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Cohort 4: Climate-related security risks and sustaining peace

Understanding climate-related security risks in Bangladesh

MADELINE BRENNAN

Introduction

As a low-lying, densely populated, riverine country situated at the head of the Bay of Bengal, Bangladesh is well-accustomed to the challenges wrought by climatic variation, natural disaster and extreme weather-related events. In spite of this, the country has made significant advances in socio-economic development over the last two decades, rising to become a regional leader in economic growth and often heralded as a development success story. However, with its wide-reaching impacts already being felt across Bangladesh, climate change not only threatens to undermine these recent gains, but also to exacerbate pre-existing social, economic, and political vulnerabilities, putting national peace and stability at serious risk.

This issue brief seeks to elucidate climate-related security risks in Bangladesh—what they constitute and how they manifest at the local, national, and regional levels. With a view to identifying the cross-cutting impacts and broader implications of environmental change on the country's peace and stability, this issue brief will examine how, and to what extent, climate change interacts with existing dynamics and relevant factors to heighten the risk of conflict. In this context, this brief intends to illustrate how climate change acts as a "risk multiplier" in Bangladesh—identifying instances where its impacts are contributing to social tensions at the sub-national and national levels, and undermining key components of human security[1], including food and health.

This issue brief is premised on the belief that a climate security lens is needed to effectively address the cross-cutting impacts of climate change. It recognizes that there is validity in arguments against the securitization of climate change, including that that it can encourage states to institute hard security responses that could adversely impact individuals and communities, particularly those already experiencing heightened vulnerability[2]. However, it is of the belief that advancing a holistic securitization approach—which highlights the impact of climate change on human security as well as on peace and stability—is crucial for building a proper understanding of the interconnected impacts of climate change. Moreover, the application of a security lens in climate change discourse could work to propel states' mitigation commitments[3], ensure the protection of those most vulnerable to its impacts, and drive forward the integrated prevention, mitigation, and adaptation strategies that are needed in response.

1 This paper adopts the most recent UN definition of human security, as articulated in the UN General Assembly Resolution 66/290 (10 September 2012), which builds on the first definition presented in the UN Development Programme's 1994 Human Development Report, Resolution 66/290. That document presents seven different types of human security: economic security; food security; health security; environmental security; personal security; community security, and; political security. This brief acknowledges criticism of the human security approach and in recognition, urges that traditional and non-traditional security risks be differentiated in peace and security discourse.

2 This is particularly notable in discourse on the climate-security-migration nexus, where linking security concerns with climate change-induced migration and displacement can in some contexts, fuel marginalization and discriminations of already-vulnerable migrants, refugees, and internally displaced persons.

3 As illustrated in the United Kingdom's strategic framing of climate change to influence the Government of India to commit to binding targets to reduce greenhouse gas emissions.

Understanding the climate-conflict nexus

In recent years, an increasing body of literature has recognized the complex relationship between climate change and conflict. It is now widely acknowledged that the effects of climate change can seriously undermine the wellbeing of individuals and societies—compromising human security, increasing internal migration, and impairing vital economic and social infrastructures, including transportation, water, food, healthcare, and energy.[4] However, its impact on peace and stability is less clear. In instances where a link between climate change and conflict can be drawn, for example, it is generally non-linear and indirect, with the effects of climate change intersecting with various factors to create conditions conducive to the outbreak or escalation of conflict.

Despite the lack of a direct causal relationship between climate change and conflict, there is growing acknowledgment that climate change poses a serious threat to national and international peace and security[5] by exacerbating existing fragilities that heighten risk.[6] The climate-security nexus is therefore best understood by identifying how climate change increases the "risk" of conflict.[7] Accordingly, this issue brief distinguishes security threats from security risks,[8] adopting "climate-related security risks" as the preferred terminology and approach to disentangle the climate-conflict nexus.

Climate-related security risks are therefore best understood by assessing the interaction between a state's level of exposure to climate change impacts, its existing vulnerabilities and fragilities, and its capacity to adapt or 'cope' at the local and national levels.[9] As such, the relationship between climate change and conflict is highly context-specific, influenced by a variety of social, economic, environmental, and political factors. In contexts where "critical thresholds are exceeded and coping capacity compromised," the interaction between these factors and climate change impacts can heighten the risk of human, community, state and international insecurity.[10]

With this in mind, in order to properly understand the relationship between climate change and conflict, a departure from security discourse that places the state at its center, toward an approach that integrates state security with human and community security considerations is needed. Not only is this crucial in building a more thorough analytical framework that can help in identifying the root causes and factors that heighten the risk of climate-related conflict, but it is critical in helping protect those must vulnerable to its impacts and advancing discourse on climate-related security risks in policy arenas that otherwise shy away from the idea of securitization.[11]

Climate and environmental change in Bangladesh

Bangladesh is continually listed globally as one of the most vulnerable countries to the impacts of climate change. The 2020 Global Climate Risk Index listed Bangladesh as the seventh most affected country worldwide from the period 1999-2018,[12] while the sixth annual Climate Change Vulnerability Index put the country's capital, Dhaka, in the top five most climate vulnerable cities in the world.[13] Bangladesh's vulnerability to climate change is largely attributed to its geography, which makes the country particularly susceptible to natural disasters and rising sea levels; its dense population, which is heavily dependent on agriculture as a source of livelihood; and, its weak adaptive capacity relative to its high exposure to climate change impacts.

The country is under increasing environmental stress. By 2060, Bangladesh is predicted to experience increases of between 0.5˚C and 2.8˚C in annual temperature averages, changes in annual rainfall averages ranging from a decrease of around 14 percent to an increase of around 24 percent, and significant sea

4 Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014.

