Center for American Progress

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Climate Change, Migration, and Conflict in South Asia

Rising Tensions and Policy Options across the Subcontinent

Arpita Bhattacharyya and Michael Werz   December 2012

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About the climate migration series

The intersecting challenges of climate change, human migration, and national and international instability present a unique challenge for U.S. foreign policy and global governance in decades to come. These three factors are already beginning to overlap in ways that undermine traditional understandings of national security and offer ample reason to revisit divisions between diplomacy, defense, and development policy.

This report is the third in a series of papers from the Center for American Progress that examines the implications of the climate change, migration, and security nexus. Our analysis highlights the overlays of these factors in key regions around the world and suggests ways in which U.S. policy must adapt to meet the challenges they present. This second regional report builds on the foundation provided by our framing paper, "Climate Change, Migration, and Conflict." Our first regional report focuses on the implications of these trends in Northwest Africa, already one of the most volatile regions in the world.

This series is closely linked to the Center for American Progress' longstanding Sustainable Security project, which argues that our understanding of security must be broadened to meet the threats of the coming decades. Indeed, national security, human security, and collective security all have a part to play in achieving a safer and more equitable international environment. Our Climate, Migration, and Security project discusses and analyzes a series of regional key test cases for this comprehensive approach.

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Introduction and summary

South Asia will be among the regions hardest hit by climate change. Higher temperatures, more extreme weather, rising sea levels, increasing cyclonic activity in the Bay of Bengal and the Arabian Sea, as well as floods in the region's complex river systems will complicate existing development and poverty reduction initiatives. Coupled with high population density levels, these climate shifts have the potential to create complex environmental, humanitarian, and security challenges. India and Bangladesh, in particular, will feel the impacts of climate change acutely.

The consequences of climate change will change conditions and undermine livelihoods in many areas. And extreme events and deteriorating conditions are likely to force many to leave their homes temporarily or even permanently for another village, city, region or country.[1]

Uncertainty surrounding the specific implications of climate change and migration on security and stability is no longer an excuse for inaction. A 2009 Report of the U.N. Secretary General outlined "second-order effects of unsuccessful adaptation in the form of uncoordinated coping or survival strategies of local populations … [including] involuntary migration, competition with other communities or groups over scarce resources and an overburdening of local or national governance capacities."

The Asian Disaster Preparedness Center recently reported that Bangladesh "is already under pressure from increasing demands for food and the parallel problems of depletion of agricultural land and water resources from overuse and contamination. Climate variability and projected global climate change makes the issue particularly urgent."[2]

Additionally, Thomas Fingar, chairman of the National Intelligence Council, testified to the U.S. Congress that climate change will exacerbate poverty and increase social tensions, leading to internal instability and conflict, and giving parts of the global population additional reasons to migrate.[3] The Pew Charitable Trust's Climate Security Project came to the same conclusion: U.S. national and international security is inextricably linked to global climate change. The project's experts warn that climate change

will increase resource conflicts within and among countries, increase migration pressures on hundreds of millions of people, increase the number of humanitarian disasters, disrupt economies all over the world, and threaten military preparedness.[4]

Recent disasters in South Asia demonstrate what could be a more frequent reality for the region. Floods in September 2012 displaced 1.5 million people in the northeastern state of Assam,[5] while Cyclone Aila in 2009 displaced 2.3 million people in India and almost 850,000 in Bangladesh.[6]

The Asian Development Bank 2012 report "Climate Change and Migration in Asia and the Pacific" concludes that while uncertainties exist on where, how, and how many will be displaced by climate change impacts, it is imperative to begin aggressively examining emerging climate challenges to avoid future complex crisis scenarios. The extreme vulnerability of South Asia raises concern of potential changes and increases in both internal and international migration across the subcontinent. In areas of existing conflict in South Asia, added stressors of climate change and changing migration patterns could be a security concern.

The United States has the opportunity to build a vital partnership with countries in the region to mutually cope with climate change. Hurricane Sandy, a record breaking year of drought, heat waves, and extreme weather proved that potential impacts of climate change are not problems of distant shores; they are a globally shared burden. The United States has much to learn and offer in the way of best practices as climate change worsens in the decades to come. Large cities in the United States, such as New York and Miami, will be hit hard with extreme weather in very similar ways as South Asian megacities such as Dhaka and Mumbai. Partnering with India and Bangladesh in complex climate scenarios is smart policy and smart diplomacy for the United States. But in order to do this, the United States needs to understand the factors playing out on the ground.

In this paper we examine the role of climate change, migration, and security broadly at the national level in India and Bangladesh—and then zero in more closely on northeast India and Bangladesh to demonstrate the interlocking problems faced by the people there and writ larger across all of South Asia. As discussed in our framing report, "Climate Change, Migration, and Conflict," we do not assert direct causal relationships between climate change, migration, and conflict. Instead, we understand climate change, migration, and security as three distinct layers of tension and assess scenarios in which the three layers will overlap. The Indian border state of Assam is a case study on where the three factors converge.

Northeast India

A microcosm of climate change, migration, and conflict

Source: Center for American Progress (2012).

Zeroing in on Assam

Assam is located in the northeast region of India, connected to India by a land bridge called the Siliguri corridor, which measures less than 25 miles across. The states in the northeast region are collectively called the Seven Sisters and their cultures and traditions are influenced by greater India as well as bordering Southeast Asia. The consequences of climate change on both sides of the border, existing political issues with migration, and conflict that has plagued the region make Assam a unique case study into the intersection of climate change, migration, and security.

Deteriorating environmental conditions could increasingly influence decisions to move, in addition to social, political, economic, and demographic drivers.[7] Sudden-

onset and slow-onset climate change events could spark migration in both India and Bangladesh. Sudden-onset events—such as flooding, cyclones, and storm surges—could displace millions of inhabitants within short periods of time, as recent events in India and Bangladesh demonstrate. Slow-onset events—such as changes in precipitation, sea level rise, and land erosion—could have detrimental impacts on key economic sectors—such as agriculture, fishing, and tourism—influencing someone's decision over time to move for greater economic opportunity.

The internal and temporary displacement of people in this region will probably account for the bulk of migration that takes place in the face of environmental changes and degradation.[8] People may move within country for a couple days, weeks, or months, or even years to a new location before trying to resettle in their home towns and cities. Rural-to-urban migration has taken place throughout India and Bangladesh and could be more sought after if climate change threatens rural livelihoods, particularly in the agriculture sector.

International migration may also be an option, particularly to areas in which historical, familial, and cultural ties exist across borders, either through a legal or unauthorized process aided by porous and unguarded international borders. As the Asian Development Bank reports, substantial and established flows of migration takes place between India and Bangladesh, particularly to the Indian states of West Bengal and Assam. The bank's report goes on to say, "It has been suggested that this is the largest single international migration flow, with more people involved than estimated for top-ranked Mexico-United States migration flows."[9]

No reliable numbers exist on Bangladeshi emigration. But any change in existing migration patterns from Bangladesh into India could have security consequences, particularly in Assam. Back in the 1980s a group called the All Assam Student's Union began a movement calling for the deportation of all supposed unauthorized Bangladeshi immigrants, asserting that the immigrants were influencing their economy, security, and political system, as well as their local demographic structure. It became known as the Assam movement and lasted until 1985, causing up to 7,000 deaths.[10]

More recently, members of the Bodo tribe and the Muslim community clashed in Assam over the building of a mosque. It resulted in close to 100 deaths and the displacement of over 400,000, who fled to relief camps in the area.[11] As the conflict escalated, members of the Bodo tribe and a section of politicians began to blame the incident on the increasing number of unauthorized Bangladeshis in the region.[12] In

the following days, rumors spread via text messages and emails that Muslim groups were planning attacks on Assamese residents living in other parts of India, particularly in the southern cities of Bangalore and Chennai. Thousands of people native to the Northeast Indian region boarded overflowing buses and returned to the region. As of October 2012, 133,000 were still in relief camps.[13] In the days following the conflict, many in Assam resorted to public demonstration and protests against unauthorized immigrants from Bangladesh demanding their identification and deportation, similar to the fervor during the 1980s Assam movement.

The conflict in Assam caused upheaval across the country, highlighting the issue of unauthorized immigrants, which routinely becomes an issue during elections in Assam. In assessing the security challenges of climate change, Assam provides an example of several factors coming together in a complex way. Climate change will stress existing migration patterns both locally and internationally in Bangladesh. Even more importantly, the *perception* that there has been an increase in immigrants has the potential to stoke tensions over immigration in Assam.

Activists of North Eastern Students Organization gather to rally against Bangladeshi nationals illegally staying in the northeastern Indian states. The Assam state of Gauhati has been simmering with tension since riots broke out between ethnic Bodos and Muslim settlers in late July 2012. The violence has killed at least 90 people so far, and 400,000 have found shelter in government relief camps.

What this means for the United States and the world

Given the likelihood that large-scale climatic events will strike the region in decades ahead, it is important to grasp how the complex historical and cultural issues associated with migration in the region could play out. As the United States shifts its strategic focus to the Asia Pacific, a clear understanding of climate change and human mobility will be central to development and security goals in the region. The United States and international policymakers will need to understand and prepare for the added stresses and risks imposed by climate change and migration globally.

For the international community the extended region located around India, Bangladesh, and the Bay of Bengal represents both an economic opportunity and a massive development challenge. The unique concentration of population will likely play a pivotal role in coming decades—India and Bangladesh must chart a path of sustainable development by which the region can achieve economic growth while maintaining long-term stability.

The United States could be a vital partner in this effort. We propose three policy collaborations that the United States can take up with South Asian partners as complex crisis scenarios unfold in the wake of climate change:

• High-level climate-vulnerable cities workshop
• A dialogue on migration
• Ecological infrastructure development

These three collaborations are detailed further in the conclusion of the report, but let's briefly examine each of them in turn here.

High-level climate-vulnerable cities workshop

The United States, India, and Bangladesh should lead a high-level workshop on climate vulnerable cities. Cities will be a priority as urbanization continues in India and Bangladesh and as extreme weather challenges the resilience of U.S. urban centers. Cities such as New York, Mumbai, and Dhaka can learn from each other.

The goal should be to zoom in and have detailed discussions about resilient infrastructure, disaster relief logistics, and preparedness best practices across countries and government levels. The workshop would be ideally coordinated at a federal level

through the U.S. Agency for International Development and the U.S. Department of State with governor and mayor level participants. New York City Mayor Michael Bloomberg and New York Gov. Andrew Cuomo could be in workshop discussions with Mumbai Mayor Sunil Waman Prabhu and Maharashtra's chief minister Prithviraj Chavan as leaders of two cities vulnerable to sea level rise and extreme weather.

A dialogue on migration

The United States and India share numerous concerns about undocumented residents and immigration including social inclusion, path to citizenship, language, cultural differences, deportation issues, border management, and legal status. Comprehensive immigration reform is likely to be tackled in the next four years of the Obama administration. An open exchange between India and the U.S. on immigration would be beneficial to both sides.

Ecological infrastructure development

Ecological infrastructure involves using natural landscapes and ecosystems for the benefit of society. In the case of climate change, natural landscapes that mitigate the consequences of flooding, water salinization, and erosion may be both cost effective and more resilient than traditional infrastructure, such as levies and pumps.

Residents of India and Bangladesh have been innovating ecological infrastructure due to lack of formal structures in many areas. As in the cases of city adaptation and immigration, a U.S. partnership with India and Bangladesh on ecological infrastructure would create a rich depository on adaptation strategies while informing U.S. diplomacy and development programs on the ground.

