistan—lashed out against the Pakistani government after its slow and ineffective response to the disaster. In 1991 Cyclone Gorky killed more than 130,000 Bangladeshis and left some 10 million homeless. In addition to occasional cyclones that ravage the country, monsoon rains regularly inundate 2060 percent of Bangladesh every year. These natural calamities seem to have an ever-present role in Bangladeshi life.

**The Unique Threat:** The resilient Bangladeshi people have always coped with the effects of extreme weather patterns and environmental conditions not related to climate change. Arsenic-contaminated groundwater, for example, is a serious problem that is exacerbated by climate change. Bangladesh's proximity to sea level is another natural condition that increases its vulnerability to the effects of global warming. The frequency and severity of these natural disasters, however, are rapidly escalating because of climate change. Because Bangladesh is both low-lying and densely populated, the impacts of climate change on the country will be particularly intense. Minor environmental changes will have major consequences.

A recent World Bank report lists Bangladesh as one of the 12 countries most at risk for climate-related problems. It is seriously at risk for all of the five main climate threats: drought, floods, storms, sea-level rise, and agricultural crop loss. A one-meter rise in sea level as the result of the melting of the Himalayan glaciers and Greenland ice sheet could flood one-third of the country and displace as many as 40 million

people. In other areas of Bangladesh, climate change may contribute to salinity intrusion and increase the likelihood of winter drought. In both of these scenarios, a shortfall in crop production would ensue, threatening the food security of a society that is highly dependent on agriculture.

The repercussions of global warming on Bangladesh are diverse and wide-reaching. The environmental changes that are occurring directly affect all aspects of society. Human health, food security, industry and energy security, infrastructure, and economic development are all threatened by climate change. According to the World Bank, 40 percent of foreign aid to Bangladesh is vulnerable to climate-related factors. In a country as densely populated as Bangladesh, even small-scale shifts in ecological systems have a profound humanitarian impact.

As the effects of climate change continue to intensify, the potential for social, economic, and humanitarian disaster is rapidly increasing. One of the most serious impacts of climate change is on human migration. As sea levels rise and a vast proportion of Bangladesh becomes inundated, many will have no choice but to flee their homes. Bangladeshi "land squatters" have for decades settled on vulnerable islands of silt known as chars. already vulnerable during monsoons, this rootless population is sure to increase. With higher sea levels and stronger storms, the chars are quickly eroding under their inhabitants' feet. Farmers who can no longer cultivate their land, inhabitants of coastal areas that have been submerged in sea water, and other impoverished Bangladeshis who are forced to leave their homes to escape from climate change will become environmental refugees. They will spill over into Bangladesh's neighboring countries and may end up in the already crowded slums of cities like Calcutta, Delhi, and Mumbai.

**Bangladesh's Strengths and Limitations:** The Bangladeshi government has developed considerable expertise in responding to natural disasters. The country's Comprehensive Disaster Management Program and Flood Forecasting and Warning Center are designed to predict and respond to natural disasters and have contributed to improved disaster response in recent years. The cyclone monitoring system has been particularly effective in preventing loss of life at the hands of powerful storms. But as global warming continues to have an impact on the country and weather patterns become more severe, disasters will begin to affect larger numbers of people and new parts of the country. We have already seen an increase in temperature and rainfall averages, more frequent and intense monsoons and cyclones, drought, saltwater intrusion in inland areas, and riverbank erosion.

With almost half of its population living below the UN-designated poverty line, Bangladesh cannot afford to finance adaptation and mitigation programs, nor does it think it should have to. Bangladesh, like many developing countries, emits a tiny percentage of the world's greenhouse gases yet is most seriously affected by the effects of global warming. Bangladesh also shares the view of many developing countries that the wealthy industrialized nations primarily responsible for global warming should be obligated to take the lead to halt its effects. Although the government of Bangladesh has made considerable efforts to address current impacts and future threats, there is much more research, investment in adaptation technology, capacity building, and planning to be done. These tasks are where Bangladesh would benefit from the assistance of the international community.

