Climate Security in the Bay of Bengal

Angshuman Choudhury, Siddharth Anil Nair, Ashutosh Nagda & Garima Maheshwari

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Cover photo: Mangrove forest in Kuakata Sea Beach, Patuakhali, Bangladesh.
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Abbreviations

Abbreviations	Expansion
AA	Arakan Army
AEP	Act East Policy
ACLED	Armed Conflict Location and Event Data Project
ASEAN	Association of South East Asian Nations
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BCCTF	Bangladesh Climate Change Trust Fund
BCRF	Bangladesh Climate Resilience Fund
BIMSTEC	Bay of Bengal Initiative of Multi-Sectoral Technical and Economic Cooperation
BoB	Bay of Bengal
BOBLME	Bay of Bengal Large Marine Ecosystem
BRI	Belt and Road Initiative
CDRI	Coalition for Disaster Resilient Infrastructure
CHT	Chittagong Hill Tracts
EEZ	Exclusive Economic Zone
ETF	Ecological Task Force
FAO	Food and Agricultural Organisation
GHG	Greenhouse Gas
HA/DR	Humanitarian Assistance/Disaster Relief
HDI	Human Development Index
IDP	Internally Displaced Persons
IOR	Indian Ocean Region
IPR	Indo-Pacific Region
IUU (fishing)	Illegal, Unreported and Unregulated
KIA	Kachin Independence Army
LDC	Least Developed Country
LEP	Look East Policy
LNG	Liquified Natural Gas
MGC	Mekong-Ganga Cooperation
MoU	Memorandum of Understanding
MSR	Maritime Silk Road
NAPA	National Adaptation Plan of Action

NAPCC	National Action Plan on Climate Change
NDC	Nationally Determined Contribution
NFP	Neighbourhood First Policy
NNA	Northern Naval Area (Sri Lankan Navy)
OPTEMPO	Operational Tempo
SAARC	South Asian Association for Regional Cooperation
SAPCC	State Action Plans for Climate Change
SASEC	South Asia Subregional Economic Cooperation
SACEP	South Asia Co-operative Environment Programme
SCS	South China Sea
SDMC	SAARC Disaster Management Centre
SLN	Sri Lankan Navy
SLOC	Sea Lanes of Communication
SLR	Sea Level Rise
SST	Sea Surface Temperature
TNI	*Tentara Nasional Indonesia* (Indonesian National Armed Force)
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSC	United Nations Security Council

Report summary

The BoB region is one of the most climate-vulnerable in the world. Its strategic, political, social and economic faultlines are also extensive. Together they create fertile ground for volatile security dynamics, social friction and violent conflict. It is a textbook example of the complex relationship between climate change and security, and how an aggregate of both could create emerging challenges for policy-planners.

This report studies the impacts of climate change on transnational and intra-country conflict faultlines, as well as strategic and military dynamics in the BoB by overlaying climate threat profiles over security- and conflict-centric analysis. The broader objective is to arrive at a better understanding of how climate threats interact with conflict and security in the region.

The report has six key findings:

1. Climate threats could intensify regional inter-state military competition and conflict
2. Climate-induced migration will be a major conflict driver
3. Land loss, exacerbated by climate threats, will be a key conflict driver
4. Climate threats will affect the overall resilience of displaced communities
5. Frequent adverse weather events pose a major long-term threat to national governance and security
6. Strategic assets in the BoB region are highly vulnerable to climate threats.

1 Introduction

This section outlines the report's normative and structural foundations. It first introduces the discursive debates and discussions around the concept of 'climate security'. The report's geographical scope and rationale follow. Subsequent sections outline key questions and methodology.

1.1 What is climate security?

The climate security framework forms an important emergent approach in international politics. It reframes the existing debate on international cooperation over climate change. Climate security is popularly understood as the manner in which climate change can compound existing geopolitical risks and conflict faultlines, in turn, magnifying multi-dimensional insecurity.

The framework has evolved from a focus on environmentally-induced internal conflicts to wider conceptions of security that emphasise a broadening of the framework of security—from state to human security—through the lens of climate change.[1] Climate security intersects with the domain of environmental peacebuilding, wherein issues such as community, conflict, and natural resources are foregrounded. In this, security is explored through themes of human vulnerability, such as low levels of economic development, agrarian dependency, and political marginalisation.[2]

Uniquely, multidisciplinary insights—such as those from political ecology—have challenged the straightforward linkage between climate and conflict, exploring how climate projects can themselves catalyse conflict, thus problematising dominant discursive constructions of vulnerability.[3] For example, low-carbon development, unless sensitive to socio-physical vulnerabilities, can also trigger conflicts similar to traditional

1 Busby, J. (2020). Beyond internal conflict: The emergent practice of climate security. *Journal of Peace Research*, 186-194; Barnett, J., & Adger, W. (2007). Climate Change, Human Security and Violent Conflict. *Political Geography, 26:6*, 639-55.; Gemenne, F., Barnett, J., Adger, W., & Dabelko, G. (2014). Climate and security: evidence, emerging risks, and a new agenda. *Climate Change, 123*, 1-9.

2 Ide, T., Bruch, C., Carius, A., Conca, K., Dabelko, G., Matthew, R., & Weinthal, E. (2021). The past and future(s) of environmental peacebuilding. *International Affairs, 97:1*, 1-16; Koubi, V. (2019). Climate Change and Conflict. *Annual Review of Political Science, 22*, 343-60.

3 Abrahams, D., & Carr, E. (2017). Understanding the Connections Between Climate Change and Conflict: Contributions From Geography and Political Ecology. *Current Climate Change Reports, 3*, 233-42.

developmental pathways.[4] Climate change as a catalyst for social unrest in urban centres is another way in which vulnerability compounds insecurity.[5]

Concepts associated with vulnerability, such as climate resilience, have also begun to feature in climate security debates. These debates widen the climate-security relationship through the resilience discourse, by bringing together stakeholders from the security, politics and development domains.[6]

Within intergovernmental policy discourses, the framework looks at climate change as a compounder of security factors, if not a direct cause of violent conflict. UNEP acknowledges this linkage by terming climate change as "the ultimate 'threat multiplier' aggravating already fragile situations and potentially contributing to further social tensions and upheaval."[7] The UNSC has also formally recognised that climate change may "aggravate certain existing threats to international peace and security."[8]

The climate security framework subtly shifts the terms of global climate debate from political to security issues. This "securitising move" is aimed at elevating an issue "into an untouchable space of urgency, over and above politics."[9] However, this approach could have some downsides. While securitisation may open up national defence budgets for climate adaptation and resilience, it also risks making climate action an inward-looking strategy of developed countries, instead of a concerted global effort. That is why several countries remain uncomfortable with the idea of securitising climate change at an international level.

Yet, BoB countries, by adopting more human-centric climate approaches aimed at mitigation and adaptation, are already working around the edges of how 'climate security' is generally defined, but without taking literal recourse to the term itself. This sets the stage for more targeted policy approaches that address the critical intersections between climate and security.

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4 Sawas, A., Workman, M., & Mirumachi, N. (2018). *Climate change, low-carbon transitions and security.* London: Imperial College London.

5 Uexcull, N. v., & Buhaug, H. (2021). Security implications of climate change: A decade of scientific progress. *Journal of Peace Research, 58:1*, 3-17.

6 Boas, I., & Rothe, D. (2016). From conflict to resilience? Explaining recent changes in climate security discourse and practice. *Environmental Politics, 25:4*, 613-32.

7 "Climate Change and Security Risks". Website of United Nations Environment Program (UNEP): https://www.unep.org/explore-topics/disasters-conflicts/what-we-do/risk-reduction/climate-change-and-security-risks.

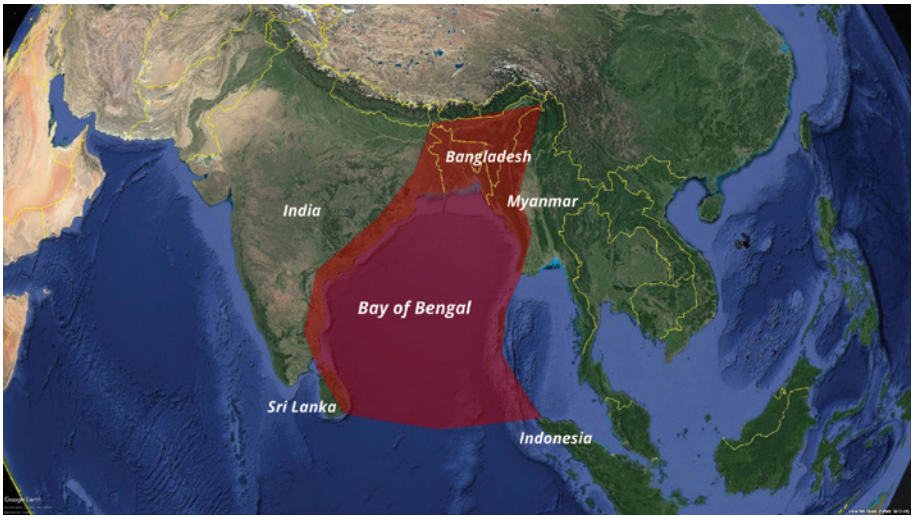
8 UN Security Council Presidential Statement S/PRST/2011/15 (20 July 2011): https://bit.ly/36AjmV0.