The importance of Assam in climate change, migration, and conflict in South Asia

Analyzing South Asia through the prism of climate, migration, and security in Assam and the surrounding region provides useful insights into the underlying trends shaping the entire region and the risks posed by current long-term trajectories. While the precise influence of climate change on migration is still the subject of scientific inquiry and debate, the range of issues facing the region calls
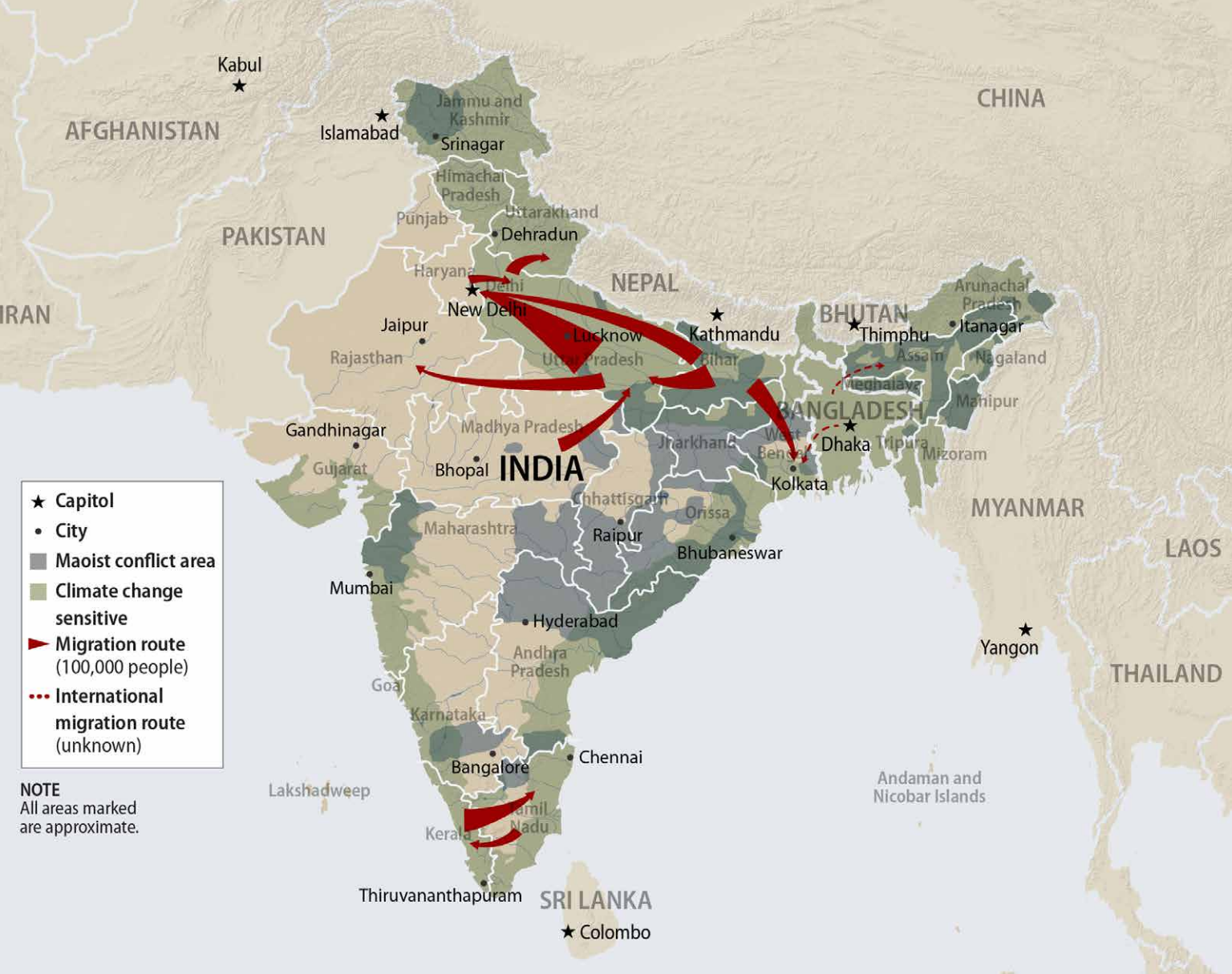
Sources: Government of India, Ministry of Environment & Forests, "Climate Change and India: A 4x4 Assesment" (2010), available at http://moef.nic.in/downloads/public-information/fin-rpt-incca.pdf. "India: Chronic Conflict," available at http://www.satp.org/satporgtp/countries/india/images/India_2011_Map.jpg. "Urban India 2011: Evidence," Indian Institute for Human Settlements (2012).

for a comprehensive assessment of climate change, migration, and their impact on both traditional and human security. We hope the assessment will be a jumping-off point for more empirical research establishing the realities of climate driven migration in South Asia.

To assess these overlapping dynamics, we begin our report with an examination of the climate change, migration, and security issues facing India and Bangladesh before turning in greater detail to the northeastern region of the subcontinent, and specifically the Indian state of Assam.

India

Climate change will likely hit India with rising temperatures, variations in precipitation, sea-level rise, and cyclones and storm surges. The consequences, individually or in combination, boast the potential to both displace people temporarily and to cause permanent migration out of climate-vulnerable regions. Farmers will likely face unpredictable precipitation and changes in growing conditions, affecting crop yields and ultimately economic viability. The result may be an increase in existing migration out of rural areas into larger towns and cities in search of economic opportunity. Towns and cities, already straining to meet the resource needs for their current populations, would face a difficult trial.

India's large population, its dependence on agriculture, and its rapidly growing megacities make it one of the world's most vulnerable countries to climate change.[14] India's population is 1.2 billion and its population density is 611 persons per square mile—four times the U.S. average.[15] This means storm surges, droughts, floods, and other climate change impacts affect a larger number of people than in most other regions of the world. And India is at the center of the strategic stage in which these consequences will play out across the subcontinent. (see box on following page)

In 2010 the Indian Ministry of Environment and Forests completed an assessment examining climate change impacts and projections through 2030 across four regions of India (the Himalayan Region, Western Ghats, Northeastern Region, and the Coastal Region) and four key policy sectors: agriculture, forests, human health, and water. Here's what the report found related to rising temperatures, changes in precipitation, sea-level rise, cyclones, and storm surges.

India's strategic role

India's impressive economic growth and its status as the world's largest democracy mean it is a test-case and a model for the developing world. The country is establishing its importance in international climate negotiations among the so-called BRIC nations—Brazil, Russia, India, and China—and South America's group of emerging countries. Over the past decade India has expanded its role in multilateral institutions, helping launch the Group of 20 Developing Countries with Brazil and South Africa in 2003, and has been an active participant in the World Trade Organization's Doha Round of trade negotiations and the Major Economies Forum.

At the same time India has a number of intricate bilateral interactions, particularly with China. The Indian-Chinese relationship is complicated by longstanding grievances and recent tensions. After a brief period of good relations following India's independence, bilateral ties soured over border disputes, in Aksai Chin in India's West and Arunachal Pradesh in the East, a region China refers to as South Tibet. China launched a military incursion in both areas in 1962, embarrassing India and sinking bilateral ties. Both border disputes remain unresolved and politically sensitive.

In addition to long-standing territorial disputes, India and China face the challenge of growing as international powers in a crowded neighborhood and increasingly resource-constrained global environment. While China's economic strength still outmatches India's, the long-term demographic trends point to a shift. China will face a declining working-age population after 2015 while India's will continue to grow, with India's population set to overtake China's by 2050.[16]

Future U.S.-India policy initiatives must account for this complex and evolving regional security balance. Beijing is highly sensitive to the implications of the United States' growing relationship with India, particularly the 2008 completion of a bilateral civil nuclear deal. India, on the other hand, is using new ways to manage its own relationship with China, especially in light of Beijing's friendly relationship with Pakistan and Chinese naval expansion in the Indian Ocean.

Rising temperatures

Across India, the frequency of "hot days" has been increasing gradually while the frequency of "cold days" shows a significant drop during the pre-monsoon season over the 1970–2005 period.[17] As climate change is expected to worsen over the coming decades, the average temperature of "hot days" will increase and annual mean surface air temperatures will rise to between 3.1°F (1.7°C) and 3.6°F (2°C) by the 2030s.

The rise in the frequency and intensity of hot days will probably lead to a greater number of catastrophic heat waves. India has already experienced such incidents. In June 2012, for example, over 100 people died in West Bengal from a heat wave that sent temperatures soaring to 116.6°F (47°C) during a 10-day spell.[18] Shops closed and the education department extended the summer vacation to keep children out of the deadly heat. In Andhra Pradesh in 2003 at least 1,065 people died during a heat wave, while a 2009 wave in Orissa claimed 31 lives.[19]

In the Himalayan region, higher temperatures will increase glacier melt, creating the potential for flash floods and large-scale landslides. Viable agricultural land may rapidly decrease under these conditions, with land covered up by water or washed away by landslides. Just as damaging, drier conditions are likely to increase the number of forest fires, which would significantly decrease the amount of wood available for heating during the winter months. Hotter and more humid conditions in the Northeast will allow for the proliferation of malaria-carrying mosquitos.

Changes in precipitation

Changes in rainfall patterns are expected to vary across India's regions and across seasons. An increase in the intensity of summer precipitation in the northeastern region would lead to more runoff and landslides during summer rains.

Conversely, a decrease in winter precipitation may have an impact on crop yields. In the Western Ghats mountain range—an important biodiversity hotspot spanning 1,000 miles from Bangalore region in the south to Mumbai—unpredictable rains will impact cash crops such as coffee and tea, while increased rainfall in the northern region of the Western Indian mountain range may impact flooding and soil erosion.

Sea-level rise

In addition to altering precipitation patterns, glacier melt is expected to submerge key habitats along the Indian coasts and ultimately threaten major coastal cities such as Kolkata, Mumbai, and Chennai. It could also lead to salt intrusion wrecking habitats that rely on fresh water and agriculture as salt water gets into the groundwater. Salt intrusion can contaminate drinking water for millions who depend on wells and groundwater, and increase the likelihood of water-borne disease including cholera.

Cyclones and storm surges

Cyclonic activity in the Bay of Bengal and the Arabian Sea are both expected to intensify. The deltas of the major Indian rivers—including the Ganges, Brahmaputra, Godavari, Krishna and Mahanadi—will experience more frequent flooding due to increased rainfall from cyclones and storms.[20] Industries reliant on the rivers and coasts—such as agriculture, tourism, and fishing—will undergo changes as storms become more predictable and frequent.

TABLE 1
The consequences of climate change in India

Potential climate change impacts on regions in India (projecting out to 2030)

	Climate changes	Ecological impacts	Human impacts
Himalayan	• Increase in temperature	• Increase in forest fires • Increase in glacier melt	• Loss in wood and other forest fuel used for heating in the cold season leading to deaths due to extreme cold • Flash floods leading to large-scale landslides and therefore loss of agriculture area, threatening food security • Increase in incidence of malaria due to new transmission windows at higher latitudes
Northeastern region	• Increase in temperature • Decrease in winter precipitation • Increase in intensity of summer precipitation • Increase in night-time temperature	• Increase in cereal production but decrease in rice production • Tea plantations affected by soil erosion • Increase runoff and landslides during summer rain • Decrease in yields in winter	• Unemployment due to smaller crop yields • Increase in malaria due to temperature and humidity increases
Western Ghats	• Increase in temperature • Increased rain in the northern region • Decreased rainfall over cloud forests	• Negative effects on cash crops such as tea and coffee due to unpredictable rain • Flooding and soil erosion caused by increased rainfall	• Loss in lives and livelihoods due to unprecedented flooding • Unemployment due to impact on cash crops in the region
Coastal zone	• Temperature rise • Increase in sea surface temperature • Increase in rain fall intensity • Rising sea levels • Increase in intensity of cyclones and storm surges, especially in the East Coast.	• Decrease in coconut production • Salt intrusion affecting habitats, agriculture, and availability of fresh drinking water • Submergence of key habitats and ecosystems, including mangroves	• Increase in water borne diseases associated with cholera epidemics and due to salinization of water. • Impact on employment due to changes in agriculture, tourism, and fishing sectors • Forced migration due to loss of housing and drowning due to sea-level rise

Source: Adapted from Table 7.1 in Climate Change and India: A 4x4 Assessment pg. 103

Source: Government of India, Ministry of Environment & Forests, "Climate Change and India: A 4x4 Assesment" (2010), available at http://moef.nic.in/downloads/public-information/fin-rpt-incca.pdf.

Thinking ahead

Climate change will exacerbate India's existing development and environmental challenges, but the country is preparing. The Indian Planning Commission is rethinking the 2008 National Action Plan on Climate Change, which outlined eight national preventive or adaptive missions to be attempted through 2017.[21]

Two of the national initiatives (solar and enhanced energy) focused on mitigation efforts while the other six focused on adaptation (sustainable habitat, water, sustain-

ing the Himalayan ecosystem, green India, sustainable agriculture, and strategic knowledge regarding climate change). The estimated cost for the original plan was $230 billion. Due to low prospects for effective international financing mechanisms, the commission suggests reducing the number of missions and focusing efforts.[22]

Case in point: The National Water Mission aimed to address water scarcity by improving use efficiency by 20 percent through pricing and other measures, but this mission will be scrapped, with the goal to have it integrated into the new national water policy.[23] While other missions currently remain intact, these too may be altered in the future. The National Mission for Sustainable Agriculture, for example, was originally intended to support adaptation in the agriculture section through development of climate-resilient crops, expansion of weather insurance, and various agricultural practices.[24]

Current and future economic constraints and financing issues could stint this mission, with devastating consequences for farmers and subsequently the population at large; 70 percent of India's 1.2 billion inhabitants are dependent on agriculture for their basic livelihood.[25] A 2009 study by the International Food Policy Research Institute found that climate change may lead to a decline of rice production by around 20 million tons (25 percent) and wheat production by over 30 million tons (30 percent) in India through 2050.[26] Such a loss in productivity would have a crippling impact on an already stressed agriculture sector and could lead to changes in current rural-to-urban migration patterns.

Rural-to-urban migration in India

Internal migration within India takes many forms and is largely driven by economic conditions. Changes in precipitation and rising temperatures, as detailed above, will impact the economic conditions of the 70 percent of the Indian population who rely on the agricultural sector for their livelihoods.