5 Ibid.

6 Ibid.

7 Warner, J and Boas, I (2019). "Securitization of climate change: How invoking global dangers for instrumental ends can backfire," *Environment and Planning C: Politics and Space*, 37(8) pp.1471–1488.

8 Ibid.

9 Stockholm International Peace Research Institute (SIPRI), "Climate-related Security Risks: Toward an Integrated Approach," October 2016, available at https://www.sipri.org/sites/default/files/Climate-related-security-risks.pdf

10 See https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-development/peace/conflict-prevention/climate-security.html .

11 Ibid.

12 Four indicators are used by the Global Climate Risk Index to determine risk: 1) Number of deaths; 2) Number of deaths per 100,000 inhabitants; 3) Sum of losses in US$ in purchasing power parity (PPP); 4) Losses per unit of GDP. NB: PPP is defined as "a currency exchange rate, which permits a comparison of, for instance, national GDPs, by incorporating price differences between countries." Countries listed in the top ten are those most impacted and considered 'at risk' of either frequent events or rare, but extraordinary catastrophes." See Global Climate Risk Index 2020, "Who Suffers the Most from Extreme Weather and Events? Weather related Loss Events in 2018 and 1999 to 2018," GermanWatch, 2020, available at https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_14.pdf .

13 Climate Change Vulnerability Index (2018).

level rise.[14] As a result, the country expects increased drought and flooding, increased intensity of extreme weather events such as storm surges and cyclones, extensive land loss, and increased saltwater intrusion. While all of these impacts have significant flow-on implications for human, community, and national security, arguably the most far-reaching will result from rising sea levels, increased coastal flooding, and extreme weather-related events.

Rising sea levels

As a low-lying country situated in the world's largest river delta, most of Bangladesh is less than 10 metres above sea level with the average elevation of the coastal belt less than 3 metres.[15] This puts the coastal area—which consists of 19 districts home to more than 35 million people and makes up 32 percent of the country's land coverage[16]—at particular risk to sea level rise. Not only is Bangladesh's coastal sea level rise reported to be significantly higher than the global average,[17] recent research suggests serious underestimates in previous projections. According to one report published in 2020, by 2100 sea level rise could reach between 85 and 140 centimeters in different parts of the Ganges-Brahmaputra-Meghna (GBM) Delta—effectively doubling earlier projections.[18] The implications of such a rise will have devastating flow-on effects, including increased erosion, salinization, and flooding.

Increased flooding

With approximately 80 percent of Bangladesh's landmass consisting of flood plains, between 22 to 30 percent of the country is inundated each year. A major flooding event can inundate much larger swathes of land, as witnessed during the 1998 floods which engulfed approximately 70 percent of the country.[19] While Bangladesh is long accustomed to flooding, more frequent and intense floods over the last two decades are reported to have led to increased riverbank erosion and loss of land.[20] Climate change is looking to worsen this trend with glacial melt in the Himalayas (catalyzed by rising temperatures) expected to accelerate water flow through the GBM river system, which will exacerbate flooding and water logging of the central plains.[21] Meanwhile, recent estimates suggest that by 2070, approximately 1.5 million people will be affected by flooding in the coastal cities of Bangladesh alone.[22]

Extreme weather-related events

While Bangladesh is accustomed to grappling with extreme weather-related events—severe cyclones and associated storm surges affect Bangladesh every three years on average[23]—the impacts of climate change are reported to be increasing the intensity of some natural disasters.[24] For example, while the *frequency* of cyclone occurrence appears to have declined over the last half-century, climate change impacts, including sea level rise, have reportedly increased their *intensity* as well as that of the storm surges they create.[25] Such extreme weather-related events have far-reaching impacts—devastating vital infrastructure, compromising agricultural livelihoods, and undermining the human security of communities already vulnerable to climate risks.

Climate-related security risks in Bangladesh

Food and water insecurity

As an agrarian, riverine country, Bangladesh is heavily dependent on river water for consumption, agricultural irrigation, and fishery sustainability. Climate change impacts on water resources are varied and include

14 USAID (2018). "Climate Risk Profile: Bangladesh", available at https://www.climatelinks.org/sites/default/files/asset/document/2018-02-Mar_CadmusCISF_Climate-Risk-Profile-Bangladesh.pdf .

15 Ibid.

16 Huq S and Rabbani G (2011). "Adaptation Technologies in Agriculture; The Economics of rice farming technology in climate –vulnerable areas of Bangladesh".

17 Khan TM, Singh OP and Rahman S (2000). "Recent Sea Level and Sea Surface Temperature Trends Along the Bangladesh Coast in Relation to the Frequency of Intense Cyclones" *Marine Geodesy*, 23 (2), pp.103-116.

18 Becker M et al., (2020). "Water level changes, subsidence, and sea level rise in the Ganges, Brahmaputra, Meghna Delta," *PNAS January 28*, 117 (4) pp. 1867-1876.

19 Bangladesh Ministry of Environment, Forest, and Climate Change, "Third National Communication of Bangladesh to the United Nations Framework Convention on Climate Change," June 2018, available at https://unfccc.int/sites/default/files/resource/TNC%20Report%20%28Low%20Resolation%29%2003_01_2019.pdf.

20 Ayeb-Karlsson S et al., (2016). "A people-centered perspective on climate change, environmental stress, and livelihood resilience in Bangladesh," *Sustainable Science* 11, pp. 679-694.

21 Rahman AA, Huda AS., and Rabbani MG (2007). "Situation Analysis of Capacity Building Needs for IWRM in South Asia, Dhaka, Bangladesh", Bangladesh Centre for Advanced Studies.

22 World Bank (2013). "Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience", available at http://documents.worldbank.org/curated/en/975911468163736818/pdf/784240WP0Full00D0CONF0to0June19090L.pdf.

