**Ali Riaz**

**Illinois State University**

This presentation posits that national security should not be seen exclusively through the prism of traditional security, defined in geo-political terms and confined to relationships among nation-states, and military strategy. Instead it should be considered as a combination of both traditional and non-traditional security issues. The latter include challenges to the survival and well-being of people and states that arise primarily out of non-military sources. I argue that environmental stress produces two kinds of negative responses: fight (civil conflict or external aggression) and flight (emigration). In Bangladesh, the most likely effect of these changes would be “flight” rather than “fight.” The flight option (i.e. emigration) would take place at two levels: rural-urban migration at the domestic level, and migration out of the country, particularly to neighboring India. The ongoing climate change will cause dramatic reduction in agricultural productivity and substantial decline in fisheries resulting decline, perhaps, demise of food security. Bangladesh already faces serious shortages in freshwater. By 2030 water scarcity below the notional acceptable minimum of one thousand cubic meters per year per capita will affect an additional 2.6 percent of the population. This will contribute to the extant tension between Bangladesh and India. The adverse impacts of climate change have important implications for governance. An increasing frequency of natural calamities will require mobilization of funds from already meager resources available for development (e.g. infrastructure) and social services (e.g. education and health). The strain on limited resources is not going to be equally shared by all segments of the society. Therefore, certain sections of society will bear a disproportionate share of the costs; which in turn will add a significant number of people to the pool of disgruntled population. The disruptive possibilities, internally and externally, may weaken the capacity of the Bangladeshi state in many ways. It may also strengthen the authoritarian tendencies of the state.

**Md. Khalequzzaman**

**Lock Haven University**

As per the fourth report of the Intergovernmental Panel on Climate Change (IPCC AR4, 2007), at the current rate of greenhouse gas (GHG) emission, the temperature in the atmosphere will increase by up to 4 degrees Centigrade by the end of this century -- which will mean a rise of sea-level by 0.59 meters. Other researchers predict a much higher sea-level (up to 2 meters) rise. In the face of such a sea-level rise, Bangladesh, being a part of the low-lying Bengal delta, will be one of the most vulnerable countries in the world in terms of the number of people (approximately 45 million) directly affected, and of the amount of land area that will undergo submergence (about 32 percent of the country’s 144,000 km2). The IPCC report outlined the nature and magnitude of the adverse impact on water resources availability, natural disasters, sedimentation rates, vulnerability of mangrove forests, economic growth, and human health. The fate of the Bengal delta is of concern in the absence of an integrated water and sediment resources management plan among the co-riparian countries within the Ganges-Brahmaputra-Meghna (GBM) basin.

Most parts of Bangladesh belong to coastal plain and flood plains in a deltaic setting that requires natural sedimentation to cope with rising sea levels. The fate of deltaic environments depends on the balance between the rates of natural sedimentation and sea-level changes. Calculations reveal that greater than 6.5 millimeters (mm)/year of sedimentation will be required on low-lying coastal plains to keep pace with the projected rate of sea-level rise. At present, about 1 billion tons of sediment enter Bangladesh from upper reaches of the GBM basin, of which over 50 percent is lost to the Bengal submarine fan via the Swatch of No Ground. The remaining amounts of sediments are not enough to compensate for the expected 6.5 mm/year of rise in sea level. Adaptation measures against the rising sea level should include an increase in the amount of sediment influx to coastal areas, and adaptation of mechanisms to increase sedimentation rates through projects designed to increase sediment capture in coastal plains and flood plains.

The government of Bangladesh has already taken some adaptation measures against climate change. The formulation of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) is a valuable document and a step in the right direction. This document outlines many action plans including strategies for flood protection and management schemes, plans to create a coastal green belt, building more cyclone shelters, emphasizing the resilience of vulnerable groups, establishing a center for research on climate change, developing climate change resilient crops, and building coastal embankments. Constructing more embankments and polders (dams) will further isolate coastal ecosystems from natural sedimentation, resulting in lower land elevations relative to rising sea level. It is suggested that the BCCSAP be modified to embrace solutions that are in harmony with natural processes, in order to ensure sedimentation in the coastal region. Since water-related problems will be the main concerns in the future, Bangladesh needs to work with India and other co-riparian countries to achieve an integrated water and sediment resources management plan for all common rivers.