During the summer of 2012, drought in some areas of India led to lower crop yields,[27] while excessive rain destroyed other produce.[28] Unpredictable weather, crop failure, and debt led at least 240,000 farmers to take their lives between 1995 and 2009.[29] Others are looking for occupation elsewhere: Early analysis of the 2011 Indian Census finds that for the first time since 1921, the urban population in India grew more rapidly than the rural population. The rural population is 90.6 million higher than it was one decade ago while the urban population is 91 million higher than it was in 2001.[30]

Climate impacts on the food-energy-water nexus in India

Declining agricultural yields raise questions regarding food security and the prospect of feeding a booming population. Additionally, the agricultural sector's impact on energy security of India became apparent during the July 2012 blackout. India's electrical grid's failure in late July 2012 left over 600 million Indians without power for three days, due in part to the country's rapid development outstripping its power supply.

Another main factor for the failure was low rainfall in the region, which limited the power generated by hydroelectric dams. The low rainfall also caused farmers to use more power to irrigate their crops with water pumps, drawing more electricity from the grid.[34] Water is an input for energy, and energy and water are inputs for agriculture. This means that droughts, floods, and less predictable precipitation due to climate change have the potential to disrupt the whole system.

One perspective offered by Palagummi Sainath, the rural affairs editor for *The Hindu* and a leading expert on famine and hunger, is that the 2011 Census reveals a massive agrarian crisis. Sainath argues, "The 2011 Census speaks of another tragedy: the collapse of millions of livelihoods in agriculture and its related occupations … the ongoing, despair-driven exodus that this sparked in the countryside."[31]

The plight of farmers in India is widely recognized as a major issue. Initiatives such as the Renewal Mission will be important to support adaptation to current and future climate impacts. The related migration out of rural areas to towns and urban centers will be both an opportunity and a challenge to cities. According to a 2009 United Nations Development Program study, migrants contribute 10 percent of Indian GDP and should be properly accounted for and recognized for their economic input. The full inclusion of migrants into national statistics will become increasingly important as migration patterns change and shifts become more difficult to manage.[32]

On the other hand, the shift from a subsistence economy towards a modest middle-class lifestyle is happening in rural parts of the country that do not always get sufficient attention. The National Council for Applied Economic Research recently noted that the share of goods purchased by rural consumers in 1996 was 45 percent, but that by 2009 that number had risen to 60 percent. Furthermore, the council notes that while per-capita income in rural areas is still only 63 percent of what it is in urban areas, the gap is steadily closing.[33] Migration patterns, as most trends in India, vary region by region, so while there is rural-to-urban migration taking place in some areas, other rural areas are growing economically.

Indians throng a street in Kolkata, India. Already the second most populous country with 1.2 billion people, India is expected to overtake China around 2030 when its population soars to an estimated 1.6 billion.

ASSOCIATED PRESS/BIKAS DAS

Besides the agricultural sector, factors such as family ties and economic opportunities, among others, also influence the rural-to-urban migration that does take place. Additionally, India's internal migration is more complex than direct routes between rural and urban areas. Seasonal migration and "footloose" migration, taking laborers from place to place in search of work, account for a significant portion of human mobility across India.[35]

Migrants that do end up in the larger cities face a massive set of challenges. With rapidly growing populations, due to natural growth and migration, demand for energy and water far outstrips supply. Government resources in many areas are not sufficient to prepare infrastructure quickly enough to keep pace with population growth, much less for migration, resulting in the growth of slums in many cities.[36]

To address this shortcoming, in 2005 the national government launched the Jawaharlal Nehru National Urban Renewal Mission, devoting $10 billion across 60 major cities to upgrade sewers, water supply, roads, and other infrastructure.

The mission was a good start but falls short of the estimated $53 billion needed to fix India's urban centers.[37]

Moreover, many large Indian cities—among them Kolkata, Mumbai and Chennai—are at high risk of sea-level rise, prolonged cyclonic activity, and saltwater intrusion. Migration is often seen as a mode of adaptation to climate change, but the specific context of the country's varied climate vulnerability could lead people from one difficult environment to another, either permanently or on their circular migration pathways. Migration which increases people's vulnerability to climate change is considered maladaptation.[38]

On a social level, a United Nations Development Programme report finds that migrants in India are forced to "the margins of society, both economically and socially, and face unnecessary high costs and risks because of non-recognition at the policy level and faulty implementation of labor laws."[39] In addition, many migrants come from historically disadvantaged communities such as the scheduled castes and tribes. They can therefore find themselves with limited civil protections and little political voice in their new location.[40]

India's declining but still powerful Maoist insurgency represents yet another social and political factor in rural areas.[41] (see Map) The insurgency's peripheral goals—particularly those of land redistribution, drought relief, and farmer's debt-relief—could closely align with the sentiments of distressed farmers.[42]

Security

India's Maoist insurgency began in 1967 as a peasant uprising with the goal of violently overthrowing the state. Since then it has grown and now has active fighters in two-thirds of India's states, continuing their struggle through attacks on railways, buses, power lines, telephone towers, security forces, and other infrastructure.[43] Many of the Maoist strongholds are in coal mining areas. With energy demands rising across India, the insurgents' hold on these regions may emerge as an energy security challenge.[44]

Evidence suggests that the insurgency is spreading into urban areas, some of which will struggle to accommodate increasing flows of migrants. Large Indian cities—among them Mumbai, New Delhi, Bangalore, and Chennai—are teeming with people, potentially offering insurgents fertile recruiting grounds, easy access
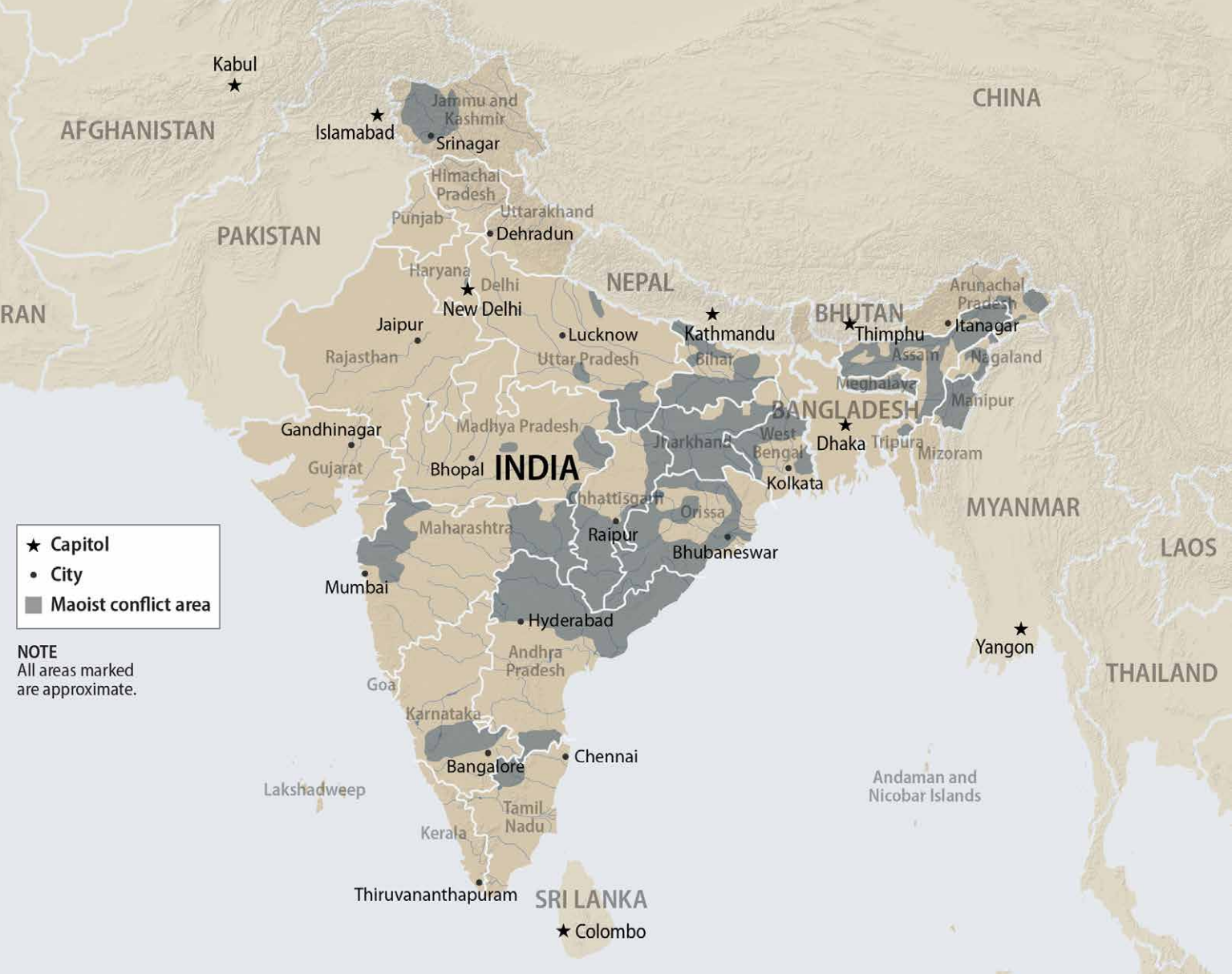
to supplies, ungoverned or undergoverned spaces, and anonymity. Maoist activity has been reported in Kolkata, Lucknow, Varanasi, Bangalore, and Chennai. P.V. Ramana, a research fellow at the Institute for Defence Studies and Analysis in New Delhi, writes that the Maoist's efforts to reach these urban centers is "part of a grand strategy to mobilize discontented members of the population—particularly industry workers."[45]

But sociologist Nandini Sundar of the Delhi School of Economics urges observers not to overstate the Maoist threat, contending that economic and social development initiatives including land redistribution, drought relief, farmer's debt-relief, and the remedy of caste mistreatment have appealed more to India's most vulnerable and downtrodden people than Maoist advocacy of social revolution. These development goals appeal to victims of the distressed agricultural sector and seek to capitalize on widespread discontent stemming from unaddressed agrarian disruption.

More importantly, the millions of migrants across India are making important economic and social contributions to the cities in which they work and live; acknowledging, incorporating, and providing for these populations is a central challenge for India in the 21st century.

In particular, migrants across India will have to be effectively integrated into work and society to allow for villages, cities, and states to prosper. Their economic contributions to the country are substantial; India benefits from a large workforce. It is important to recognize that climate change will resonate across social sectors and complicate efforts to integrate migrants. By understanding the stresses wrought by climate change, identifying tensions, and implementing adaptive mechanisms, India can avoid more serious political instability or conflict scenarios.

One important initiative that the Indian government has taken up is the "Integrated Action Plan to Develop Tribal and backward Districts in LWE [left-wing extremism] areas."[46] The purpose of the plan is to promote development in areas affected by left-wing extremism. It has distributed over $5 billion to 60 districts for over 70,000 projects including schools, health centers, water access, roads, lights, work training, and other public infrastructure and services. Around 50,000 projects have been completed.[47] The plan shows the Indian government's commitment to a development-centric approach in addressing the Maoist insurgency. The projects should have far reaching impacts beyond the dampening of the insurgency. If implemented effectively, they will provide a lift for communities across India and overall quality of life for millions.

Climate change and the impact of Pakistan's floods

Colin Cookman, Policy Analyst at the Center for American Progress

As in India and Bangladesh, the leaders of neighboring Pakistan must manage multiple political, economic, and security crises. The impact of climate change cuts across and compounds challenges in all three areas. In this paper, however, we do not delve deeply into Pakistan's nexus of climate change, migration and conflict, primarily because the cross-border ramifications are severely constricted by the heavily militarized border between Pakistan and India, and secondly because where cross-border issues are aflame they are between Pakistan and regions outside of the subcontinent, namely Afghanistan and Iran.

But we would be remiss to not include in our report the most consequential problem facing this third nation on the subcontinent—river flooding—because in several ways it mirrors the problems now facing India and Bangladesh on the other side of the region. And some of those problems there in the East and in Pakistan in the West date back to the partition of British India back in 1947—a politically induced migration whose consequences still echo.

Pakistan has faced record temperatures and water shortages in recent years. Droughts are exacerbated by poor water-management infrastructure, raising tensions between provinces and with neighboring India, with whom Pakistan shares the tributaries of the Indus River under the terms of a 1960s World Bank-moderated treaty agreement.

But the potential consequences of climate change-driven natural disasters in Pakistan were most visible during the devastating floods of July 2010, in which over one-fifth of the country was inundated with record-setting monsoon rains, overwhelming existing protective infrastructure. Widespread loss of tree cover in Pakistan, which suffers the highest rates of deforestation in Asia, also contributed to and amplified the effects of flooding.[48] Major flooding and further record-breaking rain levels recurred again in the falls of 2011 of 2012, affecting the southern provinces of Sindh and Balochistan most directly.