23 Government of Bangladesh (2009). *Bangladesh Climate Change Strategy and Action Plan*.

24 Bangladesh Institute of Strategic Studies and Saferworld (2009). "Climate Change and Security in Bangladesh: A Case Study", available at https://www.files.ethz.ch/isn/103629/Bangladesh_climat_change_June09.pdf.

25 Saha MK and Khan NA (2014). "Changing Profile of Cyclones in the Context of Climate Change and Adaptation Strategies in Bangladesh," *Journal of Bangladesh Institute of Planners* 7, pp. 1-12.

increased inland and coastal flooding, poor drainage congestion as a result of higher water levels in drainage systems, increased sedimentation in the flood plains, decreased availability of freshwater sources, and increased saltwater intrusion and river erosion.[26]

In parts of the GBM basin, for example, dry-season river flows have reportedly been decreasing as a result of climate change impacts, which will have serious consequences on groundwater replenishment.[27] Meanwhile, in the north of Bangladesh, temperature increases are prolonging the dry season as well as dry spells,[28] which can lead to water shortages. In areas where fresh water supplies are regularly available, access can be restricted as a result of inundation due to flooding or high intensity, erratic rainfall.[29]

Increased salinity levels as a result of rising sea levels will have particularly wide-reaching impacts on water resources across the country. Anticipated increases in river salinity levels in Bangladesh's southwest by 2050, for example, are expected to further reduce access to potable water, which is already a serious issue for more than 20 million people in the country's coastal regions,[30] as well as to irrigation water needed to fuel agriculture and aquaculture processes and systems.[31]

With agricultural production particularly prone to climate variability and heavily dependent on regular water supply, the cumulative impacts of climate change are expected to heighten the risk of food insecurity in areas already grappling with limited or irregular access to food. Increased flooding and more erratic rainfall are expected to decrease crop productivity and result in harvest failures while seriously damaging infrastructure vital for agricultural production, and increased river and soil erosion (the latter of which can increase the likelihood of landslides) pose significant risks to the cultivable land needed to ensure agricultural productivity and stable food supplies.

With over 70 percent of the country's land used to farm crops that provide the primary source of food for the majority of the population,[32] food insecurity is expected to become increasingly acute as the impacts of climate change become more pronounced. For example, climate projections suggest that rising sea levels will lead to an increase in soil salinity levels of up to 26 percent by 2050 (with increases of 55 percent in the most affected areas),[33] while more localized forecasting projects output declines of 10.5 percent in high-yielding-variety rice as a direct result of increased soil salinity in Bangladesh's Barisal region, and 7.5 percent in the Chittagong region by 2050.[34]

While prolonged food and water insecurity are linked to poorer health outcomes for vulnerable communities, they also have the potential to lead to increased competition over resources due to loss of livelihoods, as will be discussed later in this brief.[35]

Health insecurity

Beyond the more direct impacts that food and water insecurity have on human health—including malnutrition, stunting and dehydration—climate and environmental change is expected to increase the risk of communicable and non-communicable diseases.

Variation in temperature and precipitation can create conditions conducive to outbreaks of infectious diseases, increasing the chances of transmission of vector-borne diseases such as dengue fever and malaria.[36] Increased temperatures—particularly when combined with standing water sources— provide fertile breeding ground for mosquito-borne diseases, which is a perennial issue in rapidly developing Dhaka where construction sites often host large pools of stagnant water. At the same time, extreme-weather events and flooding are strongly linked with the heightened risk of communicable diseases: overcrowding in temporary shelters in the aftermath of a devastating storm, for example, can often lead to diarrhoeal outbreaks due to lack of

26 International Union for Conservation of Nature, Climate Change Information Brief, available at https://www.iucn.org/sites/dev/files/import/downloads/water.pdf.

27 Peace Research Institute Oslo (2013). "Water Scarcity in Bangladesh. Transboundary Rivers, Conflict and Cooperation," available at https://reliefweb.int/sites/reliefweb.int/files/resources/PRIO%20Report%20-%20Water%20Scarcity%20in%20Bangladesh.pdf.

28 Ibid.

29 International Centre for Climate Change and Development (2019), "Understanding Climate Change Vulnerability in Two Coastal Villages in Bangladesh and Exploring Options for Resilience", available at http://www.icccad.net/wp-content/uploads/2019/04/Panii_Jibon_ICCCAD_Action_Research_Report_2019.pdf.

30 Ibid.

31 Rahman MA and Islam MN (2018). "Scarcity of Safe Drinking Water in the South-West Coastal Bangladesh," *Journal of Environmental Science and Natural Resources*, 11(1&2), pp. 17–25.

32 FAO Regional Office for Asia and the Pacific 2019, available at http://www.fao.org/asiapacific/perspectives/agricultural-statistics/global-strategy/results-in-the-region/bangladesh/en/.

33 Dasgupta S et al., (2014). "Climate Change, Soil Salinity and the Economics of High-Yield Rice Production in Coastal Bangladesh," Policy Research Working Paper, World Bank.