9 Boas, Ingrid, and Jeroen Warner. "Securitization of Climate Change: How Invoking Global Dangers for Instrumental Ends Can Backfire - Jeroen Warner, Ingrid Boas, 2019." *SAGE Journals*, 13 Mar. 2019, https://journals.sagepub.com/doi/full/10.1177/2399654419834018.

1.2 Geographical scope

This report focuses on the BoB littoral regions and contiguous spaces, including transnational sites that may be directly affected by littoral developments. It limits its focus to the core BoB region, covering eastern India, Bangladesh, western Myanmar, northern and eastern Sri Lanka, and north-western Indonesia. It doesn't go further east beyond the Andaman and Nicobar Islands chain (see Figure 1).

Figure 1 Geographical scope; outlined in red



1.3 Why Bay of Bengal

The BoB region is emerging as an important focal point for climate security risks. This is largely due to a multi-layered interplay of geopolitical, geostrategic, and climate-related regional dynamics. It forms the final leg between West and East Asia. It is 2.173 million sq km large; accounts for approximately 4.7% of the global economy; and a quarter of the world's population lives along its coastline.[10] At the catchment of a critical global choke point—the Malacca Strait—the BoB is an important sub-region in the international connectivity discourse.

10 "GDP (Current US$)." *Data*, The World Bank, data.worldbank.org/indicator/NY.GDP.MKTP.CD.; M. Baruah, Darshana, and Xavier, Constantino. "Connecting the Bay of Bengal: The Problem." Carnegie India, 1 Mar. 2018, www.carnegieindia.org/2018/03/01/connecting-bay-of-bengal-problem-pub-75710.

Today, the region is characterised by contestations that could shape the geopolitical and geostrategic landscape of the broader IOR—featuring actors such as India, China, US, Japan, Australia, France, and Germany. This is taking place in the background of a rising focus on the IPR among all stakeholders.

Further, the region forms a crucial component of India's NFP and AEP. It is the geographical nucleus of institutionalised regional cooperation between South and Southeast Asia such as BIMSTEC. Even so, the overall framework of regional governance remains weak.[11] The prospects of BIMSTEC acting as a bridge between South and Southeast Asia in the broader context of India–China competition offer fertile ground for cooperative mechanisms to address collective problems like climate change.

The socially heterogeneous region (see Table 1) is also characterised by serious socio-political tensions, ranging from communal clashes to ethnic insurgencies. These create secondary challenges such as forced migration within and across borders. The region is beset by both traditional and non-traditional security threats, compounded by underdeveloped institutional cooperation.[12]

The region's ecological vulnerabilities, localised environmental problems, and larger climate-induced changes make the region a hotspot for local, national, and regional security challenges. Scholars have applied the climate security framework to understand such challenges in the Sahel and West Asia.[13] Comparatively, the BoB remains an under-researched area in the climate security debate, and has seen largely siloed perspectives on climate change and on security issues.

11 Hardy, D. (2019). Repositioning the Bay of Bengal: Implications for Regional Change. Journal of the Indian Ocean Region, 15:3, 265-80; Kabir, M., & Ahmad, A. (2015). The Bay of Bengal: Next theatre for strategic power play in Asia. Croatian International Relations Review, 21:72, 199-238.

12 Gamage, R. (2017). Bay of Bengal: What Implications for ASEAN? Singapore: S. Rajaratnam School of International Studies.

13 Busby, J. (2019). 'The Field of Climate and Security: A Scan of the Literature'. Social Science Research Council. SSRC Academic Network on Peace, Security, and the United Nations. https://s3.amazonaws.com/ssrc-cdn1/crmuploads/new_publication_3/the-field-of-climate-and-security-a-scan-of-the-literature.pdf.

Table 1 Key social, political, security and economic features of the BoB region

	India	Bangladesh	Myanmar	Sri Lanka	Indonesia
HDI Rank[14]	131	133	147	72	107
Population division as per religion (in %)[15]	– Hinduism: 79.8 – Islam: 14.23 – Others: 6 (Christianity, Sikhism, Jainism, Buddhism etc.)	– Islam: 89 (official state religion) – Hinduism: 10 – Others: 1 (Christians, Buddhists, etc.)	– Buddhism: 88 – Christianity: 6 – Islam: 4	– Buddhism: 70.2 (foremost place) – Hinduism:12.6 – Islam: 9.7 – Christianity: 7.4	– Islam: 87 – Christianity: 10 – Hinduism: 1.5 – Others: 1.5 (Buddhism, Confucianism, etc.)
Number of religions (approx.)[16]	9	8	6	4	6
People living below international poverty line (in %)[17] (PPP 1.90$/ day)	21.20	14.80	2.00	0.80	4.60
Number of non-state armed groups[18]	155	14	49	40	NA

14 "Human Development Index Ranking (2020)". Website of United Nations Development Programme (UNDP): http://hdr.undp.org/en/content/latest-human-development-index-ranking.

15 "Religion Census (2011). Website of Census 2011 (India): https://www.census2011.co.in/religion.php; "2019 Report on International Religious Freedom". Country pages. U.S. Department of State: https://www.state.gov/reports/2019-report-on-international-religious-freedom/.

16 Data collected from the US State Department. https://www.state.gov/reports/2019-report-on-international-religious-freedom/.

17 "Multidimensional Poverty Index: developing countries". United Nations Development Programme (UNDP): http://hdr.undp.org/sites/default/files/2020_mpi_statistical_data_table_1_and_2_en.pdf.

18 "India - Terrorist, insurgent and extremist groups". Website of South Asia Terrorism Portal (SATP): https://www.satp.org/terrorist-groups/india; "Bangladesh - Terrorist, insurgent and extremist groups". Website of South Asia Terrorism Portal (SATP): https://www.satp.org/terrorist-groups/bangladesh; "Armed Ethnic Groups Profile". Website of Myanmar Peace Monitor: https://www.mmpeacemonitor.org/1426/armed-ethnic-groups/; "Sri Lanka - Terrorist, insurgent and extremist groups". Website of South Asia Terrorism Portal (SATP): https://www.satp.org/terrorist-groups/srilanka.

	India	Bangladesh	Myanmar	Sri Lanka	Indonesia
New displacements due to conflict and violence (2016-2020)[19]	719,000	7,100	284,200	2,800	35,600
New internal displacements due to climate disasters in millions (2016-2020)[20]	15.3	10.2	1.48	0.84	2.3
Total number of armed forces personnel (serving)[21]	3,026,500	227,050	513,000	317,000	675,500
Military expenditure (% of GDP)[22]	2.4	1.3	1.9	2.7[23]	0.7

1.4 Key research questions

- What are the key climate threats in the BoB region?
- What are the existing strategic, political and socioeconomic faultlines within the region? What impact does climate change have on these faultlines?
- What are the institutional attitudes and approaches to the concept of climate security in the BoB? Do current policy and strategic responses account for climate security challenges?

19 "Global Internal Displacement Database - Conflict and violence". Website of Internal Displacement Monitoring System: https://www.internal-displacement.org/database/displacement-data.

20 "Global Internal Displacement Database - (Weather related) Disaster". Website of Internal Displacement Monitoring System: https://www.internal-displacement.org/database/displacement-data.

21 As of 2018. Data from World Bank: https://data.worldbank.org/indicator/MS.MIL.TOTL.P1.

22 As of 2019. Data from World Bank: https://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS.

23 As of 2019. Data from Statista: https://www.statista.com/statistics/1050475/myanmar-government-defense-expenditure-share-of-gdp/.

1.5 Methodology

The profiling and analysis in this report is predominantly based on qualitative and quantitative data collected from secondary sources. These include academic journals, analytical commentaries, news reports, long-form reports, third-party data sets (such as ACLED and LCW), military briefers and open-source government documents.