The United Nations Office for the Coordination of Humanitarian Affairs estimates that almost 2,000 people were killed and 18 million severely affected during the 2010 floods; other figures have put those affected as high as 20 million.[49] The total economic impact of damages to homes, physical infrastructure, and agriculture was estimated at approximately $10 billion and the cost of rebuilding a further $8 billion to $11 billion.[50]

Although the flooding failed to capture international donor attention to the same degree as the year prior, 2011's floods also affected nearly 9 million people and destroyed more than 1.5 million homes. Pakistan's government estimated losses at $3.7 billion and the cost of reconstruction at $2.7 billion.[51]

Efforts to recover from both years' flooding continue slowly. Many 2010 rebuilding efforts eventually lapsed or were disrupted the following year, and a consolidated U.N. appeal for relief aid for the 2011 floods was only 10 percent funded as of July 2012, leaving few supplies

available for emergencies this year.[52] Despite two consecutive years of serious disruption, international aid agencies warn that the Pakistani government's national disaster response planning is still "nowhere near prepared" to keep pace with the risks facing the country.[53] Flooding recurred again in the fall of 2012, hitting Balochistan and Sindh the hardest; as of mid-November, the government had reported 474 deaths, over 5 million people affected, and over a million acres of crops damaged or destroyed.[54] The U.N. Office for the Coordination of Humanitarian Affairs, citing funding shortfalls, has warned that "critical humanitarian needs remain unmet" as winter approaches and at least 160,000 people remain displaced in relief camps.[55]

Beyond their direct impact, Pakistan's floods caused significant internal displacement, both within provinces and across the country. Although some displacements have been short-term, they compound larger migration trends that have seen shifts in population from the northwestern Khyber-Paktunkhwa province, where conflict between the Pakistani military and militant organizations has driven out or displaced some parts of the population, to the country's already overtaxed urban centers.

As of mid-2012, the registered internally displaced population in Khyber-Paktunkhwa and the Federally Administered Tribal Areas was estimated at over 730,000, the bulk of which now reside in camps in Peshawar and Dera Ismail Khan districts. Most of these individuals have been displaced by conflict, but in Sindh and Balochistan, 5.2 mil-

lion people still remain affected by the 2011 floods.[56] An additional approximately 1.7 million Afghan refugees, many long-term residents whose presence in Pakistan dates back to conflicts in the 1980s, further strain the Pakistan government and international donors' capacity to provide relief services.[57]

This displacement from conflict and natural disasters amplifies the broader process of urbanization taking place in Pakistan's rural and urban centers. The absence of a reliable national census, which has not been conducted in Pakistan since 1998, makes accurately tracking demographic shifts difficult, but U.S. government estimates put Pakistan's urban population at approximately 36 percent of the total, with a rate of change of approximately 3 percent per year over the 2010–2015 period.[58]

In Pakistan's largest and wealthiest city of Karachi, in southern Sindh, this process has been particularly contentious, and often violent.[59] Members of the city's dominant political party, the Muttahida Qaumi Movement, which draws primarily from the Mohajir minority group, have clashed over land rights and political power with both the surrounding rural Sindhi population and with Pashtun and Baloch newcomers from the country's western regions. An influx of approximately 30,000 refugees displaced from interior Sindh by floods to camps on Karachi's outskirts caused spikes in the level of communal tensions in 2010, and the broader trend of conflict continues to date.[60]

Bangladesh

Bangladesh is home to more than 150 million people, with only one-quarter living in urban areas[61] and close to two-thirds of the population working in the agricultural sector.[62] The country has made substantial economic strides in the past two decades, with poverty declining from 57 percent of the population in 1990 to 31.5 percent in 2012.[63] Average GDP growth over the last six years was more than 6 percent and Bangladesh is on track to meet the Millennium Development Goals of halving extreme poverty by 2015.[64] Population growth has also slowed, from 2.9 percent in 1974 to 1.6 percent in 2012.[65]

Nevertheless, Bangladesh is vulnerable to overarching trends that are reshaping the entire region. The country faces major development hurdles, with 56 million people still living below the poverty line. Lack of electricity, urban congestion and overpopulation, malnutrition, weak governance, and vulnerability to climate change are major challenges.[66] Bangladesh's geography and dense population means that huge numbers of people are exposed to environmental threats.

At the same time, population growth has led to rapid urbanization and industrialization, further increasing pressure on water and other resources. Climate change will exacerbate these environmental vulnerabilities, increasing the frequency and severity of floods, cyclones, and droughts, while contributing to erosion, groundwater salinization, sea-level rise, and changing rainfall patterns. The following sections outline various climate impacts and their potential to displace Bangladeshis, drawing from the International Organization for Migration's 2010 report, "Assessing the Evidence: Environment, Climate Change and Migration in Bangladesh."

Rising temperatures, changing rainfall patterns, and drought

Predictions for temperature rise vary greatly across climate models. A 1998 study that has been used in national assessments finds that the average increase in temperature would be 2.3°F by 2030 and 4.7°F by 2070.[67] Higher temperatures are

likely to have severe effects on agricultural production in Bangladesh due to higher rates of evaporation and changing rainfall patterns.

Bangladesh could see up to an 8 percent reduction in rice production and a 32 percent reduction in wheat production by 2050. Development of rural areas, the rising population, and limited water availability will also hinder the productivity of Bangladesh's agricultural sector.[68] With 63 percent of the population dependent on agriculture for basic livelihoods, the rise in temperatures could be crippling.

Floods

Floods are a constant part of Bangladeshi life due to the country's low elevation and complex river systems. One study finds that statistically, one-quarter of the country is flooded during an average hydrological year.[69] General Circulation models predict that flooding will increase in both extent and frequency, with potentially devastating impacts.[70] (see map on following page)

As an example of the most extreme flooding, major floods in 1988 and 1998 resulted in 4,000 and 1,100 deaths, respectively, and displaced around 75 million people combined.[71] As glacial melt in the Himalayas and shifting rainfall patterns swell the rivers, there is potential for displacement of millions more. Sea-level rise could also flood low-lying areas along the coast.[72]

Sea-level rise

The Bangladeshi government projects that the sea level will rise by 5.5 inches (14 centimeters) by 2030, 12.6 inches (32 centimeters) by 2050, and 34.7 inches (88 centimeters) by 2100.[73] Predictions about the displacement of people resulting from a 1-meter (roughly 40 inches) rise in sea-level range from 13 million[74] to 40 million[75] in Bangladesh alone.

These figures do not consider mitigation strategies that could help prevent sea level rise or adaptation strategies to shelter populations from its effects, and therefore decrease the amount of people displaced. Sea-level rise could potentially play an insignificant role in migration depending on the effectiveness of adaptation measures.

The flood plains of Bangladesh

1988

1998

Source: "Banglapedia: Floods," available at http://www.bpedia.org/F_0103.php.

Cyclone and storm surges

Over the past 20 years, 60 percent of global deaths caused by cyclones occurred in Bangladesh.[76] The country has enhanced its early-warning systems and cyclone shelters to address the problem but remains vulnerable. Tropical storms will continue to cause widespread displacement as climate change increases the number and severity of storms.

The displacement of affected people is generally short term and localized, with residents looking to return home as soon as possible. But in riverside locations, storm surges break embankments that protect against routine floods and it may take residents months or years to repair.[77] People living in those regions are par-

Vendors sell vegetables at a flooded Santinagar market after a heavy shower in Dhaka, Bangladesh. In June 2003, Floods left 2,000 people homeless and washed away hundreds of flimsy huts in the Moulvibazar district, 160 kilometers (100 miles) northeast of Dhaka.

ASSOCIATED PRESS/PAVEL RAHMAN

ticularly vulnerable, as they are not able to return to their previous homes, leaving them with few, if any, economic options.

Climate change will make such scenarios—in which basic livelihoods are undermined by climatic conditions—more frequent, increasing social pressures in vulnerable areas. Cyclone Aila in 2009 offers another example. Among the roughly 100,000 of the embankment dwellers affected by the storm, many were forced to consider permanent out migration due to submerged or eroded land and destroyed embankments. The aftermath of Aila also saw an increase in seasonal migration from affected areas, with an estimated 100,000 persons migrating from cyclone-vulnerable regions to other parts of Bangladesh.[78]

River and coastal erosion

Erosion is perpetually reshaping Bangladesh. The country has lost close to 160,000 hectares (about 395,000 acres or 618 square miles) of land from its riverbanks since 1973. In 2010 riverbank erosion was predicted to displace 11,000 people living along the Jamuna River and 5,000 along the Ganges and Padma rivers.[79] In contrast, an estimated 2 million people are living on land created by erosion.[80]

Often, the loss of homes or agricultural land is a deciding factor in migration.[81] Some families in northwest Bangladesh change location multiple times due to erosion, never moving far beyond the local area. Those who have ventured further may end up in slums, with very little assistance from the government or nongovernment organizations.[82]

Rising sea level and changes to river flows due to climate change will also spread coastal erosion. Coastal erosion has created land in Bangladesh, with a net increase of 691 square miles (1,790 square kilometers) since the 1940s. The complexities of coastal erosion have been studied for years but more evidence is needed to understand how the slow destruction and creation of land impact migration within the region.

Saltwater intrusion

An increasingly difficult issue to address is the creeping salinization of water used for drinking and agriculture. Saline intrusion is already taking place in many areas of Bangladesh, including the Ganges tidal floodplain, where the rivers are becoming more saline as seawater intrudes and alluvial runoff clouds the water. Saline intrusion affects groundwater and makes drinking water more difficult to reach.[83]

The most economically devastating results will be seen in the agricultural sector, where saltwater destroys crops and renders fields useless. In one fishing village near Chittagong, saline intrusion has destroyed crops for the last two seasons.[84] Initiatives to develop salt-resistant crops are far from ready to help rural populations. With a large portion of the population dependent on agriculture, salt intrusion could change the economic livelihoods of millions.

Addressing climate change and development

Bangladesh is slowly integrating these projected consequences of climate change into its larger development strategy. The 2008 and 2009 drafts of the Bangladesh Climate Change Strategy and Action Plan set out a "pro-poor Climate Change Management Strategy," which will work to ensure a secure environment for the prosperity of Bangladesh's most vulnerable populations, focusing on adaptation and disaster risk reduction.[85] The plan's six areas of focus include human security, disaster management, infrastructure, research, low carbon development, and capacity building.[86] Other initiatives, by the Ministry of Food and Disaster Management and the Ministry of Environment and Forest's Climate Change Cell, have also brought climate change to the forefront of Bangladesh's coping strategies.

Just as in India, climate change is likely to enhance rural-to-urban migration in Bangladesh, with Dhaka and Chittagong serving as key destinations. Atiq Rahman, executive director of the Bangladesh Center for Advanced Studies, argues that rural-to-urban migration can be a first step in a larger migration process. Rahman says, "They will first go to the nearest cities, then major cities, then they will go outside."[87]

When people do move to Dhaka or Chittagong for environmental or other reasons, they face new risks as newcomers to the city.[88] Dhaka is the world's fastest growing megacity; currently home to around 12 million people, the United Nations predicts the population will grow to 20 million by 2025, surpassing Mexico City, Beijing, and Shanghai.[89] All megacities face the peril of "overcrowding, pollution, poverty, impossible demands for energy and water."[90]

For Dhaka, climate change vulnerability adds another dimension to the issue. The Asian Development Bank reports, "Several mega cities of South Asia, such as Dhaka in Bangladesh … are at high risk of sea-level rise, prolonged cyclonic activity, and greater salt-water intrusions, which is likely to affect a large number of people due to high population density and poor urban planning."[91]

Nearly half a million migrants pour into Dhaka each year, with a majority ending up in slums.[92] Disasters have historically driven villagers to the city and will likely do so with increasing frequency in the decades to come: "When describing why they came, migrants tell stories of flood and famine in quiet rural towns where options dwindle by the day … these villagers pour into Dhaka at a rate of about 400,000 to

500,000 each year."[93] Once again, patterns of environmental degradation, agricultural hardship, migration, and urban instability are worsened by climate change.

At the same time, Dhaka's challenge constitutes an opportunity—studies find that cities are by and large more sustainable than rural areas, with smaller houses and centralized electrical grids that reduce the per-capita carbon footprint. Urbanization can also lead to smaller families because large families are no longer needed to manage farms. Thus, increasing urbanization also has the potential to control booming population growth and lessen the pressure on resources.[94]

But these potential benefits can only be realized if there is capacity to deliver steady economic development and infrastructure sufficient to ensure the livelihoods of millions. Access to clean water and affordable transportation impose huge constraints on development, and the government in Dhaka is already thinking ahead to understand and prepare itself for further population growth.

International migration

International migration may be another option for Bangladeshis consistently plagued by deteriorating environmental or economic conditions. Use of this adaptive mechanism could become more frequent if Bangladesh's urban centers are unable to secure their future sustainability and provide basic social services. Bangladesh has well-established labor migration routes to cities around the world, particularly Middle Eastern cities including Abu Dhabi and Dubai.[95] Agencies work with companies around the world in need of inexpensive labor and in 2011 there were around 8 million Bangladeshi workers employed overseas.[96]

More informal—but still substantial—migration takes place from Bangladesh to India, especially to the far eastern Indian states of West Bengal and Assam. The Asian Development Bank suggests that it constitutes the "largest single international migration flow, with more people involved than … Mexico-United States migration."[97] It is estimated that approximately 12 million to 17 million Bangladeshi immigrants have come to India since the 1950s, with most residing in the northeast states of West Bengal, Assam, and Tripura.[98]

How climate change will effect migration to Bangladesh's urban centers is not exactly determined. Even more uncertain is how climate change and

A soldier stands guard as people stand in line to receive drinking water being distributed by army personnel in Dhaka, Bangladesh in April 2010. The Bangladesh government called in the army to help maintain security and water management during the water crisis in the capital.