34 Ibid.

35 Government of Bangladesh, Second Country Investment Plan Nutrition-Sensitive Food Systems Monitoring Report 2020, available at https://mofood.gov.bd/sites/default/files/files/mofood.portal.gov.bd/policies/9671c0af_d252_4042_8d86_b09ca74cc258/MonitoringReport2020.pdf

36 Kabir I et al., (2016). "Climate change and health in Bangladesh: a baseline cross-sectional survey," *Global Health Action*, 9(1).

access to or availability of safe food and drinking water.[37]

As previously noted, water insecurity is a serious public health concern, most notably for the millions along Bangladesh's coast who are dependent on groundwater as their main water source.[38] Approximately 20 million people in coastal Bangladesh are already suffering from the adverse health impacts of saltwater contamination of freshwater sources and soil as a result of sea-level rise,[39] and high levels of saltwater ingestion have been linked to increased rates of hypertension and miscarriage among pregnant women as well as skin diseases, acute respiratory infection and diarrhoeal disease.[40]

Moreover, migration due to loss of livelihoods and climate change-induced displacement is expected to continue to drive rural people to urban areas where cost pressures and inadequate living conditions can provoke poorer health outcomes. The risks are notably more pronounced for the urban poor, who tend to have higher health-related needs yet face various barriers to accessing adequate health care.[41] These adverse health impacts for already impoverished individuals are exacerbated by a top-down healthcare system with high out-of-pocket costs that provide little health insurance or community financing for health care expenditure.[42] This threatens to exacerbate existing poverty and inequality for affected populations who often have to bear the cost of health care services alone.[43]

The country's public health system will struggle to withstand the increased burden of disease brought on by the impacts of climate change. The 2019 dengue outbreak, for example, which put national health infrastructures under serious strain, demonstrated the country's relatively weak capacity to manage large-scale disease outbreaks. With these types of epidemics more acute in densely populated urban areas[44], preventing and containing outbreaks of both communicable and non-communicable diseases will inevitably become more complex.

Poor public health management and malpractice can also heighten risks of social instability, as has been witnessed since the outbreak of COVID-19 across the country. Low levels of trust in government, heightened stigmatization and associated discrimination of various groups as a result of the pandemic, and disproportionate use of force to ensure public adherence to health directives may be potential triggers for social unrest.

Loss of land and livelihoods

A potential source of conflict in Bangladesh derives from loss of land and livelihoods, with associated competition over resources at the community level a potential contributing risk factor for conflict. At the same time, loss of land and livelihoods heightens individual and community vulnerability to various forms of violence by local elites as well as criminal networks that often seek to profit from, or actively sustain, community-based or localized tensions.

With almost half of Bangladesh's workers and two-thirds of the rural population directly employed in the agricultural industry,[45] the impacts of climate change threaten to undermine the livelihoods of tens of millions of workers. The devastating impact climate change will have on the marine fisheries sector, for example, is expected to compromise the economic security of over half a million fishers and their household members.[46] Coastal communities are particularly vulnerable,[47] with those working in small-scale fisheries considered most at risk due to their heavy dependence on climate-sensitive hilsa as their main source of livelihood.[48] Despite government interventions relating to disaster risk reduction and climate change adaptation geared toward reducing vulnerability in coastal communities, small-scale fisheries are often overlooked in government interventions, putting populations such as those dependent on the hilsa at heightened risk of loss of livelihood in the event of stock shortages.[49]

With livelihoods under increasing threat, competition for access to and control over natural resources used for agricultural means is also reported to have

37 Hasib E and Chathoth P (2016). "Health Impact of Climate Change in Bangladesh: A Summary", *Current Urban Studies*, 4, pp. 1-8.

38 Ibid.

39 World Bank (2018). "Groundswell: Preparing for Internal Migration," available at https://openknowledge.worldbank.org/handle/10986/29461.

40 Bangladesh Ministry of Environment and Forest 2006.

41 Govindaraj R et al (2018). "Health and Nutrition in Urban Bangladesh: Social Determinants and Governance," World Bank Group.

42 Kabir I et al., (2016). "Climate change and health in Bangladesh: a baseline cross-sectional survey", *Global Health Action.*

43 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4821870/.

44 World Bank (2019) available at https://data.worldbank.org/indicator/SP.URB.GROW?locations=BD.

45 World Bank (2016). "Bangladesh: Growing the Economy through Advances in Agriculture," available at https://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture.

46 Government of Bangladesh (2012)

47 Chowdhury SR et al., (2012). "Coastal Fishers' Livelihood in Peril: Sea Surface Temperature and Tropical Cyclones in Bangladesh", Center for Participatory Research and Development.

48 Islam MM et al., (2020) "Climate Change Impacts on a Tropical Fishery Ecosystem: Implications and Societal Responses", Sustainability 12(19), p. 7970.

49 Ibid.

become more acute.[50] In some instances, threatened livelihoods have culminated in violence as a result of increased resource competition. In Khulna division, for example, it has been reported that increased salinization and associated competition over distribution and control of water has driven tensions between agricultural farmers and shrimp farmers, resulting in "periods of violence on shrimp farms and increased vandalism of farms in the districts of Khulna and Satkhira."[51]

Given the heavy reliance on agricultural production as a source of livelihood in Bangladesh and the country's high population density, land is also a particularly valuable resource. Land-related conflicts are a perennial issue in both rural and urban areas of Bangladesh, constituting the bulk of legal cases raised in the country. According to the International Institute for Environment and Development, "large numbers of Bangladeshis suffer landlessness, and despite land reform legislation and the abolition of intermediary landlords, land distribution has become more unequal in recent years as a result of substantial problems of poor governance and corruption in the management of public land."[52]

Dispossession of land and landlessness has reportedly risen in recent decades,[53] particularly in rural areas where over half of the population is either landless or has ownership rights to land amounts so small they are insufficient for crop cultivation.[54] In many instances, land-related disputes have culminated in violence. Expropriation, in particular, is often achieved through violent force with encroachers hiring local gangs to intimidate owners to relinquish land control. In the Noakhali coastal belt, for example, it is reported that displaced char communities have been subjected to "arson, harassment, assault, rape and killings" by rival powerholders in pursuit of land.[55] Similarly, in the Chittagong Hill Tracts where land-related disputes are commonplace, indigenous populations are frequently subjected to land seizure by violent force, often supported by local elites who profit from the eventual dispossession.[56]

The increasing loss of cultivable land as a result of the impacts of climate change threatens not only to further compound these types of unequal power structures that often profit local elites at the expense of already-marginalized populations, but as arable land becomes increasingly scarce, it is reasonable to assume that the incidence of land-related disputes will rise. While it is important to remember that climate change serves to amplify conflict risks rather than cause them, in the absence of effective natural resource management and associated dispute mechanisms in areas highly dependent on the environment to sustain livelihoods, its cumulative impacts may serve as a key driver of conflict or conflict escalation.