In addition, interviews were conducted with a limited number of subject-matter experts, and relevant stakeholders such as military officers (serving and retired), diplomats (retired), journalists, environment advocacy experts, and humanitarian aid workers. This was done to get a general sense of the various institutional approaches and attitudes towards the concept of climate security and the overall feasibility of cross-sectoral cooperation in this domain.

The report takes a three-step analytical approach: profiling climate threats; mapping existing strategic and sociopolitical dynamics; and combining both to identify critical intersections between them. To do this, it uses maps, and conflict threat and risk matrices.

Finally, it adopts a policy analysis framework to understand current institutional approaches to climate security, and a case study approach wherein identified patterns of climate impacts on security are substantiated with relevant regional examples. These case studies are within two parameters: severity (of climate security risk) and universality. Certain case studies show the unique nature of the region's strategic landscape, which would create unusually complex security challenges.

2 Bay of Bengal climate risk profile

The rapid securitisation of the BoB region, accompanied by an intensification of major power competition, is the main framework through which climate security must be conceived in this region. This process of securitisation will take place in the foreground of emerging climate threats that could have multidimensional effects on national and regional security and governance. This section provides a macro view of the most serious climate risks that the BoB faces within this specific context.

The BoB is vulnerable to sudden and immediate shifts in weather leading to natural disasters—such as frequent and devastating cyclonic activity, seasonal storms, depressions, and tsunami. This is accompanied by long-term effects of climate change—such as rise in temperatures, SLR, increased rainfall, drought, heat waves, rising intensity of tropical cyclones, ocean acidification and ocean productivity.[24]

Besides weather-induced climate impacts, environmental stressors are also visible in the form of anthropogenic stressors that can be exacerbated by climate change. In particular, due to high population density and resource extraction by communities, the region faces dominant environmental problems of depleting fish-stocks and rich tropical mangrove ecosystems, leading to potential issues of livelihood loss, food security and rural poverty, among others.

The following are the key climate impacts in the region:

SLR: According to the IPCC Sixth Assessment Report, global average SLR was 3.7 mm/year between 2006-2018.[25] According to some estimations, SLR in the BoB is occurring at a rate of 1.5 mm/year.[26] In the Sundarbans, SLR has occurred at a much higher average rate of 3 cm/year over the last 20 years, leading to a 12% decline in its

24 Rajalakshmi, P.R., and Achyuthan, Hema. "Climate Change as Observed in the Bay of Bengal." Journal of Climate Change 7, no. 3 (2021): 69–82. https://doi.org/10.3233/jcc210020.

25 Working Group I. "Climate Change 2021: The Physical Science Basis (Summary for Policymakers) IPCC AR6." *IPCC*, IPCC, 2021, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf.

26 Elahi, F., Khan, N., 2015. A study on the effects of global warming in Bangladesh. Int. J. Environ. Monit. Analysis. 3, 118. .10.11648/j.ijema.20150303.12.

shoreline.[27] Millions of people are estimated to be affected, leading to destruction of fertile agricultural land, compromising livelihoods dependent on agriculture, fishing and allied activities.[28] SLR could also lead to territorial changes. For example, the New Moore Island, which surfaced in 1970 due to a cyclone and was claimed by both India and Bangladesh, has now gone underwater.[29]

Mangrove loss: Mangrove loss will intensify carbon emissions from the region. The Bay lost 74% of its mangroves to aquaculture/agriculture from 2000 to 2016, with most of it being in Myanmar.[30] Studies also estimate that the Indian Sundarbans lost 107 sq km of mangrove cover between 1975 and 2013; while erosion affected 60% of those mangroves and 23% were converted to barren lands. The rest were converted for agriculture, aquaculture and infrastructure. The region was also estimated to have emitted 1,567.98 Gg of carbon dioxide in the same time period.[31]

Coastal erosion: With extensive low-lying areas, BoB countries face the problem of coastal erosion, worsened by climate-induced cyclones and human activities. In India, 235 sq km of land was lost to coastal erosion during the 1990-2016 period.[32] The eastern state of West Bengal itself has suffered 63% erosion between 1990 and 2016, losing 99 sq km land.[33] In Bangladesh's Chittagong belt, a number of vital installations, like export promotion zones, naval establishments, large industrial estates, and port facilities, are in danger of being flooded due to erosion. In Sri Lanka, the government has spent USD 13 million in erosion management till 2017.[34] Coastal erosion

27 Muller, Nicholas. "In the Indian Sundarbans, the Sea Is Coming." May 1, 2020. https://thediplomat.com/2020/05/in-the-indian-sundarbans-the-sea-is-coming/.

28 Das, Debojyoti. "Photo Essay: Climate Crisis and Globalization in the Bay of Bengal." South Asia@ LSE. London School of Economics and Political Science, January 21, 2020. https://blogs.lse.ac.uk/southasia/2019/10/10/photo-essay-climate-crisis-and-globalization-in-the-bay-of-bengal.

29 Associated Press. "Island Claimed by India and Bangladesh Sinks below Waves." *The Guardian*, 24 Mar 2010, www.theguardian.com/world/cif-green/2010/mar/24/india-bangladesh-sea-levels.

30 Adame, M.F., Connolly, R.M., Turschwell, M.P., Lovelock, C.E., Fatoyinbo, T., Lagomasino, et al. 'Future carbon emissions from global mangrove forest loss.' 2021. Glob Change Biol, 27: 2856-2866. https://doi.org/10.1111/gcb.15571.

31 Ghosh, Sahana. "Mapping Future Hotspots of Carbon Dioxide Emissions from Mangrove Loss." *Mongabay*, 1 Apr. 2021, https://india.mongabay.com/2021/04/mapping-future-hotspots-of-carbon-dioxide-emissions-from-mangrove-loss/.

32 Panda, A. (2020). "Climate Change, Displacement, and Managed Retreat in Coastal India." Migration Policy Institute. https://www.migrationpolicy.org/article/climate-change-displacement-managed-retreat-india.

33 Singh, Shiv Sahay. "West Bengal, Where Erosion Leads to Land Loss." *The Hindu*, The Hindu, 1 Sept. 2018. https://www.thehindu.com/sci-tech/energy-and-environment/west-bengal-where-erosion-leads-to-land-loss/article24842375.ece.

34 Samarasekara, Ratnayakage Sameera, Jun Sasaki, Ravindra Jayaratne, et. al.. "Historical Changes in the Shoreline and Management of Marawila Beach, Sri Lanka, from 1980 to 2017." Ocean & Coastal Management 165 (2018): 370–84. https://doi.org/10.1016/j.ocecoaman.2018.09.012.

could adversely affect developmental as well as strategic assets in coastal areas, affecting governance, economy, and security of countries.

Cyclones and floods: Despite a decrease in the frequency of cyclones, there has been an increase in the severity of post-monsoon cyclones.[35] Even though the region only accounts for 5% of global cyclonic activity, it suffers more than 80% of the fatalities associated with them.[36] The frequency of cyclones is projected to increase as a result of climate change due to changes in sea water temperatures, which makes coastal areas of BoB countries among the most vulnerable to climate change.[37] Erratic weather patterns have also exacerbated the problems of storm surges and flooding leading to social and economic costs. About 3.6 million Indians were displaced annually between 2008-2018, mostly as a result of flooding from monsoon rains.[38] In terms of impact on vulnerable populations, frequent exposure to localised disasters can incrementally increase overall vulnerability as they weaken disaster protection infrastructure.

The socioeconomic impacts of these climate threats can be far-reaching, affecting nearly all key livelihood sectors. In fact, climate change and environmental stressors are important drivers of poverty in the region. Most of the region's population is heavily dependent on agriculture. Agriculture—spanning paddy cultivation, fishing and livestock—being mainly rain-fed, relies on erratic monsoon patterns and is vulnerable to the impact of cyclonic activity on crops and reduced availability of water for irrigation.

The impact of climate change will adversely impact productivity as well as overall GDP in the poverty-stricken areas of the region (such as the Sundarbans delta).[39] This will affect the Sundarbans delta region between India and Bangladesh, and communities' adaptation to climate change, leaving them with the options of retreat, resilience or transition.[40]

35 Balaguru, Karthik, et al. "Increase in the Intensity of Post-Monsoon Bay of Bengal Tropical Cyclones." *Research Gate*, Geophysical Research Letters, May 2014, https://www.researchgate.net/publication/262231852_Increase_in_the_intensity_of_post-monsoon_Bay_of_Bengal_tropical_cyclones.