**Adnan Morshed**

**The Catholic University of America**

The discourse on the climate-change vulnerability of Bangladesh has been dominated by the specter of a “southern threat”: With ongoing global warming and the resultant sea-level rise, a significant landmass of Bangladesh’s coastal south, facing the Bay of Bengal, could disappear under water. The susceptibility of the southern seaboard to climatic catastrophes cannot be underestimated. However, a more urgent and immediate environmental menace with long-term climatic implications lurks at the geographic center of the country—because of the chaotic urban growth of Dhaka and its disastrous effects on the fragile land–river ecosystem that historically has sustained the capital. Dhaka’s megalopolis juggernaut—which I call the “central threat” to the country’s climatic, economic, and demographic stability—not only exemplifies the tragic environmental consequences of uncontrolled urbanization in Bangladesh, but also alerts us, more generally, to the collective urgency to view urban centers as the frontier of the climate-change narrative, especially in developing countries that will become an urban majority by 2030. If this new frontier is a contradictory arena of both promise and peril, then cities are where climate-related vulnerabilities could be tackled with both the best and worst results. As engines of growth that generate up to 85 percent of a country’s GNP, while producing more than 75 percent of the world’s total greenhouse gas emissions, cities present, as urban planner Peter Calthorpe argues, the single most potent weapon to combat climate-related environmental problems.

With more than 16 million people in an area of 1,600 kilometers and expanding rapidly, pulverizing neighboring agricultural lands and life-sustaining water bodies, Dhaka is a quintessentially Third- World urban hodgepodge in which East Bengal’s historically agrarian mindset collides headlong with late-twentieth-century hyper-urbanism, with potentially cataclysmic climatic and social effects for the country and the region beyond. The ferocious building boom in the formal housing sector, misguided by an anti-urban self-centered “plot” mentality, demands a steady supply of land and raw materials, resulting in the loss of arable acreage, deforestation, and, most alarmingly, the filling up of rivers. Teetering on an environmental precipice, Dhaka urgently needs a new urban ecology of good

governance, sustainable planning, and growth management.

**Roger-Mark De Souza**

**Population Action International**

Over the past several decades, Bangladesh has experienced erratic weather, unexpected climate patterns, and decreased access to freshwater. These impacts are expected to continue and increase in intensity and severity over the next several decades. Population dynamics play a particularly important role in climate change impacts in Bangladesh, given that 46 percent of the population live in low elevation coastal zones. Already, environmental factors such as increased coastal flooding and extreme weather are contributing to increased migration within Bangladesh and into neighboring countries. Increased population pressure in low-lying areas will exacerbate human vulnerability to flooding and extreme weather events.

Positive population policies, including an emphasis on voluntary family planning and reproductive health, can be an important component of climate change solutions. This presentation will explore these connections between climate change, family planning, population, and gender. Overall, it will highlight how meeting needs for reproductive health and family planning will improve the health and well-being of women and families, while also slowing population growth and reducing human vulnerability to climate change impacts.

**Shamarukh Mohiuddin**

**U.S. Bangladesh Advisory Council**

While the poorest 20 percent of people in the world account for less than 1 percent of the world’s emissions, they are already facing the most visible impacts of climate change. In Bangladesh, climate change is already inundating coastal lands, turning irrigation water salty, and causing severe public health concerns. It is projected that millions of Bangladeshis will have to relocate due to rising sea levels over the next few decades. What is the United States doing to help Bangladesh adapt? This presentation will outline U.S. efforts in the area of climate change adaptation in Bangladesh and explore ways in which such efforts could be scaled up.

The Government of Bangladesh has published an adaptation plan for the nation, but it does not have adequate funds to make the plan a reality. Adaptation will require significant investments in building public infrastructure, boosting emergency responses, upgrading public health services, as well as developing innovative place-based solutions for agriculture. It will place a massive burden on Bangladesh’s development budget, and international support will be critical. The legal obligation of developed countries is spelled out in the UN Framework Convention on Climate Change (UNFCC), which all nations including the United States signed at the Earth Summit in 1992. In Cancun in 2010, the developed countries committed to providing new and additional resources for climate change adaptation approaching $30 billion for the period between 2010-2012, whereas funding for adaptation will be prioritized for the most vulnerable developing countries, such as Bangladesh. In Copenhagen in 2009, the United States promised to provide $100 billion a year by 2020 for climate action. Is this pledge enough to tackle the problem in Bangladesh? What is the approach U.S. policy should take in helping Bangladesh adapt?

**Phillip J. DeCosse**

**International Resources Group**

Bangladesh’s low lying coastal regions are home to an estimated 28% of the country’s 145m people, an increasing proportion of which are “near-landless” and food insecure.  The risk of sea level rise in the coming decades, combined with increasingly frequent tropical storm events, places this large population at risk. The presentation will cover a number of trends in governance and forest resources management in the coastal zone, and will compare in particular the management in two categories of forests – the Sundarbans mangrove forests and the estuarine forests – over recent decades.  A number of forest governance innovations are highlighted, and implications are drawn for coastal protection and livelihood opportunities for the coastal poor.