Migration and displacement

With natural disasters already displacing close to 700,000 Bangladeshis on average each year,[57] by 2050 the number of people displaced by climate change in Bangladesh is estimated to reach 13.3 million.[58] On average, 300,000 houses in Bangladesh are completely destroyed or severely damaged each year due to natural disaster,[59] with figures soaring during years that experience a severe extreme weather-related event. As a result of Cyclone Sidr in 2007, for example, 3.45 million households in Bangladesh's coastal region were submerged, and reports that a 10-year return cyclone could hit the country in 2050 suggest that 9.7 million people could be exposed to a 3-metre inundation.[60]

While disaster risk reduction strategies have saved the homes of millions who have fallen victim to natural disaster, many remain displaced in its aftermath; the Internal Displacement Monitoring Centre, for example, put the annual number of new displacements in 2019 at over 4 million, and the number still internally displaced by the year's end at 88,000.[61] Many of these people end up migrating, while others use migration as an adaptive mechanism to cope with the slower onset impacts of climate change. At least 400,000 Bangladeshis reportedly move to Dhaka each year,[62] with approximately

50 Ibid.

51 Ibid.

52 Quan J and Dyer N, "The implications of climate change for land tenure and land policy", International Institute for Environment and Development and Natural Resources, available at http://www.fao.org/3/a-aj332e.pdf.

53 Feldman S and Geisler C (2012). "Land expropriation and dispossession in Bangladesh", *Journal of Peasant Studies*, 39 (3-4), pp. 971 – 993.

54 USAID Landlinks, Bangladesh Profile, available at https://www.land-links.org/country-profile/bangladesh/.

55 Adnan S (2013). "Land grabs and primitive accumulation in deltaic Bangladesh: Interactions between neoliberal globalization, state interventions, power relations and peasant resistance" *Journal of Peasant Studies*, 40 (1), pp. 87-128.

56 Ibid.

57 Internal Displacement Monitoring Centre 2019, available at http://www.internal-displacement.org/countries/bangladesh.

58 Ibid.

59 Ibid.

60 Ibid.

61 Ibid.

62 https://www.theguardian.com/cities/2015/dec/01/dhaka-city-climate-refugees-reality.

80 per cent of migrants living in the city's slums attributing their move to environmental shock,[63] and climate change is cited as one of the key driving forces behind the country's high urban population rate, which sat at 3.1 percent in 2019.[64]

Poor infrastructure in the primary recipient cities, which include Dhaka, Chittagong, Khulna, Rajshahi, Satkhira and Sirajganj, creates new challenges for urban migrants. These cities are not only highly vulnerable to the impacts of climate change, but increased rates of migration place further strain on basic services and resources, which can seriously impede migrants from securing their basic needs.[65] The majority of urban migrants end up in low-income jobs in the informal sector and have little option but to live in insecure slums, which often lack access to basic services such as clean drinking water, healthcare, and education.[66] At the same time, in urban areas where water infrastructure is already fragile, increased migration can contribute to higher costs for private water provision, placing further financial strain on households already living below the poverty line.[67]

Moreover, lack of adequate shelter and other social safety nets for migrants as well as internally displaced persons puts these groups at heightened risk to different forms of violence such as labor exploitation and sex trafficking by criminal networks seeking to profit from vulnerability. This is particularly the case for those displaced by natural disaster. Following Cyclone Sidr in 2007, for example, increased rates of trafficking were reported, with criminal networks targeting those who had lost their livelihoods as a result of land loss or had suffered the loss of the primary breadwinner in their family unit.[68] Similar trends were identified following Cyclone Aila in 2009, with the risk notably more pronounced for women and female-headed households.[69]

Lack of social protection measures can also lead migrants and internally displaced persons with little option but to collude with traffickers and other criminal networks as a means to ensure a source of income.[70]

At the same time, in the face of heightened economic insecurity, migrants and internally displaced persons may also be forced to seek assistance from human smugglers to find new livelihood opportunities abroad, which puts them at increased risk of exploitation and abuse including, sexual exploitation, forced labour, and forced marriage.

When migrants do make it to urban areas safely, they are often subjected to new security threats, with studies in Dhaka reporting endemic levels of gender-based violence and high rates of violence associated with criminality.[71] Urban migrants are also particularly vulnerable to exploitative practices of local elites who hold power over property rent and basic social services in slums across the country.[72] Despite the majority of Bangladesh's urban migrants living in privately-owned slums, migrants living on public land are reportedly at higher risk to violence due to competition to secure 'free' land between poor groups. However, over the years increased overcrowding on privately owned 'khas' land is also reported to have led to violence due to increased competition over land access.[73]

As climate change continues to drive migration and displacement, the human security of migrants and internally displaced persons will be increasingly compromised as densely-populated urban settlements and inadequate shelters amplify vulnerabilities. Against the backdrop of rapid urbanization, competition over resources could also perceivably exacerbate tensions in these types of settlements, while competition over land access in the first place will become an increasingly prominent issue.