36 Needham, Hal F., et al. "A Review of Tropical Cyclone-Generated Storm Surges: Global Data Sources, Observations, and Impacts." *Reviews of Geophysics*, vol. 53, no. 2, 19 May 2015, pp. 545–591., https://doi.org/10.1002/2014rg000477.

37 Chaturvedi, Sanjay, and Sakhuja, Vijay. *Climate Change and the Bay of Bengal: Evolving Geographies of Fear and Hope*. New Delhi: Pentagon Press, 2016.

38 Panda, 2020. "Climate Change, Displacement…"

39 Das, Isha; Lauria, Valentina; Kay, Susan; Cazcarro, Ignacio; Arto, Iñaki; Fernandes, Jose A.; Hazra, Sugata. 'Effects of climate change and management policies on marine fisheries productivity in the north-east coast of India'. 2020. Science of The Total Environment, 724 https://doi.org/10.1016/j.scitotenv.2020.138082.

40 Danda, Anamitra Anurag, et al. "Managed Retreat: Adaptation to Climate Change in the Sundarbans Ecoregion in the Bengal Delta." *Journal of the Indian Ocean Region*, vol. 15, no. 3, 2019, pp. 317–335., https://doi.org/10.1080/19480881.2019.1652974.

3 State-specific positions and policies

This section covers state-specific policy approaches to climate change and security. Even though some countries in the region have begun to consider climate and environmental factors in their governance and security policies, the positions reflect rudimentary and incipient engagement with 'climate security'. In general, BoB countries continue to adopt mitigation- and adaptation-centric climate policy approaches that cater to human security needs without relying on a formal conception of 'climate security'.

3.1 India

India's domestic climate policy is encapsulated in the 2008 NAPCC, consisting of eight national missions.[41] The policy views energy security, development, and climate action as interrelated, and yielding mutual benefit.

India's NDCs submitted to the UNFCCC in pursuit of the Paris Agreement are also a reflection of the core principles of its domestic climate policy. Further, its domestic climate action is undergirded by provincial-level SAPCC, the Energy Conservation Act (2001), and a host of other energy sector legislations, rules and codes.[42]

However, climate security is not clearly reflected in India's domestic climate policy. In line with India's position at the UNSC, New Delhi does not advocate international cooperation on climate security, arguing that it would detract from accountability at forums like UNFCCC where developed countries should attempt to meet their international climate commitments. According to former Indian Foreign Secretary, Ambassador (Retd) Shyam Saran, incorporating climate change in the UNSC agenda could fuel suspicions about the disproportionate influence of powerful states on

41 Government of India. "National Action Plan on Climate Change." *Archive PMO*, 2008, https://archivepmo.nic.in/drmanmohansingh/climate_change_english.pdf.

42 Vineet Kumar 2018, Coping with Climate Change: An Analysis of India's State Action Plans on Climate Change, Centre for Science and Environment, New Delhi; Government of India. Energy Conservation Act (2001). 2001: https://legislative.gov.in/sites/default/files/A2001-52.pdf; "Climate Change Programme: Department Of Science & Technology: Department of Science." *Climate Change Programme | Department Of Science & Technology*, https://dst.gov.in/climate-change-programme.

decision-making and collective burden-shifting on developing countries. He also argued that it could result in developing countries facing punitive action at the UNSC because of their perceived inaction.[43]

According to India's official position on climate security, implicit in a statement made at the UNSC in February 2021, "there is no common, widely accepted methodology for assessing the links between climate change, conflict and fragility", and "while climate change does not directly or inherently cause violent conflict, its interaction with other social, political and economic factors can, nonetheless, exacerbate drivers of conflict and fragility and have negative impacts on peace, stability and security."[44]

The term 'climate security' doesn't figure on the domestic policy agenda. Rather, India deals with climate change as a human security issue and is particularly focused on energy security as a dimension of domestic climate security.[45] India also engages with climate change as a non-traditional security threat by taking cognizance of aspects of climate security within military and defence planning.

The Indian military views climate change as a security risk, and adopts the 'co-benefits' approach of undertaking efficient sustainable practices.[46] The military has been engaged in upgrading naval bases through climate-smart management methods of energy and water conservation; upgrading capabilities for a zero carbon footprint; hosting renewable energy installations on defence lands; use of biofuels and other alternatives to power warships; establishment of a 'Green Cell' in naval headquarters, efforts at afforestation by the ETF, investments in solar, biofuels etc., and designing the Karwar base as a 'Smart Green Naval Base'.[47] Issues of environment and climate change are also recognised as non-traditional security threats in the Joint Doctrine of the Armed Forces of India, 2017.[48]

43 Interview conducted by authors.

44 MEA, GoI. (2021, February 23). *Ministry of External Affairs*. From https://mea.gov.in/Speeches-Statements.htm?dtl/33562/Statement_by_Honble_Minister_for_Environment_Forests_and_Climate_Change_at_UN_Security_Council_Open_VTC_Debate_Maintenance_of_international_peace_and_.

45 Boas, I. (2014). Where is the South in security discourse on climate change? An analysis of India. *Critical Studies on Security, 2:2*, 148-161.

46 "What You Need to Know about Climate Co-Benefits." World Bank Group. 16 Sep 2021. https://www.worldbank.org/en/news/feature/2021/03/10/what-you-need-to-know-about-climate-co-benefits.

47 Jayaram, D. (2021, June 5). *Chanakya Forum*. From https://chanakyaforum.com/climate-change-as-a-threat-to-indian-military-strategies/.

48 Joint Doctrine of the Armed Forces of India, 2017. Headquarters Integrated Defence Staff, Ministry of Defence" https://www.ids.nic.in/IDSAdmin/upload_images/doctrine/JointDoctrineIndianArmedForces2017.pdf.

3.2 Bangladesh

According to the 2020 Global Climate Risk Index, Bangladesh was the seventh-most climate affected country in the period 1999-2018.[49] It started mainstreaming climate change into its disaster risk management policy framework from the early 2000s. In 2005, it formulated the NAPA and the Coastal Zone Policy.[50] These policies incorporated the security dimension vis-à-vis developmental and human security concerns.

Building upon the NAPA, the government developed the BCCSAP in 2009.[51] In 2010, Dhaka created the National Plan for Disaster Management, and passed the Climate Change Act, establishing a Climate Change Unit and corresponding committees. The BCCSAP focuses on a wide range of climate-induced hazards and their impacts on different sectors.[52]

Bangladesh's climate policy spans key sectoral areas: agriculture, water, infrastructure, housing, health, disasters and energy. The government also created a special financial instrument called the BCCTF and a BCRF.[53] Subsequent policy instruments, notably the Bangladesh Climate Change Gender Action Plan (2013), Sixth Five Year Plan (2011–16), and the Seventh Five Year Plan (2016-20), have aimed to integrate climate adaptation into mainstream developmental planning.[54]

The domestic discourse around climate change views it as an economic and developmental challenge that needs to be addressed through adaptation. Risk assessments include climate-proofing of various projects and investments in flood management, drainage, coastal embankments and cyclone shelters.

49 Eckstein, David., et al. Germanwatch, Dec. 2019, https://germanwatch.org/sites/default/files/20-2-01e Global Climate Risk Index 2020_14.pdf.

50 Ministry of Environment and Forest Government of the People's Republic of Bangladesh. "National Adaptation Plan of Action (2005)." *unfccc.org*, 2005, https://unfccc.int/resource/docs/napa/ban01.pdf.; Ministry of Water Resources Government of the People's Republic of Bangladesh. "Coastal Zone Policy (2005)." *National Disaster Authority*, 2005: http://nda.erd.gov.bd/files/1/Publications/Sectoral Policies and Plans/Costal-Zone-Policy-2005.pdf.

51 BCCSAP 2009. Website of National Designated Authority to GCF: http://nda.erd.gov.bd/en/c/publication/bangladesh-climate-change-strategy-action-plan-bccsap-2009.

52 Huq, S., & Rabbani, G. (2011). Climate Change and Bangladesh: Policy and Institutional Development to reduce vulnerability. *Journal of Bangladesh Studies, 13*, 1-10.

53 Anita, Wahida Musarrat. 'Status of Climate Finance and NAMA in Bangladesh.' UNFCC presentation: https://unfccc.int/files/focus/mitigation/application/pdf/bangladesh_regional_workshop_on_nama.pptx-_revised.pdf.

54 Vij, S., Biesbroek, R., Groot, A., & Termeer, K. (2018). Changing climate policy paradigms in Bangladesh and Nepal. *Environmental Science & Policy, 81*, 77-85.