ASSOCIATED PRESS/PAVEL RAHMAN

Bangladesh's urban growth will interact to shape international migration, particularly to India. But given the trajectory of available climate change projections and historical precedent, India may continue to be a popular destination for many Bangladeshi migrants. Major General Muniruzzaman, president of the Bangladesh Institute of Peace and Security Studies, does not think Bangladesh can "absorb that many [internal] migrants … there will be spillover to India. The impacts of climate change on migration will be most heavily felt here because of the sheer demographic size."[99]

The political and social implications of even a modest increase or perception of increase in the number of immigrants across India's borders need to be taken very seriously.

The broad picture of regional climate change and migration

This set of complex climate related challenges emerges at a time when India is transforming its relations with immediate neighbors and become more active in the Indian Ocean and Bay of Bengal. This transformation includes an ambitious bilateral agenda with Bangladesh, including stronger security cooperation. To foster regional stability in South Asia, India is focused on stronger integration with her neighbors—and high economic growth has led to increased engagement with the outside world.

At the same time India has undergone a massive internal transformation in recent years, shaped by an emerging middle class, increasing participation in international trade, and substantial global capital investments that have raised interest in and awareness of international affairs. These internal dynamics have changed the way Indians look at their borders and their long-neglected border regions.

India's Northeast is part of this broader development. For many years this neglected part of the country resembled a militarized zone, with little economic development or government investment.[100] But now the region is increasingly seen as an important bridge to the 10 member countries of the Association of South East Asian Nations and funding has been allocated by the Indian government to connect the Northeast with Thailand. In addition, Assam is a region of strategic importance with important natural resources and 2,800 miles of international borders—including with China, Myanmar, Bhutan, and Bangladesh—in a rapidly developing region.[101]

Fiscal flexibility during the period of rapid economic growth has allowed for increased domestic investments in India's northeastern border states that have traditionally received less funding because of their remote location, ethnic diversity, and tribal insurgencies. Severe gender, class, and caste inequalities still exist in India, particularly in rural areas. The Northeast is no exception.[102]

Despite these obstacles, India's Northeast is an important part of a domestic consolidation process, and strategically important given the rapprochement with Bangladesh, the transformation of Myanmar, and the ambiguous relationship with China.

India's internal power shifts began after the state of emergency from 1975 to 1977 and the 1977 elections. For the first time since Indian independence in 1947, the dominant Congress Party found itself without a majority in parliament, defeated by a coalition of parties opposed to the state of emergency and the human rights violations that resulted from the Congress Party's rule.

Simultaneously, the role of regional, and at times ethnic, influences in Indian politics became more prominent. Over the next two decades, the weakening of the Congress Party was accompanied by the diversification of political power and a shift away from Delhi toward increasingly influential regional governments. This helped solidify Indian democracy and federalism, but also provided a platform for ethnic and religious identity politics.

Today these regional politics have intensified, caught up in a debate over whether representative or direct democracy provides a better model for a rapidly albeit unevenly growing India. This discussion is the result of political pressure to address the permanent fault lines of urban, rural, economic, and ethnic challenges; to strengthen internal governance; and to play a role in global affairs. Climate change and the movement of people complicate this crucial process.

The Seven Sisters region—and especially Assam province—represent a test case for a new Indian domestic policy. Due to the shared border with Bangladesh, existing local connections have produced great potential for regional cooperation—and at the same time led to withdrawal in ethnic and nationalist political positions. The region does not yet formulate policy but is becoming more important in dealings with Burma, Bangladesh, Myanmar, and in addressing the lingering political insurgencies.

Northeast India and the politics of migration

The root causes of the tense politics surrounding migration in the northeast region date back to the era of the ending British colonial rule in 1947, when Bangladesh and India were separated. Cyril Radcliffe, the chairman of the Borders Commissions, delineated the official partition between the countries by granting control of the northeastern slopes and hills to India, and the low-lying plains to what became East Pakistan. The partition resulted in a major migration along religious lines, as Hindus and Sikhs moved from East Pakistan to India, and Muslims moved in the opposite direction.[103]

Between 1947 and 1971, a number of factors led East Pakistan to demand independence from the state of Pakistan. In 1971 India supported East Pakistan with troops to fight West Pakistan for independence. On March 26, 1971 East Pakistan gained independence and was renamed Bangladesh. During the fighting, around 10 million East Pakistanis, mainly Bengali-speaking Hindus, migrated to India as refugees seeking to escape the violence.[104]

These movements further complicated an already tangled ethnic, cultural, and religious geography. Today, millions of people living in India can claim that they or their ancestors are originally from what is now Bangladesh. Under British rule before 1947, people moved with relative freedom. Later, as stated above, millions more were displaced from the conflict zone during Bangladesh's war for independence from Pakistan. The timing of these various migratory movements, and the labels applied to the different periods of migration, has been a key source of tension in Assam.

Assam: A microcosm of India

With its myriad of ethnicities and religions, Assam has been described as a microcosm of India. Assam is one of the Seven Sister states in the Northeast that share cultural and ethnic similarities. Cradled between China, Myanmar, Nepal, and Bhutan, the Northeast is a tapestry of cultural influences, numerous tribes, and diverse linguistic traditions. The concept of Assamese encompasses tribal communities, nontribal communities of different religions, indigenous groups, and non-natives who share a minimum common cultural heritage of Assam and speak the Assamese language.[105]

In 1979, resenting the growing prominence and political use—real and perceived—of unauthorized Bangladeshi immigrants, the All Assam Student's Union began to campaign against the unauthorized immigrants they believed were shaping their political system, changing their state's demographics, and threatening the cultural identity of the indigenous Assamese people. The student union's protests were also against general political corruption, and politicians' use of Bangladeshis as "vote banks."

The movement argued that, after Bangladesh gained independence in 1971, the Bengali Muslim refugees should have immigrated back to the newly formed country. Many in Assam claim that Indian political parties quickly sought an advantage by courting the immigrant to maintain a voter base."[106]

Legally, only identity-card carrying citizens are allowed to vote in Indian elections, but fake ration cards (required for voting) and other identity documents were allegedly circulating within the immigrant communities well before the voting began.[107] Political parties asked for immigrant votes in the elections in exchange for supporting their community. The insecurity of the immigrants led many to continue supporting politicians for fear of deportation or the implementation of anti-immigrant policies.

The All Assam Student's Union placed the issue of immigration at the center of northeastern India's politics. "Beyond any doubt, the All Assam Students Union was instrumental in making the issue of foreign nationals in Assam widely acceptable to the common Asomiya people," says Bhupen Sarmah, professor at the Omeo Kumar Das Institute of Social Change and Development in Guwahati, Assam. [108] Conflict ensued and "the movement aroused destructive anger, particularly against the Bengali speaking Muslim Community …indiscriminately characterized as 'Bangladeshi.'"[109]

The districts of Assam
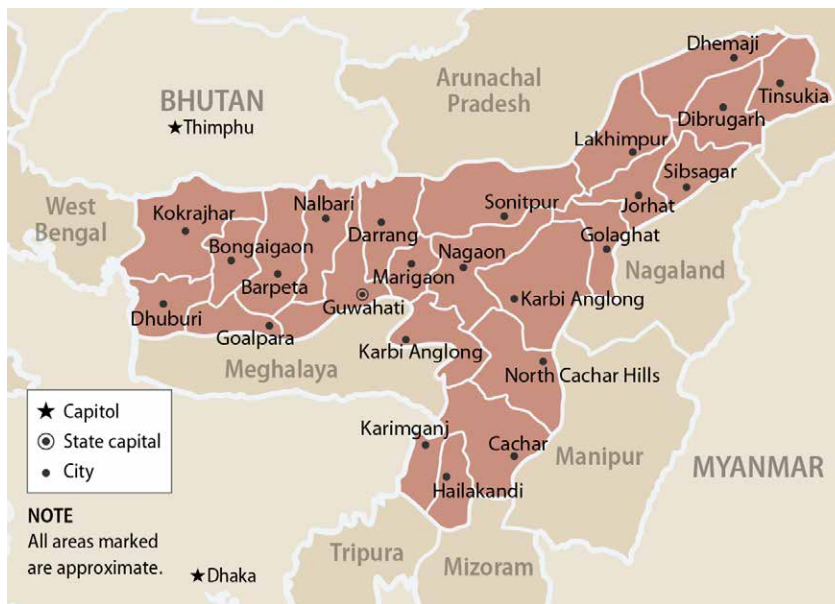
Source: Center for American Progress (2012).

Assamese antimigrant violence in 1983

The violence peaked in the early 1980s when, after four years of the government refusing to meet the union's demands, the All Assam Students Union boycotted the 1983 election, demanding that all unauthorized immigrants or so-called infiltrators be deleted from electoral rolls and deported immediately.[110] The Indian central government went ahead with elections, inciting further conflict. The government reports that more than 4,000 people died as a result of violence the election caused, with nongovernment reports putting the death toll at 7,000.[111]

The violence also led to the burning of over 1,600 bridges to prevent election personnel access to their respective constituencies.[112] The most serious episode of violence occurred at Nellie in the district of Nagaon in February 1983, with estimates of 2,000 killed, mostly Muslims. The massacre was widely condemned and may have played a role in returning the Congress Party to power in the next election, as the antiimmigrant forces faced a backlash.

Activists of North Eastern Students Organization take to a street at a protest rally against Bangladeshi nationals illegally staying in the northeastern Indian states during a twelve-hour general strike called by them in Gauhati. Bodos and Muslim settlers, who mostly came from the former East Pakistan before it became Bangladesh in 1971, have clashed repeatedly over the years but the recent violence is the worst since the mid-1990s.

ASSOCIATED PRESS/ANUPAM NATH

The forced election of 1983 and the return of the Congress Party led the All Assam Student's Union to form a new political party with like-minded groups, the Asom Gana Parashid. Two years of talks following the conflict eventually led to the conclusion of the Assam Accord in 1985, meant to settle the differences between the Central and Assamese Governments and the students' union.

The accord laid out the following provisions to address the immigrant issue:[113]

• Immigrants who arrived before January 1, 1966 are to be recognized as citizens
• Immigrants who arrived between January, 1966 and March 25, 1971 fall under the Foreigners Act (Indian national law), must register themselves in district offices, and will not be able to vote until 10 years after they were detected
• Immigrants who arrived after 1971 will be identified, removed from voting rolls, and deported

The signing of the accord between the government and the All Assam Students Union ultimately ended the movement, but the immigration debate was far from over.

In 1983, the Illegal Migrants Act established a system—limited to Assam—by which to detect and deport unauthorized immigrants. The goal was to protect the rights of immigrants while identifying and deporting them in a civil manner. The Foreigner's Act, used everywhere else in India, relied on the accused to prove citizenship. In Assam the Illegal Immigrants Act put the responsibility on the accuser to prove that the accused immigrant is in Assam illegally.

The Illegal Migrants Act proved to be ineffective due to the difficulty of successfully demonstrating another person's unauthorized status. The All Assam Students Union and other groups accused the government and politicians of enacting the new law in order to keep unauthorized immigrants in the state as vote banks. The act was finally abolished in 2003 after long legal battles, and Assam immigration now falls under the jurisdiction of the Foreigner's Act with the rest of India.[114]

Tensions and outbreaks of violence over migration have continued on a small scale since 2003, escalating again in the summer of 2012. In this case, the fighting broke out between the Bodo community, a tribal community that make up 5 percent of Assam's population and have autonomous rule of 3,000 villages in Assam, and the immigrant, minority Muslim land settlers.

The violence began when four Bodo youths were killed in a Muslim-dominated area in Kokrajhar district. Fighting spread to neighboring Dhubri district, resulting in over 30 deaths, numerous injuries, and the displacement of over 100,000 people, forced to flee to relief camps in the area. Namrata Goswami at the Institute for Defense Studies and Analyses wrote at the time of publication that, "while it is too early to blame either side of the ethnic divide for the ongoing violence in Assam, the growing fear of the indigenous Bodo community of being swamped by illegal Bangladeshi migrants has to be taken seriously."[115]

At the end of September 2012, political parties, student groups, and tribal bodies held several demonstrations in Assam protesting unauthorized immigration. On September 29, the Barpeta district unit of All Assam's Students'

organized a rally of over 15,000 people demanding the deportation of unauthorized migrants.[116] Then, on September 30, three groups representing Assamese indigenous groups held a press conference saying that indigenous people of Assam will not back down on the unauthorized immigration issue. They also demanded that identified unauthorized foreigners be put in detention camps or under house arrest.[117]

Another group, Bangladeshi Mukto Asom Sangrami Mancha also held a rally on September 30, urging people from other states living in Assam to join the movement against unauthorized Bangladeshis. Ranoj Pegu, convener of the rally and president of the tribal group Mising Mimag Kebang, said at the rally, "Every Indian must support our cause. As Bangladeshi illegal migrants are spreading their tentacles far and wide across India, we need to stop them."[118] The rallies once again demonstrate that unauthorized Bangladeshi immigration remains a key concern for many political and indigenous groups in Assam. This migration also demonstrates the power the issue has in building a movement.