Increased inequality and poverty

Although Bangladesh has made significant social and economic gains in recent years, trends point to rising inequality at the national, rural, and urban levels, which is partially attributed to slow wage growth and job creation. Poverty reduction, 90 percent of which was directly attributed to the agricultural industry between

63 Saha S (2012). "Security Implications of Climate Refugees in Urban Slums: A Case Study from Dhaka, Bangladesh", *Hexagon Series on Human and Environmental Security and Peace*, pp. 595-611.

64 World Bank, Urban Population Growth 2019, available at https://data.worldbank.org/indicator/SP.URB.GROW?locations=BD

65 McNamara KE, Olson LL and Rahman A (2016). "Insecure hope: the challenges faced by urban slum dwellers in Bhola Slum, Bangladesh", *Migration and Development*, 5 (1), pp. 1-15.

66 Akter T (2009). "Migration and living conditions in urban slums. Implications for food security," Unnayan Onneshan, available at www.unnayan.org/reports/Migration.and.living.conditions.in.urban.slums.pdf.

67 Ibid.

68 Ibid.

69 IOM (2016). "The Climate Change-Human Trafficking Nexus", available at https://publications.iom.int/system/files/pdf/mecc_infosheet_climate_change_nexus.pdf .

70 Ibid.

71 Ibid.

72 IOM (2010). Assessing the Evidence: Environment, Climate Change, and Migration in Bangladesh, available at https://publications.iom.int/system/files/pdf/environment_climate_change_bangladesh.pdf.

73 Ibid.

2005 and 2010,[74] has also slowed significantly, and today 24.3 percent of the population live in poverty, while 12.9 percent live in extreme poverty.[75]

Climate change threatens to exacerbate poor socio-economic conditions for millions already living in chronic poverty. Ninety-five percent of already-impoverished coastal people are among the most vulnerable to the impacts of climate change as well as extreme weather-related events,[76] and climate impacts are expected to hit some of the poorest communities in the low-lying Haor depression in the northeast; the drought-prone higher area in the northwest; several districts among the major rivers, particularly the Jamuna; and several south-eastern districts, including the Chittagong Hill Tracts.[77]

While the disaster-poverty nexus is well documented, weak governance in disaster relief and adaptation financing further exacerbates the situation for poor households, with resources often not reaching those most in need due to inadequate targeting. In rural areas specifically, government expenditure on climate-related interventions often overlooks those most vulnerable to climate risks, which can further entrench poverty. Recent research conducted in 2019 by the International Institute for Environment and Development, for example, found that inadequate targeting and needs assessments has contributed to poor, rural families spending almost $2 billion per annum on disaster preparedness and response at the expense of meeting their basic needs.[78] This equates to household expenditure that doubles the amount allocated by the government to climate and disaster management.[79]

Corruption in relief distribution also presents a serious obstacle to effective post-disaster interventions for poorer communities in need of financial assistance, whether it be due to natural disaster or compromised livelihoods. While the government remains committed to advancing climate change adaptation, entrenched corruption continues to be a major challenge in alleviating hardship, particularly in post-disaster contexts. Research conducted in the aftermath of Cyclone Aila in 2009, for example, found that 99 percent of its household interviewees in Khulna district reported financial losses from corruption.[80]

At the same time, in some instances climate adaptation programming is reported to have had the opposite desired effect for its intended beneficiaries—exacerbating inequality by reinforcing patrimonial systems that often benefit wealthy stakeholders at the expense of those most in need. The establishment of climate-proofing infrastructure along Bangladesh's coast, for example, is reported to have encroached on the land of poor households in favor of local elites.[81] As noted by Sovacool (2018), adaptation mechanisms are often "entangled with existing class and ethnic hierarchies that not only disseminate the benefits of adaptation unevenly, but trap many of the poor, powerless, and displaced into a dangerous patrimonial system of insecurity and violence."[82]

Transboundary water-related disputes

Water scarcity in emerging economies such as Bangladesh is increasingly recognized as one of the most pressing challenges to national peace and security, while at the sub-national level, water scarcity is considered a risk factor for violence, particularly in the context of small-scale localized disputes.[83]

Bangladesh has 57 transboundary rivers that make up the GBM delta and its river basin, which serve as a lifeline for agrarian communities in Bangladesh, Bhutan, China, India and Nepal. As the lowest riparian country in the basin, Bangladesh is heavily dependent on and susceptible to runoff from upper riparian states. With approximately 92 percent of the country's surface water provided by out-of-country sources and 80 percent of Bangladesh lying within the floodplain of the GBM basin, the water management practices of other countries are crucial for ensuring national water security.[84]

The complexity of the GBM system creates points of tension between countries over water appropriation, as well as the internal water practices of countries

74 World Bank (2016). Bangladesh: Growing the Economy through Advances in Agriculture, available at https://www.worldbank.org/en/results/2016/10/07/bangladesh-growing-economy-through-advances-in-agriculture.

75 World Bank (2017). Bangladesh Continues to Reduce Poverty But at Slower Pace, available at https://www.worldbank.org/en/news/feature/2017/10/24/bangladesh-continues-to-reduce-poverty-but-at-slower-pace.

76 Ibid.

77 Ministry of Foreign Affairs of the Netherlands (2018). Bangladesh Climate Change Profile.

78 International Institute for Environment and Development (2019). Bearing the climate burden: how households in Bangladesh are spending too much, available at https://pubs.iied.org/pdfs/16643IIED.pdf.

79 Ibid.

80 Mahmud T and Prowse M (2012). "Corruption in cyclone preparedness and relief efforts in coastal Bangladesh: Lessons for climate adaptation?", Global Environmental Change 22(4), pp. 933-943.

81 Sovacool B (2018). "Bamboo Beating Bandits: Conflict, Inequality, and Vulnerability in the Political Ecology of Climate Change Adaptation in Bangladesh", *World Development* 102, pp.183-194.