Bangladesh's discourse on climate change has similar implications for climate security as India's. Its policy discourse makes it clear that the goals of mitigation via emission reduction and energy control are secondary to adaptation, thereby prioritising development.[55]

However, the country's political leadership and policy circle have begun to take cognizance of climate security. PM Sheikh Hasina foresees "climatic stress causing tensions to simmer and sparking different forms of conflicts within communities" and has noted that "climatic vulnerabilities lead to a fragile economy and risk human security."[56]

According to Bangladeshi climate expert, Dr Saleemul Huq, climate change has internal security dimensions in the form of internal migration, which can be adapted to through resilient methods.[57] He also notes how Bangladesh's military establishment is now diversifying from disaster response operations to the broader phenomenon of climate change.[58]

3.3 Myanmar

Myanmar, a natural resource-rich LDC, was the second most climate risk-affected country in the world from 1999-2018, according to the 2020 Global Climate Risk Index.[59] It has seen decades of military rule, which has resulted in widespread and systematic resource exploitation and land grabbing. Despite this, the environmental consequences of military rule haven't received sufficient policy scrutiny.

After 2011, under a partial democratic regime, Myanmar began to take some steps in the direction of environmental protection. It promulgated the Environmental Impact Assessment and Environmental Quality Guidelines.[60] In 2019, the country passed the

55 Siddiqi, M., & Rai, N. (2014). *Policy Discourse Analysis: Bangladesh - Climate Resilient Landscapes and Livelihoods*. London: IIED and UKaid.

56 Hasina, Sheikh (2019, Mar 26). 'Climate change is a security threat. We must act now.' World Economic Forum: https://www.weforum.org/agenda/2019/03/climate-change-is-a-security-threat-let-us-act-now/.

57 Interview conducted by authors.

58 Ibid.

59 Eckstein, David., et al. Germanwatch, Dec. 2019, https://germanwatch.org/sites/default/files/20-2-01e Global Climate Risk Index 2020_14.pdf.

60 Union of Myanmar's Ministry of Investment and Foreign Economic Relations. "Environmental Regulation." *Directorate of Investment and Company Administration*, https://www.dica.gov.mm/en/environmental-regulation.

National Climate Change Policy, which emphasised human security dimensions, in line with its Sustainable Development Plan for 2018-2030.[61]

Further, the Myanmar Climate Change Strategy and Action Plan 2016-2030 and the Myanmar Climate Change Master Plan 2018-2030 identify six key sectors, ranging from climate-smart agriculture and sustainable management of natural resources to low-carbon energy and building resilient, inclusive and sustainable urban centres.[62] In 2019, Myanmar announced the National Environmental Policy, which provides the overall framework for climate and environmental protection in line with the Paris Agreement.[63]

Due to the fairly recent enactment of a climate policy framework and nascent emphasis on human security and development, a climate security agenda has not been integrated into the country's policy outlook. However, there are numerous local conflicts on the ground along inter-ethnic and state-versus-civil society lines, which have hampered implementation of climate change programmes.

3.4 Sri Lanka

Sri Lanka remains highly vulnerable to climate change, and was the sixth most climate risk-affected country in the world in 2018, according to the 2020 Global Climate Risk Index. The National Climate Change Adaptation Strategy for Sri Lanka 2011-2016 is an adaptation policy to move the country towards greater climate resilience.[64] The policy consists of five goals revolving around a range of objectives, from mainstreaming climate change adaptation in national planning and development to improving climate resilience of key economic drivers.

61 UNEP Press Release. 'Myanmar announces national environment and climate change policies to mark World Environment Day 2019.' 5 June 2019. https://www.unep.org/news-and-stories/press-release/myanmar-announces-national-environment-and-climate-change-policies.

62 Ministry of Natural Resources and Environmental Conservation. "Myanmar Climate Change Strategy and Action Plan (MCCSAP) 2016–2030." *AsiaPacific Energy*, 2016, https://policy.asiapacificenergy.org/sites/default/files/MCCSAP-Feb-Version.pdf; Government of Myanmar. (2018). 'Myanmar Climate Change Master Plan (2018-2030).' Government of Myanmar.

63 National Environment Policy of Myanmar, The Republic of the Union of Myanmar. Available on UNDP: https://www.mm.undp.org/content/myanmar/en/home/library/environment_energy/national-environmental-policy-of-myanmar.html.

64 "National Climate Change Adaptation Strategy for Sri Lanka 2011 to 2016." *Climatechange.lk*, 16 Nov. 2010, https://www.climatechange.lk/adaptation/Files/Strategy_Booklet-Final_for_Print_Low_res(1).pdf.

In 2012, the country passed the National Climate Change Policy that comprehensively combines mitigation and adaptation goals of the country, with a focus on community strengthening and knowledge-sharing.[65] The 2014 Technology Needs Assessment supplemented this wherein sectors of energy, transport and industry were identified as potential sites of mitigation.[66] In 2016, the country's National Adaptation Plan for Climate Change (2016-2025) identified a range of socioeconomic sectors vulnerable to climate change impacts, from agriculture and fisheries to infrastructure and human settlements.[67] In 2019, Sri Lanka's National Action Plan for Haritha Lanka identified "Meeting the Challenges of Climate Change" as one of its missions.[68]

Despite tangible threats to the country due to climate change, such as migration, the issue of climate security has not featured in Sri Lanka's domestic climate policy agenda.

3.5 Indonesia

Indonesia is one of the world's biggest emitters of greenhouse gases and one of the largest global exporters of thermal coal. It is among the most vulnerable to climate change, with a nearly 80,000 km long coastline.

Its climate policy framework consists of the National Action Plan Addressing Climate Change 2007, which is focused on a sectoral approach to mitigation and adaptation.[69] The National Council for Climate Change established in 2008 has an overarching role in formulating and implementing climate action in the country. The country's 2011 National Action Plan to reduce GHG emissions is focused on mitigation in sectors such

65 National Climate Change Policy of Sri Lanka, Government of Sri Lanka: http://www.climatechange.lk/CCS%20Policy/Climate_Change_Policy_English.pdf.

66 Ministry of Environment, Sri Lanka. "Sri Lanka." *Technology Needs Assessment*, 17 July 2020, https://tech-action.unepdtu.org/country/sri-lanka/.

67 Ministry of Mahaweli Development and Environment. "National Adaptation Plan for Climate Change Impacts in Sri Lanka 2016-2025." *Unfccc.org*, 2016, https://www4.unfccc.int/sites/NAPC/Documents NAP/National Reports/National Adaptation Plan of Sri Lanka.pdf.

68 Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science (LSE). Sri Lanka country page, policies. National Action Plan for Haritha Lanka Programme. https://www.climate-laws.org/geographies/sri-lanka/policies/national-action-plan-for-haritha-lanka-programme.

69 "National Action Plan Addressing Climate Change." November 2007. https://dp2m.umm.ac.id/files/file/National Action Plan Addressing Climate Change.pdf.

as forestry and peat land, agriculture, energy and transportation, and industry and waste management.[70]

Forest Carbon Management rules were formulated in 2012, and in 2012 and 2017, rules governing implementation of renewable energy projects.[71] This framework is supported by Article 33 of the Constitution, which stipulates the usage of commons for the "greatest benefit" of the people. This gives "Indonesian citizens a sense of entitlement to affordable energy and is a powerful tool for anti-reform coalitions to prevent changes in energy system regulation such as independent regulators, privatisation, and liberalisation".[72] Under the Paris Agreement, Indonesia has also committed to a greenhouse gas reduction target of 29% by 2030, or up to 41% with international support.[73]

Despite a robust policy framework for climate action, implementation remains a challenge. The policies are also not reflective of the climate security threats faced by the country. The military, which plays a key role in the country's internal affairs, could transition into playing an active role in engaging with climate threats beyond disaster and humanitarian relief operations. However, the TNI is yet to integrate 'climate security' into its security outlook.