Migration, religion, and confusion

It is important to point out that there are broad conflations taking place between Muslims and Bangladeshis. Muslims who look like Assamese natives and speak Assamese may not be seen as part of the takeover. "One has to remember the dichotomy between the indigenous Assamese Muslims who have assimilated into the Assamese society and the immigrants from Bangladesh whose language and cultural divide [are] quite distinct from the former," explains Saswati Choudhury of the Omeo Kumar Das Institute. The conflation raises questions of how Bangladeshi Hindus and Indian Muslims are seen within Assam. It remains unclear if fear and anger are directed toward a new religious minority, a new ethnic minority, or a new unauthorized population.

The Bharatiya Janata Party, or BJP—India's right-wing, nationalist party—makes its own, religiously based distinction on the Bangladeshi issue. The party proposes granting different rights and protections to Bangladeshis depending on their religion, claiming that Bangladeshi Hindus should be considered refugees, while Bangladeshi Muslims should be considered illegal immigrants. The leadership of the Congress Party and the chief minister of Assam, Tarun Gogoi, resisted supporting this claim until March 8, 2011. At that time, Gogoi said he would "take up the issue with the Government of India that the people who fled

United Liberation Front of Assam: Conflating terrorism, Muslims, and Bangladesh

In addition to a difficult political, economic, and environmental scenario, northeast India is also exposed to numerous political insurgencies. Most militant groups are fighting for independence of their state as well as protesting various social wrongs.[123]

Northeast India is culturally and geographically separated from the rest of the subcontinent, fueling a strong desire for regional autonomy. The 1947 partition only intensified perceptions of isolation and separation from India. This sense of difference was encapsulated in British divisions of the colonial territory, under which the Northeast was classified in Group C, containing the majority Muslim areas, rather than Group A, comprised of majority Hindu areas.[124]

The British granted Group C states a greater degree of autonomy, with the central government only claiming control over foreign affairs, communications, defense, and financial administration. In the years since independence, various groups have built upon this legacy and the religious differences to demand full autonomy and independence from the Central Indian government.

Presently, the United Liberation Front of Assam, or ULFA, is the most active Assamese insurgent movement and has been fighting for an autonomous, socialist Assam since 1979. The group did not become active until 1986, when they began raising money through extortion. The ULFA's increasing clout led the Indian government to outlaw the group and declare Assam a "disturbed area" in 1986.[125]

In the 1990s ULFA's campaign involved targeted attacks on leading political opponents, infrastructure, and security forces, intended to weaken the government's hold on Assam. ULFA membership remains in the thousands, mainly drawn from northern Assam, though the exact number is unknown. Violence associated with ULFA continues; in 2009 Assam suffered 387 insurgency-related deaths, with the ULFA claiming responsibility for many.[126]

In 2007 India accused Bangladesh of supporting insurgent groups operating in the Northeast. But with a change in Bangladeshi leadership in 2009, the new Bangladeshi government has cooperated to help capture several ULFA leaders.[127] In March 2011 Bangladeshi authorities handed over two leaders of ULFA to Indian border forces, continuing to strengthen the India-Bangladesh security relationship.

Even with this progress, the history—real or perceived—of Bangladeshi support for the insurgency allows politicians and Assamese residents to conflate Bangladeshis with insurgency and, more generally, with "terrorism." The ties to insurgency add to negative characteristics, including competition for jobs and resources, which the Assam movement and political groups have constructed about Bangladeshis.[128] This construction allows Assam to become part of the larger global terrorism debate, heightening the danger in the minds of the people and politicians. "The problem is the sense of insecurity and fear about being outnumbered in their own place," says Udayon Mishra, National Fellow at the Indian Council of Social Science Research.[129]

East Pakistan (now Bangladesh) fearing for their lives and took shelter in India should be given refugee status on humanitarian grounds." [119]

The Assam movement and the subsequent elections and politics reveal the crucial role that the issue of foreign nationals or immigrants has played in shaping Assam's political past and present. Political parties continue to bring up the issue of unauthorized immigration during elections.

Politics of fear

The concerns of the BJP and Gogoi, on behalf of the Congress Party, about Hindu refugees from Bangladesh raise new questions about how to define refugees in the Indian context. Gogoi's comments refer to East Pakistan rather than Bangladesh, and rely on historical justifications to categorize present-day refugees—30 years after the migration took place. Both Muslims and Hindus from East Bengal fled the Bangladeshi war and, by the standards of the United Nations High Commission on Refugees, could all be defined as refugees. In India religion plays an important role in public debate and politics. Making religious distinctions to define refugees raises complex questions of how India deals with its patchwork of religious and ethnic minorities in the aftermath of independence and partition.

In February 2011, Digvijay Singh of the All India Congress Committee spoke out against the BJP classifications, saying that there should be no discrepancy between Bangladeshi Hindus and Bangladeshi Muslims. Singh's position was that both Hindus and Muslims should be treated as illegal immigrants, not Hindus as refugees and Muslims as illegal immigrants. The BJP responded strongly, accusing the Congress Party for taking this line to support their "vote banks." Emotions within the BJP ran so high, two different party units burned an effigy of Singh.[120]

The fault lines for the 2011 Assam election proved to be no different. Sonia Gandhi, the Indian National Congress president, criticized the BJP for anti-immigrant rhetoric during the campaign, saying, "The BJP was in power at the center and during their regime they did literally nothing to check infiltration from Bangladesh and now during the elections here, the same party is shouting from rooftops about the danger from Bangladeshis."[121]

Political parties are influential forces in shaping views of one's own community and have consistently been used to draw harsh lines between Hindus and Muslims, Assamese and Bangladeshis. No other issue has shaped Assam's political landscape like that of the foreign nationals and unauthorized immigrants. The immigration issue provides a scapegoat to many controversies in the Northeast that are often about something else.[122]

The 2011 elections demonstrated that the Bangladeshi immigration issue is still at the center of Assamese politics. Many believe the problem has not been resolved and is only getting worse. Policymakers have only seriously taken up the issue of migration when dealing with border issues and insurgencies, but both of these areas have been plagued with their own politics and disagreements.

In our context, the tense—and at times violent—political confrontation surrounding immigration raises the prospect of future instability. The effects of climate change have the potential to undermine livelihoods and displace people. As food prices and access to water and electricity are impacted, the issue of immigration—and resource competition associated with migration—will become increasingly problematic for northeast India. The lives of immigrants, unauthorized or otherwise, may become more difficult. This could well lead to further political instability and the strengthening of alternative (and violent) courses of action.

Indian Border Security Force soldiers patrol along the India-Bangladesh international border, in Fulbari, about 20 km (12 miles) north of Siliguri, India. India shares over 4,000-kilometers (2500 miles) border with Bangladesh.

ASSOCIATED PRESS/TARUN DAS

Ethnic Bengali Origins in Assam

Apart from political isolation, many Bengali-speaking communities also face difficult living conditions in Assam and the Northeast. Many Bengali communities are settled in the river flood plains of the Brahmaputra as well as the char regions of river islands.[130] These areas were originally settled by Bengali speakers who the British had brought to cultivate the char. Bengali-speakers continued to settle after the British left.[131] The established network has shaped subsequent migration; Saswati Choudhury of the Omeo Kumar Das Institute for Social Change and Development in Assam argues, "The immigration in the region in the post partition period have not been independent of the immigration in the pre-partition period. The post partition immigrants have depended on the erstwhile immigrants and once the new entrants found a footing using these connections they have maintained their links in their former place of domicile as well."[132]

But settlement in the river area is hazardous. Assam is already facing water scarcity, floods, and other extreme events exacerbated by climate change.[133] These conditions place added strain on the agricultural sector, with potentially devastating effects when floods threaten fertile riverside land.[134] The Brahmaputra River is naturally prone to flooding due to its location in a geologically volatile area of eroded rock, but the frequency and extent of these floods is set to increase with climate change.[135]

Flooding of these areas takes place every year, forcing immigrants to move to the mainland temporarily and move back to the plains and islands once the waters go down.[136] As mentioned previously, floods in the summer of 2012 killed 100 people and displaced 2 million people in Assam. The living situation is insecure, and these river and char settlers rely on nearby communities to accommodate them when disaster strikes. "Migrants don't realize that some of the parts they are moving to are more vulnerable than the parts they are coming from [in Bangladesh or otherwise] … it continues a vicious cycle," observes Partha Das at the Water Climate and Hazard Program of Aaranyak, a premier environmental nongovernmental organization in Assam.[137]

The instability of life in these areas had previously deterred settlers. But immigrants, lacking the legal right to own land in Assam, moved to the river areas generations ago, during the existence of East Bengal, and now continue to adapt to an insecure, ever-changing lifestyle.[138] Living in this region also brings health

Water politics and the Brahmaputra

The Brahmaputra River begins at the Tibetan Plateau in the Himalayas and runs through China, India, and Bangladesh before emptying into the Bay of Bengal. The Brahmaputra represents a crucial interest for these three countries, which face water scarcity and rising energy demands. Shrinking glaciers and snow fields in the Himalayas, decreasing rainfall and increased incidence of drought, saltwater intrusion, and population growth could lead all three countries to scramble for water and rush to harness the power of the Brahmaputra.

The Brahmaputra offers great potential hydropower for the region. China has already constructed 10 dams on the river's tributaries, with three additional projects underway, seven under consideration, and eight proposals on the table. China plans to build 10 more on the main Brahmaputra, the first being a $1.18 billion, 510 megawatt project to be completed by 2014.[142]

The most worrisome development for India and Bangladesh would be a dam on the Great Bend of the Brahmaputra, where the river curves south into Assam. In May of 2010, there were reports that the Chinese were researching the feasibility of undertaking the world's largest hydro-electric project in that location. It would be a 38,000 megawatt facility, nine times bigger than the Hoover Dam. This would drastically change the amount of water India and Bangladesh were receiving downriver. Brahma Chelanney, author of *Water, Asia's New Battleground*, warns that diversion of the Brahmaputra on that scale "would constitute the declaration of a water war on lower-riparian India and Bangladesh."[143]

The 2012 U.S. Intelligence Community Assessment of Global Water Security concluded that the Brahmaputra River basin management capacity was currently insufficient and would remain so into the 2040s. It highlighted the inadequate water agreements between China, India, and Bangladesh; reduced water flows, saltwater intrusion in the delta; and lack of development planning.[144] As the consequences of climate change worsen and energy demands grow, regional water security solutions will be crucial to ensure cooperation and understanding across Asia.

risks: Dipankar Saharia, coordinator of the Northeast Office of The Energy and Resources Institute, explains, "migrants are vulnerable health-wise, with threats from waterborne diseases and dehydration."[139]

Open land in Assam is becoming increasingly scarce, mainly due to a growing population. Assam's total population is about 31 million and has a decadal growth rate of 16.93 percent.[140] Immigrants may come to the region because of historical or familial connections and the perception of land availability, but the reality is more challenging. Bangladeshis are sometimes seen as competition to the Assamese indigenous population, who also feel the pressure of land scarcity.[141]

This competition for land and resources underpins the perception that Bangladeshis are "invading" the cultural heritage and lands of the Assamese. These pressures could increase as climate change impacts the availability and productiveness of arable land in the region. Water politics between the three nations astride the great Brahmaputra River could exacerbate those pressures. (See box)

At present, the situation of immigrants in rural and urban areas is insecure, undermined by floods and other environmental changes and shifting labor demand in the cities. Conditions could deteriorate further if there was an influx of immigrants into the region, a prospect made more likely by the impacts of climate change.

The India-Bangladesh Border

After Indian Prime Minister Manmohan Singh's visit to the Assam region in February 2011, the All Assam Students' Union adviser Samujjal Bhattacharyya, declared that Singh "skipped major issues relating to the greater interest of the people of the state. He did not utter a single word about the implementation of the Assam Accord to solve the problem of Bangladeshi infiltration and updating of the National Registration of Citizens. Besides he was silent about sealing the Indo-Bangla border."[145]

Border issues are complicated by multiple transboundary rivers, including the massive Brahmaputra. The rivers make it particularly difficult to keep people from crossing. Responsibility for patrolling the border falls to the Border Security Force on the Indian side and the Border Guards in Bangladesh. Cooperation has long been problematic, given tense relations between the countries, but has improved in recent years.

In March 2011 the two groups convened the 33rd Border Coordination Conference, at which the Indian forces handed over a list of wanted insurgents and smugglers in Bangladesh, while agreeing to introduce nonlethal weapons to prevent fatal shootings of unarmed Bangladeshi civilians—a problem in the past.[146] The meeting was hailed as a success, leading to commitments from both sides to hold weekly meetings and increase interaction and understanding between the two organizations.

Building on this, in July 2011 India and Bangladesh signed the Coordinated Border Management Plan, intended to "enhance quality of border management as well as ensure cross-border security."[147] Under the plan, the two countries agreed to joint coordinated patrols and the sharing of intelligence regarding insurgents and smugglers.[148] The Indian government also added battalions to its Border Security Force and created new helicopter bases and headquarters, while Indian and Bangladeshi forces now cooperate to survey the border.