82 Ibid

83 Ibid.

84 Ibid.

dependent on the GBM; the unilateral practice or decision made by one country can have serious implications for others. As the impacts of climate change make water stress more acute across South Asia, there is significant potential for bilateral and regional tensions to grow over the sharing of river systems in the GBM basin, most notably with India, with which Bangladesh shares 54 rivers.[85]

Equitable sharing and management of these rivers has been a source of tension for decades, with disagreements primarily centering on water sharing following interventions on the Ganges, Teesta and Barak rivers and the establishment of projects linking certain rivers on the Indian side that would reduce water flow downstream to Bangladesh.[86] While the Indo-Bangladesh Joint Rivers Commission (JRC) was set up with a view to better manage shared rivers between India and Bangladesh and remains the primary mechanism for reaching agreements on water sharing between the two countries, doubts have been raised about its effectiveness.[87]

In 2019, the 38th meeting of the Commission was intended to be held in Dhaka but was postponed until further notice, making it ten years since the ministerial-level Commission has met.[88] Despite this, last year Bangladesh and India signed seven bilateral agreements relating to water management, one of which included Bangladesh's approval to allow India to withdraw water from the Feni River to meet the demand for drinking water in the Indian town of Sabroom, Tripura.[89] While the deal was a positive step toward increased bi-lateral cooperation on cross-border water issues, it was met with widespread criticism across Bangladesh, triggering significant political debate and sizable protests. [90] This illustrates some of the internal and cross-border challenges that countries dependent on the GBM basin may face as the impacts of climate change compound the issue of water scarcity in the years to come.

At the sub-national level, while water-related conflicts in Bangladesh as a result of transboundary water practices is relatively underexplored, tensions over water scarcity, some of which have escalated into violent conflict, have been reported.[91] Analyses of declining dry season river flows in the Padma River and rates of unrest have, for example, shown linkages with increased episodes of conflict during periods of seasonal water scarcity. While conflict of this sort may be the result of intersecting factors, as climate change places increasing stress on water resources, there is significant concern that these types of disputes will become more common. [92]

At the same time, as previously noted, decreasing water availability, reduced by either upstream damming and water diversion, or prolonged periods of drought, is expected to have a serious impact on the livelihoods of millions in the country's rural and coastal areas, as well as in dense urban areas where demand for water is high. This can play a role in exacerbating pre-existing tensions in areas or creating new tensions as competition over resources increases.

Interaction with existing conflict dynamics

Chittagong Hill Tracts

Although a Peace Accord was signed in 1997, ending a long-running conflict between the state and rebel forces in the Chittagong Hill Tracts (CHT), sustainable development in the region has been slow compared to the rest of the country. Decades of social unrest have made the Hill Tracts one of the most disadvantaged regions of the country, lagging well behind national averages across various sustainable development indicators.[93] Moreover, weak implementation of the main provisions envisaged in the Accord has contributed to a fluid security situation, with increased rates of violence and instability reported.[94]

At the same time, the three Hill Districts which make up the CHT are highly vulnerable to the impacts of climate change, including flash flooding and cyclones. Soil erosion and forest degradation are also serious issues across the region, and recent climate modelling predicts heavier rainfall during monsoon season, which can soak hillsides, dislodge soil, and increase the likelihood of landslides. Meanwhile, rising temperatures are drying up hill streams that have long been a lifeline for

85 Asian Development Bank (2016). Asian Development Bank Water Development Outlook 2016: Strengthening water security in Asia and the Pacific, available at https://www.adb.org/sites/default/files/publication/189411/awdo-2016.pdf.

86 Ibid.

87 "Common rivers issue: Is JRC delivering?" Daily Star, April 13 2014, available at https://www.thedailystar.net/common-rivers-issue-is-jrc-delivering-19832

88 https://www.thedailystar.net/frontpage/news/jrc-meeting-postponed-1841641

89 https://www.thedailystar.net/politics/sheikh-hasina-narendra-modi-talks-begin-in-new-delhi-prioritises-bangladesh-india-relation-1809646

90 https://www.thedailystar.net/backpage/news/withdrawal-feni-river-water-experts-see-little-impact-here-1811122

91 Ibid.

92 Ibid.

93 Government of Bangladesh, SDG Tracker, available at https://www.sdg.gov.bd

94 Amnesty International UK, Hidden Bangladesh: Violence and Brutality in the Chittagong Hill Tracts. https://www.amnesty.org.uk/groups/wirksworth-and-district/hidden-bangladesh-violence-and-brutality-chittagong-hill-tracts

communities in the CHT, threatening to exacerbate water and food insecurity which is already a serious issue for many communities across the region.[95]

Land is a key source of conflict in the CHT, with a long-running history of dispossession of indigenous land.[96] Redistribution of land for in-migrating settlers is often cited as a one of the primary factors behind the decades-long conflict that engulfed the region, while the more gradual displacement and dispossession of indigenous land is frequently reported.[97] As a result, land disputes remain a major challenge and indigenous households are commonly subjected to land grabbing attempts.[98]

With pre-existing tensions along ethnic lines and weak governance mechanisms to mediate land-related disputes, climate-related stressors have the potential to aggravate the situation, while also driving competition over natural resources.[99] Increased land loss and damage to property as a result of extreme weather-related events and heavy monsoon rains, for example, could aggravate unresolved land disputes or create new points of tension among groups. As the impacts of climate change are increasingly felt across the region, the potential for instability to worsen as a result of strained natural resources is therefore significant. [100]

At the same time, the CHT has historically been a destination for migrants from other parts of the Chittagong region. Kutubdia, an Upazila of Cox's Bazar District in the Division of Chittagong, for example, continues to suffer from rising sea levels and is regularly victim to coastal flooding. In 1991, 30,000 people from Kutubdia moved permanently to the CHT following one of the deadliest cyclones on record.[101] Recent research also suggests that environmental factors such as floods, cyclones, and riverbank erosion were a driving force behind Bengali migration to the CHT, with government-supported actions such as the provision of land, facilitating their long-term settlement.[102] Given Chittagong's particular vulnerability to rising sea levels, in-migration to the CHT may increase as the impacts of climate change place further stress on coastal populations in the region, which has the potential to create new tensions over land and other natural resources.