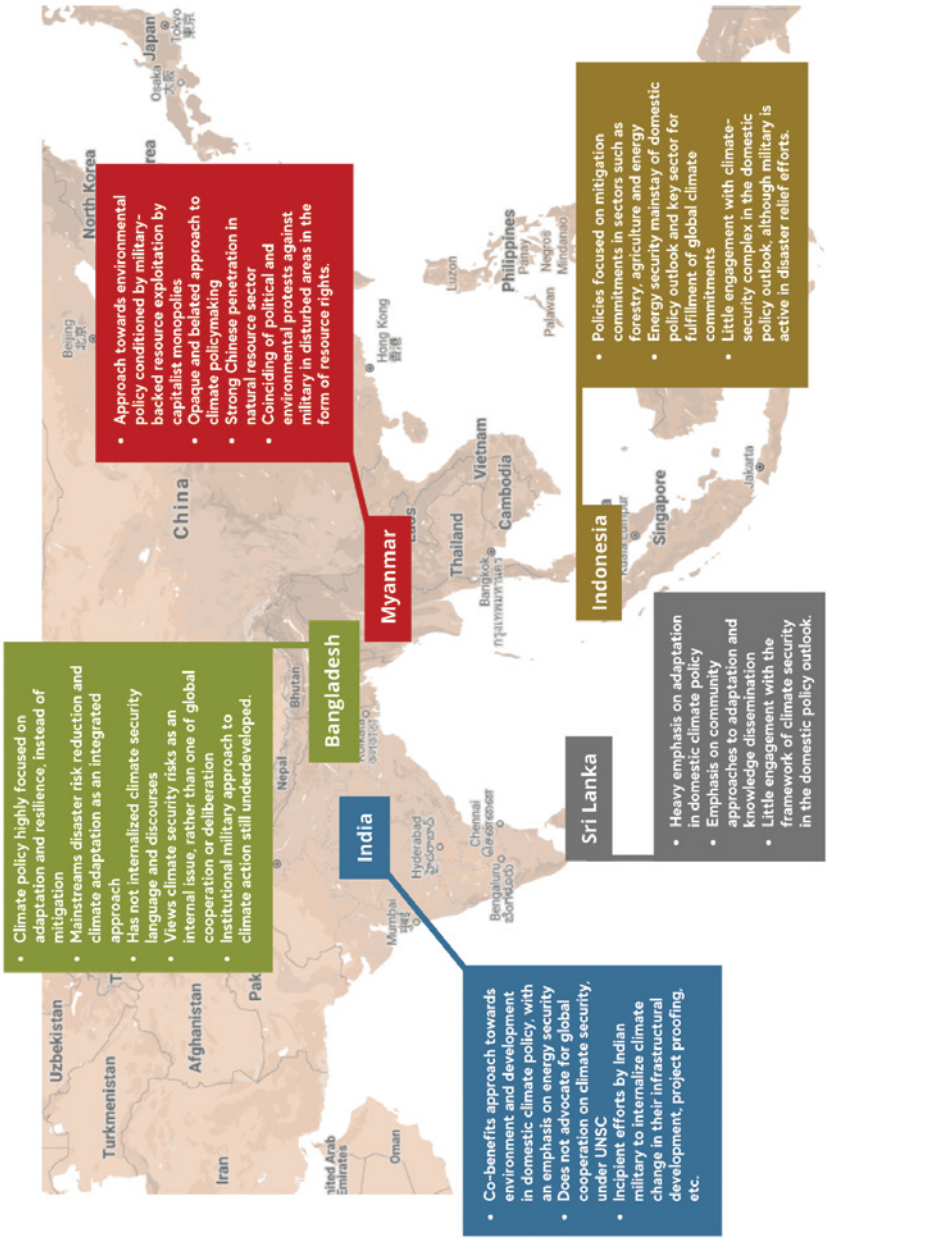
70 "Guideline for Implementing Green House Gas Emission Reduction Action Plan." 2011. http://ranradgrk.bappenas.go.id/rangrk/admincms/downloads/publications/Gudeline_for_implementing_green_house_gas_emission_reduction_action_plan.pdf.

71 "Regulation No.20/2012 about Forest Carbon Management - Indonesia." Climate Change Laws of the World. https://www.climate-laws.org/geographies/indonesia/policies/regulation-no-20-2012-about-forest-carbon-management; "Climate Change Laws of the World." Climate Change Laws of the World. 2017. https://climate-laws.org/legislation_and_policies?from_geography_page=Indonesia&geography[]=79&type[]=executive.

72 Tilburg, X. v., Villaveces-Izquierdo, S., Indriani, G., Rawlins, J., & Schaik, L. v. (2016). 'Energy security as positive force for green growth in Indonesia?'. Report, Clingendael Institute: https://www.clingendael.org/sites/default/files/pdfs/Energy%20security_green_growth_Indonesia.pdf.

73 Ibid.

Figure 2 Overview of state-specific positions and policies on climate change and climate security



4 Geopolitical and military profile

This section outlines the geopolitical and military environment in the BoB and the faultlines within the region. It explicates how climate change alone, and when combined with other anthropogenic factors, could alter regional military dynamics by affecting operational readiness and exacerbating existing security challenges.

4.1 Key faultlines

i) Geostrategic and geopolitical environment

Like the SCS, the BoB is witness to provocations on issues of territoriality, political influence, and use of the global commons. The geostrategic environment is primarily influenced by the:

- Development of transregional maritime and continental connectivity
- Geopolitical needs-driven protection and promotion of national interests.

The global balance of power has rapidly shifted over the last decade from the Atlantic towards the Pacific, driven by three intertwined global phenomena: trans-regional competition, multipolarity, and nationalism. Centrally located in this newly evolving geographic order, the BoB is a site of intense regional (India and China) and international (US and China) competition, marked by both big and middle power politics.

So far, the use of soft power has dominated competition in this region. However, with rising nationalism and defence budgets around the world (even during the COVID-19 pandemic), both intra-regional and inter-regional tensions have grown.[74]

For instance, overlapping EEZ claims between Bangladesh and Myanmar to the BoB's northeast had resulted in a short naval standoff in 2008.[75] A few maritime confrontations and incidents followed, and the issue was resolved in 2012. Their relationship with

74 Anderson, Guy, et al. "Intel Briefing: Covid-19 Impact on the Defence & Military Sector." *YouTube*, Janes, 20 Mar. 2020, www.youtube.com/watch?v=lr1frKwASpM.

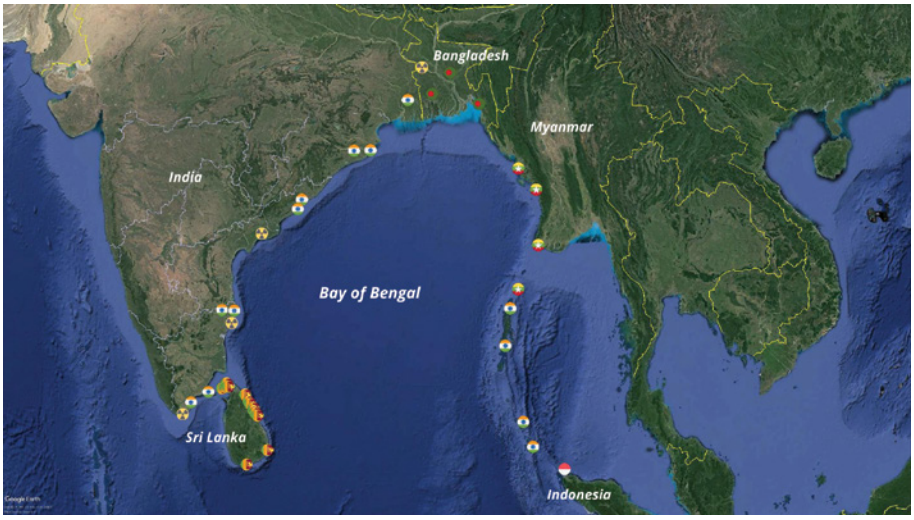
75 Radio Free Asia. "Myanmar Border Police Shoot, Kill Bangladeshi Fisherman." *Radio Free Asia*, 6 Feb. 2017, www.rfa.org/english/news/myanmar/bangladesh-fisherman-02062017164726.html.

regional powers, existence of oil and gas fields in the area, and a history of bilateral mistrust continue to make the dispute a hot-button issue.

Further, the India-China border dispute has escalated rapidly in recent years with confrontations between their troops becoming increasingly frequent.[76] In 2020, the dispute reached a critical flashpoint in the Galwan Valley clash, which saw casualties on both sides.[77] If these tensions escalate into open conflict and spill over onto the BoB, the consequences for regional politics and development could be serious.

The BoB coastal zone also hosts a variety of strategic assets: air bases, air and coastal defence systems, nuclear facilities, dry dock and repair terminals, shipyards, armed forces' training centres, logistic support bases, medical facilities, communication infrastructure, etc. There are close to 100 naval bases, approximately 14 existing and planned LNG terminals, four operational and planned civil nuclear units overall, and five deep water ports in the region (see Figure 2). These assets may see significant upgrades in the near future, including conversion of single-use deep sea ports to dual-use strategic bases (such as Kyaukphyu in Myanmar).