The two countries also settled a long-standing border dispute in September 2011. Normalization of the border and security cooperation will be important to help both countries manage the demographic shifts underway, particularly if agricultural conditions deteriorate.

The border forces met again in September 2012 and both committed to expediting the fence by settling disputes regarding about 180 sites on the border. The Bangladesh Border Guards also discussed the killing of nationals by the Indian Border Security Force. India committed to make sure that causalities came down.[149]

United by a fence

The border fence and governance are central to the security of India as a whole and even more so to the border states. Focus points include West Bengal, Meghalaya, Mizoram, Assam, and Tripura, all of which are part of the 2,544 mile (4,095 kilometer) border with Bangladesh. Both the Pakistan-India

and Bangladesh-India border fences were initiated at the same time, but the Bangladesh project is still far from complete.

But many experts are convinced that a traditional hard-security approach will not be the solution. They argue both countries need to take a more development-centric approach to the border. Devika Sharma, Political Science Professor at Delhi University argues, "We need joint development of the border region with Bangladesh, but the Indian government is not thinking of it in that way because security trumps development."[150]

Rather than helping the border populations develop economically and improve their environmental and agricultural safeguards, the border fence is seen the primary solution to stop smuggling and immigration. Sanjoy Hazarika of the Center for North East Studies echoes this analysis, stating that both governments border policies "take[s] a militaristic approach to an economic and environmental problem."[151]

The long-term future of the border fence and the effectiveness of increased communication between the border forces are yet to be seen. In the future, potential increases in migration from Bangladesh across the border to India will require coordinated responses from the nations' security forces and nonsecurity apparatus, thus the groundwork underway now is an important precaution.

Climate change on the subcontinent—what it means for the United States

Climate change has the potential to be an additional stressor to an already complex dynamic of human mobility in South Asia. Major migration between India and Bangladesh dates back to the Partition and independence. And migration within both countries continues apace, prompted in many ways by climate change and security issues. But the growing consequences of climate change—including floods, cyclones, and sea-level rise—could lead to future increases in migration with potentially destabilizing effects for Bangladesh and India in particular.

More research is needed on the patterns of migration within and between both India and Bangladesh. Rural-to-urban migration and international migration are both taking place, but the exact numbers of migrants and the motivations behind the movement are still not fully understood. It is undeniable, however, that impacts of climate change will affect vulnerable populations within both countries.

Environmental degradation will hit rural populations hardest, prompting changes in economic and housing situations and potentially undermining basic human security. Throughout the region, rural populations' livelihoods are dependent on the land and water systems supporting agriculture. More floods, cyclones, and other climate change-related destruction could be economically devastating, prompting migration both internally and internationally.

Such scenarios are already beginning to play out. The Indian drought's impact on agriculture is causing more rural to urban migration, and major flooding in 1988 and 1998 caused mass displacement in Bangladesh, while other floods have caused displacement on a smaller scale. Such crises will become more frequent as climate change intensifies.

Climate factors may also exacerbate established migration paths and patterns between India and Bangladesh. The Asian Development Bank Report finds that current Bangladeshi migrants move mostly to West Bengal, Assam, and Tripura.

Both West Bengal and Tripura have had their own security issues tied to immigration in the past, which could also be exacerbated by an influx of migrants.[152]

While this report examines Assam as a case study of how cultural history, politics, religion, and ethnicity must serve as a backdrop in understanding climate change and migration within the region, the same unifying threads and potential sources of instability can be found in many regions across South Asia. The Assam case is an issue of both local and national security concern for India but also an example of the power of perception in shaping how climate-induced migration may be understood in the future.

"It has the potential to be a very, very volatile issue with large political dimensions," says Chandan Mahanta, head of the Guwahati Indian Institute of Technology's Center for the Environment, of climate-induced migration.[153] The conflict is deeply rooted in the region's struggle during independence and Partition, and has resurfaced as a contentious political matter that dominates many elections.

The Assam movement was a five-year protest against those seen as unauthorized immigrants, which resulted in violence against Bangladeshis and Indian Muslims. While the movement collapsed, the anti-immigrant sentiment lingers today. And the conflict in the Bodo areas in summer of 2012 sparked anti-Bangladeshi rhetoric and protests. Bilateral talks to improve Indian-Bangladeshi security cooperation on the border and against insurgents are a step in the right direction, but do not address the core anti-immigrant sentiments within the region. If governments fail to understand the political implications of growing migration after climate-induced disasters, ensuing disruption could result in conflict or instability in Assam and the wider region.

The danger lies in both an actual increase in the number of immigrants as well as perception. The exact impact of an increase in the frequency of storms or floods on migration into Assam is unknown, but anecdotal evidence suggests that it could lead to a rebirth of anti-immigrant sentiment. Many Assamese residents still think that Bangladeshis are moving to Assam in large numbers and changing the demographics and politics of the region.

During the Assam movement, no hard data on Bangladeshi immigration was ever presented, yet people were moved to join the All Assam Student's Union, bring Assam to a state of emergency, and, in some cases, turn to violence. It will

be important to investigate and manage perceptions of immigration within the region, to ensure that climate change does not become an instigator of conflict.

Clearly, the consequences of climate change put pressure on the region's resources and land suitable to support basic livelihoods becomes more scarce. This means the immigration issue that has long plagued Assam and the Northeast will manifest itself in new ways. Contextualizing Assam's scenario in the larger climate change issues facing South Asia will be key to the United States understanding how to react to these climate-induced crises on the subcontinent.

Mitigation, adaptation, and urbanization

When it comes to the nexus of climate change, migration, and security, long-term planners confront distinct challenges. Governments must account for the impact of development, increased urbanization, and rising demand for services—from roads to education. Environmental degradation and human mobility will give rise to political demands requiring responses far beyond the provision of subsidies or short-term relief to affected areas.

Simultaneously, urbanization should become part of the solution—provided that governments and the private sector manage to guarantee food security, deliver required energy resources, and develop infrastructure to more effectively protect livelihoods in rural areas. But economic growth must be maintained to accommodate growing populations and allow society to better prepare itself to deal with the impacts of climate change.

As mentioned earlier, projections by McKinsey's Global Institute show that India's urban population will grow from 340 million to 590 million within in the next 20 years.[154] In Bangladesh, the United Nations estimates that the urban population will more than double to over 100 million by 2050.[155] This dramatic change of the rural landscape—and the social opportunities that it presents—must be considered in the policy debate about climate change, migration, and security in the region. It also poses new challenges; many energy reviews estimating future demand may undercount energy demand, not accounting for higher levels of urbanization and development.

In India the shift from a subsistence economy toward a modest middle-class lifestyle is already happening in rural parts of the country that do not always

get sufficient attention. The National Council for Applied Economic Research recently noted that the share of goods purchased by rural consumers in 1996 was 45 percent, but that by 2009 that number had risen to 60 percent. Furthermore, the council notes that while per-capita income in rural areas is still only 63 percent of what it is in urban areas, the gap is steadily closing.[156] The greater the pressure on government, the likelier actors will resort to fossil fuel resources as a quick fix. In India this will be coal, as the country has one of the largest reserves in the entire world. In 2010 alone, 172 coal-fired power plants were approved in India.[157]

For India's coal-rich northeastern states, the development of massive coal and hydropower resources has the potential to accelerate economic growth in the entire region. Coal revenue, in turn, will allow for accelerated industrialization, fostered by access to cheap electricity in a historically neglected region.

This exclusive focus on short-term economic growth without careful study of the long-term demographic and environmental shifts shaping the region risks leaving India and Bangladesh ill-prepared to face future crises. Though it is unlikely that India will grow toward a high-consumption Western-style lifestyle, energy demands will be strong. Maintaining supply and demand at reasonable and manageable levels will require strong political leadership.

India's development of sustainable energy and climate policies is important not only for the country's own sake. If it manages to cope with the twofold test of high population growth and urbanization, the subcontinent could provide a reference point for many developing nations whose growth models will more closely resemble India's than that of the United States or Germany.

Traditional climate change debates tend to center on adaptation and mitigation—but given the experiences of India and Bangladesh, this might not be the way to conceptualize the problem. Rather, to be successful, the country would be better served by changing the pathway of growth toward greater sustainability despite (or because of) the massive infrastructure expansion and brisk urbanization.

Fostering sustainable urbanization that takes climate change into account will provide an opportunity for India to lead the construction of modern urban centers. This field offers unprecedented scope for U.S.-Indian cooperation at the local and regional level. Last year, the Indian government began plans to develop a 1,000-mile corridor from New Delhi to Mumbai with modernized industrial zones, three new ports, six new airports, and up to 24 new "green" cities.[158]

The emergence of lower-middle classes with a vested interest in greater sustainability—protection from natural disasters, food security, and energy availability—in countries like India is already changing the traditional definition of development. Successful examples in other emerging countries exist: In Curitiba, Brazil, a burgeoning middle class with an interest in sustainability has fueled the development of a modern, green city that has effective social services, a model mass transportation system, the highest Human Development Index in Brazil and 554 square feet (over 50 square meters) of green space per inhabitant.[159]

India is at a pivotal point, and urban planning decisions will drastically effect the development of the country's urban areas, set to contain almost 600 million people by 2030.[160] At the same time, sustainable development must be redefined, acknowledging rising energy demand as well as hundreds of millions of Indians' need for greater mobility. Development has been the core theme of India since 1947, when the country had to adapt to an entirely new political and climatic environment. Navigating this process will produce a political advantage for India by building strategic expertise on issues that will redefine geopolitics in the coming decades. The United States will be an important partner for South Asia as the U.S. focus shifts toward the Pacific.

The U.S. pivot toward Asia

In late 2011 the Obama administration unveiled a new strategy to begin rebalancing its foreign policy priorities, diverting greater assets toward Asia. This shift comes at a time when the Unites States remains deeply involved in the Middle East and prepares to cope with necessary budget cuts at the Department of Defense and other federal agencies.

The Pentagon and the White House must grapple with important regional issues in the South China Sea, the world's most important commercial intersection. Due to these commitments, and continuing tensions with Iran, the U.S. Navy's ability to project American power in the region is not infinite. Even if sufficient financial resources and military hardware were available, it is impossible to stabilize the Asia Pacific region through projection of military power alone.

The United States and its Western partners must pursue new security arrangements, push for increased democratic governance, and accommodate underlying demographic and environmental trends. With these efforts as central tenets of the rebalancing effort, an examination of the overlay of climate change, migration, and security is unavoidable.

Looking at the region in terms of basic, long-term trends such as climate and demography also opens new diplomatic trajectories. The rebalancing of U.S. policy toward Asia is often seen as a response to Chinese territorial claims, which have prompted some American allies in the region to request greater U.S. involvement. This Cold War understanding, calling for 20th century balance-of-power and containment strategies, is outdated and needs to be replaced with a broadened strategic framework for the region, with the U.S.-Indian bilateral relationship as its centerpiece.

India should not be a battleground for proxy politics or a piece of a containment strategy, but instead be seen as a major actor in its own right and a long-term partner in addressing the root causes of geopolitical instability. This progressive posi-

tion must also weigh the significance of India's democratic self-determination, and allow that it will not always produce results squarely aligned with U.S. interests.

U.S. and Indian interests converge in pursuing sustainable economic growth for tens of millions of Indian citizens; helping India manage its population growth, climate change, and urbanization; and seeking to establish India as a provider of regional stability and security. This means U.S. and international policymakers need to include India clearly and definitively in their Asia pivot, which boasts the added benefit of making clear the pivot it not about outdated Cold War theories of containment.

The need for innovative regional and security policy

The emerging policy conversation about the intersection of climate change, human mobility, and security offers a great opportunity to discuss rising problems within a regional framework that provides India a leadership role and steers away from a militarization of the strategic environment. India's doctrine of geopolitical nonalignment and the potential destabilizing effects of regional conflicts in South Asia make the country a key player.

Climate change and human mobility are already shaping the Asian security equation and will grow in importance in the decades to come. India and Bangladesh are acutely exposed to climate change risks. Environmental degradation, glacial melt, and rising water levels threaten the Brahmaputra River Delta, while unpredictable monsoon seasons, leading to increased floods and droughts, impact hundreds of millions of people across the Bay of Bengal.