Cox's Bazar

Since 2017, approximately 750,000 Rohingya have fled violence at the hands of the Myanmar military, which has led a decades-long systematic effort to repress the Muslim minority group. As a result, Cox's Bazar is now host to one of the largest refugee populations in the world: more than 910,000[103] people live in densely-populated camps and settlements across the district. The situation is constantly evolving and Cox's Bazar is grappling with interlocking challenges relating to the crisis, including how to address the humanitarian needs of the Rohingya, ensure basic service delivery for the local population, and mitigate the multiple social, economic, environmental, political and security implications of the crisis. As the situation becomes more protracted, tensions between and among the host community and the Rohingya refugee population continue.

At the same time, Cox's Bazar is one of the most climate-vulnerable regions in the country due to its geographic positioning. Heavy monsoon rainfall makes the area particularly prone to landslides, which are more likely in deforested areas, and cyclones are a persistent threat. Deforestation to accommodate the Rohingya population (which in some parts of the district now outnumber the local population 2:1) and environmental degradation—including groundwater depletion, groundwater contamination, poor sewage and changes in terrain—are key sources of tension between the host community and the Rohingya.

Given the existing tensions in the region, the potential for a large-scale natural disaster to further aggravate the situation is significant: Post disaster efforts have the potential to destabilize already-fragile contexts.[104] As resources come under increasing strain in Cox's Bazar, a significant weather-related event would place further stress on an already over-stretched humanitarian

95 Ibid.

96 Datta R (2019). "Implementation of Indigenous environmental heritage rights: an experience with Laitu Khyeng Indigenous community, Chittagong Hill Tracts, Bangladesh" *AlterNative: An International Journal of Indigenous Peoples* 15(4).

97 Islam R, Schech S and Saikia S (2020) "Climate change events in Bengali migration to the Chittagong Hill Tracts in Bangladesh", *Climate and Development*.

98 Islam A (2013). "The land tenure dynamics in the post-conflict Chittagong Hill Tracts (CHT), Bangladesh", University of Dhaka.

99 Sultana P et al., (2018) "Transforming local natural resource conflicts to cooperation in a changing climate: Bangladesh and Nepal lessons", *Climate Policy* 19 (1).

100 Sultana P and Thompson P (2013). "Natural Resource Conflicts and Community Organizations in Bangladesh", CAPRI Working Paper no. 111, available at http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/127777/filename/127988.pdf

101 Ibid.

102 Ibid.

103 The Intersectoral Coordination Group (ISCG) puts the current figure at 913, 316 (as of June 2019). See https://reliefweb.int/sites/reliefweb.int/files/resources/iscg_sitrep_may2019_final.pdf

104 Harris K, Keen D and Mitchell T (2013). "When Disasters and Conflicts Collide: Improving Links Between Disaster Resilience and Conflict Prevention" (Overseas Development Institute: London, 2013).

response. Moreover, despite disaster risk management programming being relatively strong in the region, perceptions of unequal distribution of relief aid and recovery services could further exacerbate tensions between the host community and the Rohingya, while increasing competition over resources among and between different groups.

Conclusion

While Bangladesh remains a relatively peaceful country despite fault lines in some key areas, the interplay between the impacts of climate change and existing social, political, economic, and environmental factors are undermining key components of human security. Meanwhile, community and national security will be increasingly compromised if climate impacts are left unmitigated.

To respond to the number of climate-related security risks facing Bangladesh and strengthen community and national resilience, at the policy level, the adoption of a cross-pillared, participatory approach to address the wide-reaching impacts of climate change is urgently needed. Toward this end, integrating existing diplomatic, development, humanitarian, and security tools will be a crucial first step in building the capacities needed to effectively address the myriad risks that climate change poses.

At the programmatic level, greater investment in climate mitigation, and in equitable, locally-led and -owned adaptation measures are needed, while more integrated, climate- and conflict-risk informed programming across the peace, development, and humanitarian pillars will be critical in addressing the myriad challenges climate change poses to human security, as well as peace and stability in various parts of the country.

This issue brief was written by Madeline Brennan, Peace and Development Specialist, Bangladesh.

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www.undp.org/oslocentre

Joint UNDP-DPPA Programme on Building National Capacities for Conflict Prevention

Since 2004, the United Nations Development Programme and the UN Department of Political and Peacebuilding Affairs (DPPA) have partnered to strengthen support to the UN's work in building national capacities for conflict prevention. Often times, such support is extended through the deployment of Peace and Development Advisors (or PDAs), a growing cadre of UN staff who support Resident Coordinators and UN Country Teams adapt and respond to complex political situations and to develop and implement strategic conflict prevention initiatives and programmes.

https://peaceinfrastructures.org/

Folke Bernadotte Academy

The Folke Bernadotte Academy (FBA) is the Swedish government agency for peace, security and development. As part of Sweden's international development aid, FBA promotes peace in conflict-affected countries by offering training, advice and conducts research in order to strengthen peacebuilding and statebuilding; as well as grant funds to civil society organizations working with peace and security. The agency is named after Count Folke Bernadotte, UN's first peace mediator.

https://fba.se/en/