Figure 3 Naval bases and civil nuclear sites in the BoB region. Access a full dynamic map with asset names here



76 Rashid, Hakeem Irfan. "One Year after Galwan: Men, Machines, Tech Buildup Continues." *The Economic Times*, 16 June 2021, www.economictimes.indiatimes.com/news/defence/men-machines-tech-buildup-continues/articleshow/83554075.cms.

77 Gettleman, Jeffrey, et al. "Worst Clash in Decades on Disputed India-China Border Kills 20 Indian Troops." *The New York Times*, The New York Times, 16 June 2020, https://www.nytimes.com/2020/06/16/world/asia/indian-china-border-clash.html.

ii) Regional competition and strategic threats

China has been actively expanding its strategic presence in the Indian Ocean, with the BoB as the first site of contact.[78] Through a raft of connectivity projects and deployment of military assets, Beijing is looking to build greater strategic depth while also operationalising its growing naval capabilities in the region.[79] Simultaneously, New Delhi has pursued its own development of connectivity and naval infrastructure in its immediate and extended neighbourhoods. US-China competition has also intensified since 2017, with Washington recognising its waning comparative advantages and seeking to reinvigorate its economic and military presence in the region.[80]

Besides larger strategic challenges, the BoB has a number of low-threshold traditional security threats. Piracy, particularly around the Malacca and Singapore Straits, is a key security concern; illegal drug and arms trade, driven by the region's proximity to the Golden Triangle, is another.[81] With growing traffic density in the region, the BoB has witnessed a gradual increase in maritime incidents, such as collisions and capsizing. Irregular human migration between South and Southeast Asia poses a long-term threat to the normal and efficient function of local government institutions and defence forces by overstretching human-machine capacities.

4.2 Climate risks

The interaction of climate change and anthropogenic environmental degradation has the potential to exacerbate existing strategic challenges and trans-regional competition. In military terms, it can impact a force's combat and operational readiness which could

78 Kuo, Lily, and Kommenda, Niko. "What Is China's Belt and Road Initiative?" *The Guardian*, Guardian News and Media, 30 July 2018, www.theguardian.com/cities/ng-interactive/2018/jul/30/what-china-belt-road-initiative-silk-road-explainer.

79 Patranobis, Sutirtho. "Too Close for Comfort: China to Build Port in Myanmar, 3rd in India's Vicinity." *Hindustan Times*, 9 Nov. 2018, www.hindustantimes.com/india-news/china-myanmar-ink-deal-for-port-on-bay-of-bengal-third-in-india-s-vicinity/story-Lbm4IwOMuqrNvXGv4ewuYJ.html; Pickrell, Ryan. "China's Rapidly Growing Navy Just Got 3 New Warships in a Single Day." *Business Insider*, 27 Apr. 2021, www.businessinsider.in/international/news/chinas-rapidly-growing-navy-just-got-3-new-warships-in-a-single-day/articleshow/82264476.cms.

80 "Quad Leaders' Joint Statement: 'The Spirit of the Quad.'" *The White House*, 12 Mar. 2021, www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/quad-leaders-joint-statement-the-spirit-of-the-quad; Gardner, Cory. "S.2736 - 115th Congress (2017-2018): Asia Reassurance Initiative Act of 2018." *Congress.gov*, US Congress, 31 Dec. 2018, www.congress.gov/bill/115th-congress/senate-bill/2736news.usni.org/2020/11/17/secnav-braithwaite-calls-for-new-u-s-1st-fleet-near-indian-pacific-oceans.

81 Information Fusion Centre–Indian Ocean Region (IFC-IOR), *Annual Report 2020*, www.indiannavy.nic.in/ifc-ior/IFC_IOR_ANNUAL REPORT 2020.pdf.

significantly alter the region's strategic makeup. This would create new geostrategic flashpoints, forcing strategic-planners to change their security paradigms.

A high number of naval assets in littoral areas are vulnerable to climate change. The high density of strategic assets, military deployments, political pressure points, and socioeconomic faultlines make the BoB a geographic tinderbox. Climate risks may or may not directly affect these vulnerabilities, but they certainly have a bearing on intermediate factors. Climate and environmental hazards could change the physical contours of the BoB through degradation, destruction, and obstruction, contributing to new trans-regional conceptulations of "anti-access/area denial (A2/AD)."

The average SLR rate in the BoB is approximately 5 cm per decade, and the average elevation along the Lower Gangetic Plain coastline is lower than 10 m above sea-level.[82] Due to the low elevation gradient, rising SLR exposes civil and military infrastructure, like runways, docks, airfields, roads, electric lines, and bridges to encroaching waterlines. New Moore Island—a small rock island claimed by New Delhi and Dhaka that submerged into the sea in 2010—is a relevant example.[83] As SLR continues, BoB militaries will find that force postures changing, as historic points of deployment will disappear.

SSTs have also increased over the last decade, at times reaching 30-32ºC, a full three degrees higher than the temperature conditions required for cyclone formation, leading to frequent and more intense weather patterns.[84] Rising SSTs and ensuing weather phenomena can impact combat and operational readiness by destroying military and civilian logistics and energy infrastructure, or grounding naval and air operations. Indirectly, they raise the OPTEMPO of militaries as frequent HA/DR operations disrupt year-to-year strategic planning. When combined with chemical, wastewater, and plastic

82 Basu, Jayanti. "Bengal Most Vulnerable to Climate Risk, Flags India's First Assessment Report." *Down To Earth*, 3 July 2020, www.downtoearth.org.in/news/climate-change/bengal-most-vulnerable-to-climate-risk-flags-india-s-first-assessment-report-72117; Tinker, Hugh Russell, and Syed Sajjad Husain. "Bangladesh." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., 10 Mar. 2021, www.britannica.com/place/Bangladesh.

83 Associated Press. "Island Claimed by India and Bangladesh Sinks below Waves." *The Guardian*, Guardian News and Media, 24 Mar. 2010, www.theguardian.com/world/cif-green/2010/mar/24/india-bangladesh-sea-levels.

84 Dutta, Arnab Pratim. "Climate Change Made Indian Ocean Cyclones More Intense and Deadlier." *YouTube*, Down To Earth, 5 June 2021, www.youtube.com/watch?v=Q4krylUOJUc; Bandyopadhyay, Krishnendu. "Rising Surface Temperature at Sea behind Frequent Cyclones: Experts." *The Times of India*, 28 May 2021, www.timesofindia.indiatimes.com/city/kolkata/rising-surface-temperature-at-sea-behind-frequent-cyclones-experts/articleshow/83017884.cms.

pollution, rising SST can also corrode coastal, surface, and subsurface infrastructure, such as pipelines, cables, support structures, submarine docks etc.[85]

Similarly, coastal and low-lying nuclear generation sites may pose significant humanitarian and ecological threats due to SLR and frequent adverse weather events. Even though only two countries operate (or are in the process of operating) such civilian nuclear sites, the lack of adaptation, mitigation, and negation of these threats could have wider repercussions for the BoB.

SST also affects coastal livelihoods, raising the potential for long-term cross-border migration, which could raise costs on local security sector institutions.[86] Heat-waves, a result of rising ambient temperatures, are the most common and potentially most lethal hazard affecting not only the civil population, but also altering the manner of force deployments. This necessitates new uniforms, medication, hydration implements, etc.

The impact of these climate threats are further compounded by other anthropogenic factors. Both aerial and plastic pollution degrade the environment, making areas hazardous or unstable. Plastic emissions in the middle of the Bay (and even inland) prevent easy movement of naval platforms.[87] Cyclical weather patterns make poor air quality a sustained threat to both humans and machines.[88] These factors will warrant new personnel implements, communication and detection equipment, and unique modifications to transport platforms.

As a result, drastic changes to the physical geography of the BoB can exacerbate strategic challenges by intensifying existing security threats, raising costs on extant capacity, and potentially creating new ones.

Figure 4 outlines the impacts that climate and environmental hazards, categorised as having a direct impact (threat) or indirect (vulnerabilities), have on military combat and operations. Table 3 explains the nature of those threats and vulnerabilities and the ways they affect regional military dynamics.

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85 Valdez, Benjamin, et al. "Corrosion Assessment of Infrastructure Assets in Coastal Seas." Journal of Marine Engineering & Technology, vol. 15, no. 3, 2016, www.tandfonline.com/toc/tmar20/current.

86 Koll, Roxy Matthew. "Warming Oceans, Rapid Intensification Continue to Pose Immense Challenges to Cyclone Forecasting: The Weather Channel - Articles from The Weather Channel." *The Weather Channel*, 25 Nov. 2020, www.weather.com/en-IN/india/news/news/2020-11-25-warming-oceans-rapidly-intensification-continue-to-pose-immense.