**Security Interests:** For the United States, this situation must be watched closely. Bangladesh is a moderate Muslim nation where there is minimal public backing of extremist Islamic groups and the government cracks down on radical Islamist activity. Still, Bangladesh remains a transit point for some militants operating in South Asia, and the generally weak governance makes it a relatively easy place for extremist groups to hide out looking for targets of opportunity. Climate-related disasters pose a risk of displacing millions of Bangladeshis and creating conditions in which terrorism can thrive. When these disasters strike, the state, already overwhelmed with the political and economic pressures of a developing country, will be unable to respond effectively. This climate of desperation gives way to social unrest, enhancing the attractiveness of political and religious extremism to some hopeless members of the beleaguered population.

Some of the likely economic consequences of climate change will also pose security dangers. Food and water security, for example, could be at risk, and could lead to mass protest movements. Even with a minor rise in temperature, losses in rice production could surpass 30 percent, losses in wheat production could pass 50 percent, and losses in potato production could exceed 70 percent. Salinity of groundwater

and a reduction in the flow of fresh water upstream, both results of higher sea levels, also contribute to reduced levels of food grain production. Coastal lands that could ordinarily be used for crop production are unutilized because of high levels of soil salinity. Biodiversity loss is yet another climate-related crisis that Bangladesh is facing. According to the United States Agency for International Development (USAID), the fish that formerly supplied 80 percent of the animal protein consumed by rural Bangladeshis now supplies less than 60 percent.

Despite its poverty, Bangladesh needs to implement comprehensive adaptation and mitigation programs. For a country like Bangladesh, with low greenhouse gas emissions, adaptation, or finding ways to adjust to changing conditions by developing new technology and ideas, may be the most logical path to take. While mitigation focuses on reducing emissions, adaptation is a more reactive approach to combating climate change that can span all sectors and address the immediate effects of global warming.

**Possibilities for U.S. Action:** Adaptation is an important area in which the United States can offer its support. Not only do adaptive measures diminish the impact of climate change, but according to a recent study by Italian researchers, adaptation will provide economic benefits. In developing countries such as Bangladesh, for instance, adaptation could reduce potential economic losses as a result of climate change from 5.3 percent of GDP to 2.9 percent. Resourceful Bangladeshis have already started implementing some adaptation techniques. A long-standing success story in Bangladesh is cultivation of flood-tolerant rice strains, which grow fast enough to keep the tops of the plants above rapidly rising water. People who live in coastal areas that are susceptible to flooding have created floating gardens on which they cultivate plants during the monsoon season. In the north of Bangladesh, an area more prone to drought, agroforestry practices that collect and store rainwater for more efficient usage are becoming more common. Practices like these are innovative and effective. They are, however, just a small part of what Bangladesh needs to survive the environmental changes caused by global warming.

According to a World Bank report, developing countries as a group will need 75–90 billion dollars annually over the next 40 years to finance adaptation measures. Specific estimates for Bangladesh are not available, but it seems unlikely that Bangladesh could take on these costs by itself. While leaving major decisions to Bangladeshi experts who understand the on-the-ground issues, the United States should provide financial assistance for the development of adaptation methods as well as training and technical aid.

The climate change program of USAID/Bangladesh focuses on the improvement of energy-sector performance. Still, the mitigation techniques that USAID's mission emphasizes will not be sufficient to address the dire situation in the country. With a lot at stake and little time to act, more immediate and useful action must be taken. USAID's plans to reduce carbon emissions within the country are not the most effective possible action to combat climate change. It is, after all, the emissions of other countries that have put Bangladesh in such a vulnerable position. While mitigation should be the goal of every country, adaptation efforts must be employed to protect not only the livelihoods of at-risk Bangladeshis, but also the extensive development efforts of the state, NGOs, and outside actors.

**Leading by Example:** At September's United Nations Climate Change Summit, President Barack Obama expressed a U.S. commitment to reduce carbon emissions and promote clean, renewable energy, a positive step toward curbing global warming's impacts. The United States still needs to step up its efforts to pressure the international community to get on board with seriously tackling the global climate threat, without neglecting to take the necessary steps itself.

Bangladesh has made remarkable progress in recent decades. Economic growth, democracy, and significant improvements in the nationwide standard of living make Bangladesh an example for other developing countries to follow. As the effects of climate change become more catastrophic, however, the fate of the country will ultimately rest in the hands of those countries, like the United States, that heavily contributed to the problem but also have the most resources to ameliorate it.

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