A worst case scenario, detailed in a 2009 war game at the National Defense University, analyzed the impact of flooding in Bangladesh which resulted in "refugees streaming into neighboring India, touching off religious conflict, the spread of contagious diseases and vast damage to infrastructure."[161]

The United States will not be able to isolate itself from such pressures. Rymn Parsons sums it up in a recent Army Strategic Studies Institute report that "climate change is a multifaceted threat to America's well-being, and the world's."[162] Climate change will contribute to resource scarcity and severe humanitarian consequences and has the potential to "generate instability and lead to conflict," according to the institute. The report foresees conflict in "areas that become uninhabitable … due to desertification or sea-level rise," and argues that the "underly-

ing uncertainty, growing prevalence, and possible intractability of climate change exacerbate its tensions, risks, and threats."[163]

This scenario is real and immediate for Bangladesh and northeastern India. Summer monsoon rains, influenced by climate change and crucial to agriculture, provide 75 to 90 percent of the annual rainfall in the region.[164] The World Bank estimates that a 1.5 yard sea-level rise will cause floods in 18 percent of Bangladesh's territory, leading to a 10 percent drop in rice production, causing hunger, and forcing populations dependent on such livelihoods to migrate.[165]

The links between climate change and conflict are difficult to trace scientifically but increasingly likely. According to a report by the International Peace Academy, the impact on land and water resources will "alter current patterns of consumption and production as well as human settlement," resulting in migration and "indirect resource conflicts." [166] The report also states that, because the impacts are gradual, they "will lead to small, though sustained migration streams."[167]

In northeast India, bordering Burma, Bhutan, Nepal, China, and northern Bangladesh, such migration is not a new phenomenon. Ethnic revolts have repeatedly shaken the region's seven states since India's independence, the most recent unrest beginning in July of 2012. These revolts are often sparked by demands for greater autonomy and by the stresses of increased Bengali migration—real and perceived—to India's Assam province, an important energy deposit in the neglected Northeastern part of the country.[168]

These tensions add to demographic pressure that India faces. The country will contribute one-fifth of global population growth over the next four decades. In 1950, India had 350 million inhabitants, in 2006 that number had grown to over 1.1 billion, and by 2050 the total population will be an estimated 1.6 billion people—making it the world's largest nation.[169]

The challenges posed by the nexus of climate change and conflict are compounded in developing countries because they undermine the adaptive capacity of governments and people.[170] This dynamic contributes to and amplifies climate-driven regional security challenges, and it overwhelms limited governance and development capacities.

Indian-Chinese tensions over Chinese claims on Arunachal Pradesh and Tawang, for example, are likely to be heightened by climate change. A book entitled *Tibet's*

India's northeast states

Source: Center for American Progress (2012).

Waters Will Save China, written by retired Chinese officials, highlights the importance of water supplies to China and provides a sign of the potential for water conflicts in the future.[171] It seems unlikely India would allow crucial water supplies to be lost, particularly as climate change increases the overall stress on agriculture and basic livelihoods.

One likely focal point for these tensions is India's Seven Sisters area—the federal states of Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland and Tripura. (see map) This region constitutes 7 percent of the country's landmass and a population of close to 40 million. More importantly, the area shares almost 2,800 miles of international borders with important neighbors Bangladesh, China, Myanmar, and Bhutan in what will become an important economic and political zone in the decades to come.

Our report examined the overlay of climate, migration, and security in India and Bangladesh, focusing particularly on rural to urban migration in both countries. And it looked at the border issues—transborder riparian risks and migratory tensions—using the Indian province of Assam as a case study to examine how the impacts of climate change could raise tensions in Northeast India and the region. Our analysis, especially this case study, demonstrates why the United States needs to be more effective in engaging with future complex crisis scenarios in the region. How that can be done is the focus of our last chapter.

Conclusion

Recommendations

In a time of fiscal constraint, it will be important for U.S. defense, diplomacy, and defense wings to carefully consider priorities in the coming years. If the U.S. Congress cannot agree on a budget by the end of the year, the Obama administration and the new Congress face roughly 10 percent cuts across the board.

Under these pressures, it is vital that sustainability remains a focus. The Obama administration has incorporated climate change into discussion across departments and agencies through its Global Climate Change Initiative and Cabinet leadership has taken up the charge.[172] Congress, however, is sadly lacking in this arena. So let's first look at what the administration has done to date and what needs to be done by the executive branch going forward. Then we will turn to recommendations aimed at building partnerships that address the climate change challenge.

Planning ahead

In May 2012 Defense Secretary Leon Panetta said "climate change has a dramatic impact on national security. Rising sea level, severe droughts, the melting of the polar caps, the more frequent and devastating natural disasters all raise demand for humanitarian assistance and disaster relief."[173] The State Department and the U.S. Agency for International Development both have initiatives on climate change, promoting access to science and supporting climate resilience in their field missions.[174]

Planning for climate change has begun, but as our report demonstrates it will be important to continually assess the effectiveness of our programs as situations abroad become more complicated. Our defense, diplomacy, and development programs will need to work across silos to manage areas in which climate change comes together with existing migration and conflict scenarios.

Committing to make the Quadrennial Diplomacy and Development Review, or QDDR, process a permanent report is an important first step. Under Secretary of State Hillary Clinton's leadership, the Obama administration completed its first-ever QDDR, assessing how the Department of State and USAID can be more effective and efficient in a rapidly changing diplomatic and geopolitical landscape.[175] It was the first time this review was done alongside the Quadrennial Defense Review.[176]

In Congress, Sens. John Kerry (D-Ma), Ben Cardin (D-MD), and Marco Rubio (R-FL) sponsored the Quadrennial Diplomacy and Development Review Act of 2012 in June, which mandates that the completion of the QDDR from now on to ensure U.S. programs remain current and promote progress. At the time of publishing, the Bill passed the Senate on September 22, 2012 and remains in the hands of the House of Representatives.[177] If passed, it would ensure accountability and allow new ideas to consistently inform our policies abroad. It will be important that the QDDR continue examining the interlocking roles of both the State Department and USAID going forward.

In South Asia the United States maintains a strong aid program. The United States gave $107 million to India and $126 million to Bangladesh respectively from 2009 through 2010.[178] At the same time, India has also become a donor in humanitarian aid, contributing $56.5 million since 2005, with the majority going to South Asia and around 3 percent to 4 percent going to Africa and Latin America.[179] As India's economy continues to grow, it will continue supporting development both abroad and at home.

A strong U.S. relationship with South Asia that draws on resources and skills from partner countries and goes beyond the traditional aid relationship will be key in the decades to come. The Joint U.S.-India Clean Energy Research and Development Center is one model of the two countries coming together for game-changing research in the field of clean energy.[180] The center asks for joint U.S.-India research teams to propose ideas for clean energy innovation and receive funding from $125 collaborative U.S.-India funding. The center has already selected the first joint U.S.-India team proposals.

Similar partnerships that tackle complex scenarios such as the climate, migration, and conflict nexus should be a crucial component of the emerging South Asian relationship. The United States faces its own issues on border, immigration, and climate change. New ideas from Bangladesh, India, and the United States on technology, agriculture, border security issues, immigration laws, and general adaptation strategies

need a mechanism to thrive. Collaborative work that highlights best practices and new ideas across countries will make for strong relationship with our South Asian partners.

As Rich Verma argues in a 2012 Center for American Progress analysis, "They [the U.S. and India] can only reach solutions through the concerted efforts of parliaments, bureaucrats, politicians, civil society, and business leaders working together to discuss issues of importance, find common ground, and move the countries collectively forward through identifiable and measurable steps." In that vein, we propose three policy collaborations that the United States can take up with South Asian partners as complex crisis scenarios unfold in the wake of climate change:

• High-level climate-vulnerable cities workshop
• A dialogue on migration
• Ecological infrastructure development

High-level climate-vulnerable cities workshop

The United States, India, and Bangladesh should lead a high-level workshop on climate-vulnerable cities. Cities will be a priority as urbanization continues in India and Bangladesh and as extreme weather challenges the resilience of U.S. urban centers. Cities like New York, Mumbai, and Dhaka can learn from each other. The goal should be to zoom in and have detailed discussions about resilient infrastructure, disaster relief logistics, and preparedness best practices across countries and government levels.

The workshop would be ideally coordinated at a federal level through USAID and the Department of State with governor- and mayor-level participants. At first, it could be a trilateral dialogue and then expand to other countries and cities that would benefit from shared knowledge depending on the success of the initial workshop. New York City Mayor Michael Bloomberg and New York Gov. Andrew Cuomo could be in workshop discussions with Mumbai Mayor Sunil Waman Prabhu and Maharashtra's chief minister as leaders of two cities vulnerable to sea-level rise and extreme weather.

The workshop would not only provide a forum for the exchange of game-changing and potentially life-saving ideas in the face of climate change but would also better inform U.S. defense, diplomacy, and development wings on how to make their programs more effective on the ground in South Asia.

A dialogue on migration

The United States and India share numerous concerns about undocumented residents and immigration including social inclusion, path to citizenship, language, cultural differences, deportation issues, border management, and legal status. Comprehensive immigration reform is likely to be tackled in the next four years of the Obama administration. An honest exchange between India and the United States on immigration would be beneficial to both sides.

Just as many Indians have Bangladeshi immigrant relatives, 90 percent of Latinos in the United States have an immigrant parent or grandparent.[181] Sharing best practices and policy implementation for immigration would create a strong diplomatic partnership on a current and pressing issue on both sides.

Ecological infrastructure development

Ecological infrastructure is the use of natural landscapes and ecosystems for the benefit of society. In the case of climate change, natural landscapes that mitigate impacts—such as flooding, water salinization, and erosion—may be both cost effective and more resilient than traditional infrastructure, such as levies and pumps. Residents of India and Bangladesh have been innovating ecological landscapes due to lack of formal infrastructure in many areas.

Through India's National Rural Employment Guarantee Act of 2005, millions across India have been put to work on projects that address causes of drought, deforestation, and soil erosion.[182] Likewise, the southern coast of the United States has deployed mangroves that protect coasts from erosion and storm damage and Florida's southwest coast now supports one of the largest mangrove swamps in the world.[183] As in the cases of city adaptation and immigration, a U.S. partnership with India and Bangladesh on ecological infrastructure would be beneficial for all parties. Similar to the climate-sensitive cities dialogue, this would create a rich depository on adaptation strategies while informing U.S. diplomacy and development programs on the ground.

In addition to these new partnerships, we detail five broader areas where discourse among both international actors and South Asian countries will be key as climate change unfolds.

Research

The present uncertainty surrounding climate change and migration demands more robust and relevant research in the region. "The lack of understanding of the situation is a hindrance, not just lack of money," says Partha Das, head of the Water, Climate, and Hazard Program at Aaranyak.[184] International institutions should continue to work on detailed studies that can inform governments and international organizations to best address climate change and migration in specific regional contexts. Sanjoy Hazarika, Saifuddin Kitchelew chair and director of the Centre for North East Studies at Jamia Millia Islamia, believes that coordination is crucial, because "everyone is doing their little bit of research, but there is no coherent way of looking at the issues."[185]

USAID should continue to strengthen the Bureau for Policy, Planning and Learning to ensure expertise and capacity to plan for the complex scenarios that climate change will bring. The bureau will be essential in keeping USAID programs on the cutting edge of the research, science, and technology. Working closely with partners on the ground to coordinate research will become more important as new climate scenarios take place in lesser-researched areas of the world. Without careful coordination of research, the scenarios discussed in this paper may quickly become complicated and unstable.

Regional dialogue

"We need to bring the Northeast, Bangladesh, and West Bengal together for a discourse," argues Hazarika.[186] Open conversations are crucial to deepen all parties' understanding and move forward on realistic policies. As discussed above, recent talks between the Indian and Bangladeshi border forces on security and border policies in the region show progress, but more is needed. "We need joint development of the border region with Bangladesh, but the Indian government is not thinking of it in that way because security trumps development," says Devika Sharma, assistant professor in the department of Political Science at the Delhi University.[187]

The border fence and its security should not be the only form of engagement between Assam, the Central Indian Government, and Bangladesh. All parties are

invested in providing security to the region; climate change and the potential for increased migration should be discussed and integrated into current security and development talks. Borders and immigration are international issues, particularly as populations grow and income disparities deepen—India and Bangladesh can learn from and contribute to other border policies.

Disaster relief

The management of disaster relief will be a key factor in how citizens in Bangladesh deal with the aftermath of cyclones and severe floods. Mismanagement and uncoordinated relief efforts that leave people vulnerable and undermine livelihoods could impact migration patterns down the road. The United States and other international organizations need to deepen their knowledge of the needs on the ground and coordinate disaster efforts among the responsible agencies and institutions.

When asked by the Bangladeshi government, foreign countries have provided their military services to aid and assist disaster relief, working with the Bangladeshi military and other governments, but these operations need to be better thought out, says Ex-Major General Muniruzzaman. "The military needs to be prepared differently for this (climate change)," says Muniruzzaman, "and the international military needs to get involved in adaptation strategies." He adds that "if adaptation is fed into the system, the military can work as a machine" in the face of natural disasters.[188]

The role of the military in disaster relief, climate change, and migration is one left unexplored but one that could dramatically alter the effectiveness of relief.

Legal framework for refugees

The question of defining "climate refugees" or "environmental refugees" within international institutions is a complicated one. International institutions will need to question what is gained and what is lost in attempting to come up with universal principles, or if regionally tailored solutions could be more effective. It is also important to understand that without an internationally accepted definition for "climate migrants." There is potential for millions to be displaced without rights.[189] This status quo will grow untenable as the pressures rise, driven by environmental and demographic shifts.

Civil discourse

Climate change, migration, and security are all sensitive topics in South Asia, with culture, politics, and religion all shaping the debate. The discourse needs to consider both the costs and benefits of migration within the region. Turning the debate into one focused solely on security could lead to the categorization of immigrants as a source of conflict and discontent, or the use of migration as a political tool. The discussion needs to continue to be nuanced, based on sound research, and free from political hyperbole. Such a discourse must respect the countries and the populations grappling with this complex scenario.

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