87 *Global Plastic Navigator*, World Wide Fund Germany, Sept. 2020, https://plasticnavigator.wwf.de/#/en/stories/?st=0&ch=0&layers=surface-concentration; The Guardian. "Plastic Pollution Blights Bay of Bengal in Pictures." *The Guardian*, 15 Oct. 2020, www.theguardian.com/global-development/gallery/2017/mar/02/plastic-pollution-blights-bay-of-bengal-in-picture.

88 IQAir. "Empowering the World to Breathe Cleaner Air | IQAir." *IQAir*, 10 July 2021, www.iqair.com/earth.

Figure 4 Risk and impact flow of climate-security on the traditional security spectrum

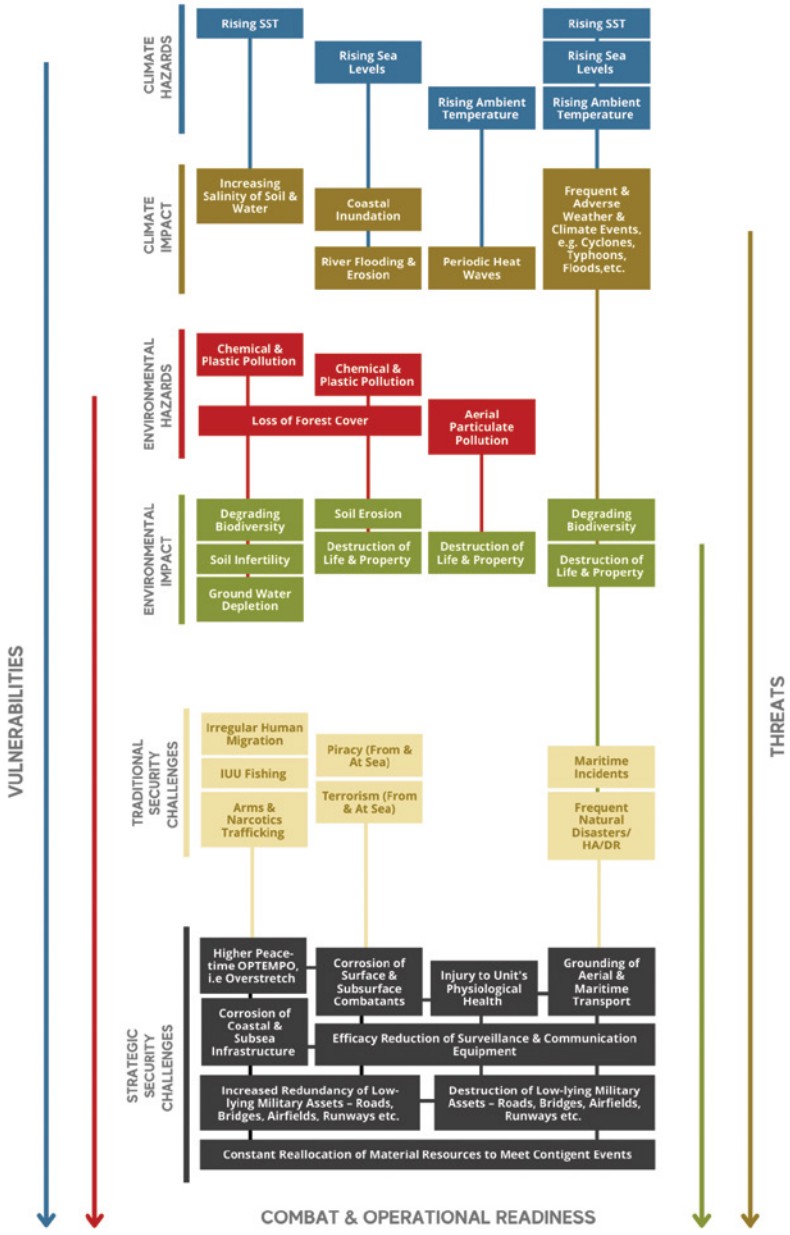


Table 2 Climate and environmental impact on operational readiness in the BoB region

Operational Readiness → Climate & Environmental Hazard ↓	Deployment Patterns	Critical Infrastructure	Troop Health	Platforms & Equipment
SLR	Can affect the origin of deployment, and periodically make access points redundant, thus diminishing combat readiness. Destroys lives and livelihoods driving irregular human migration, requiring higher OPTEMPO to meet contingencies.	Can destroy, degrade or make redundant critical and connectivity infrastructure – such as roads, airfields, bridges, energy generation sites, etc.		While direct threats to grounded platforms and equipment exist, mitigation measures can reduce the impact.
SST	Can create conditions for hostile weather and natural disaster events. Destroys local biomes thus affecting lives and livelihoods that drive irregular human migration, requiring higher OPTEMPO.	Could potentially degrade or deteriorate subsurface infrastructure when combined with unfettered chemical and plastic pollution.		Could potentially degrade surface and sub-surface platforms and equipment, especially when combined with unfettered chemical and plastic pollution.
Ambient Temperature	Can create conditions for hostile weather and natural events. Destroys local biomes thus affecting lives and livelihoods that drive irregular human migration, requiring higher OPTEMPOs.		Direct impact on troop health through its most common hazard: heat waves.	Could make certain targeting and sighting equipment redundant.

Operational Readiness → Climate & Environmental Hazard ↓	Deployment Patterns	Critical Infrastructure	Troop Health	Platforms & Equipment
Chemical & Plastic Pollution	Can affect the origin of deployment, and scale and effectiveness of deployment, by making access points and manoeuvring space redundant or unsafe.	Can limit access and manoeuvring space, thus deteriorating trans-regional connectivity infrastructure. Makes redundant certain types of communication and surveillance infrastructure.	Direct impact on troop health. Aerial, ground and water pollution in all forms can damage normal body functions such as ability to see, breathe etc.	Can reduce the efficacy of platforms and equipment. High particulate matter in the air can ground certain types of planes; could reduce the performance of RADAR/LIDAR systems, etc.
Loss of Forest Cover	A catalyst for greater SLR impact affecting the origin of deployment, and requiring higher OPTEMPOs to meet SLR event contingencies.	A catalyst for greater SLR impact. Affects the origin of deployment, causing critical and connectivity infrastructure to be destroyed or degraded.		
Hostile Weather Patterns & Natural Disasters	Highest impact. Directly destroys or degrades origin of deployment. Indirectly increases peace-time OPTEMPO in order to meet natural disaster event contingencies, thus overstretching human and machine capacities.	Direct physical impact.		Direct and indirect impact. Can directly destroy or degrade platform and equipment capacities and capabilities. Indirect redundancies of such platforms and equipment, e.g. grounded planes during high intensity wind events, like cyclones and typhoons.

Operational Readiness → **Climate & Environmental Hazard** ↓	**Deployment Patterns**	**Critical Infrastructure**	**Troop Health**	**Platforms & Equipment**
SLR + Chemical and Plastic Pollution	Impacts the origin of deployment, and limits trans-regional access and space. Limits manoeuvrability, thus reducing combat effectiveness.	Direct impact. Can reduce access and space, making redundant critical and connectivity infrastructure.	Increasing troop exposure to harmful chemicals and plastics by bringing them closer to areas of operation.	
SST + Plastic Pollution		Can, through higher salinity and waste water levels, degrade and erode coastal, surface and subsurface infrastructure.		Can, through higher salinity and waste water levels, degrade surface and subsurface platforms, like the hulls of ships etc.

5 Social and political profile

The first part of this section outlines the social, economic and political faultlines in the BoB, largely within national borders. These faultlines highlight critical intermediate factors that, when stressed by climate factors, can lead to intergroup and state-society tensions, and violent conflict. The faultlines-to-conflict chain of consequences is explained in the second part of this section.

5.1 Key faultlines

Communities in BoB are divided along socioeconomic lines such as class, caste, religion and ethnicity. The region also suffers from medium-to-low human development levels, with an average HDI ranking of 118.[89] The region's multiplicity and fragility have sustained faultlines that could fuel violent conflict and distress migration—both within and across international borders.

Three sociopolitical conflict faultlines common to BoB littoral countries are resource-based, identity-based, and migration-induced. These categories are not watertight and one could have a degree of bearing on another.

i) Resource-driven

In the region, competition for control of valuable resources such as land, forests, water, and minerals continue to drive tensions between social groups and between the state and different communities.

In India, resource conflict has kept alive more than a dozen ethnic separatist movements in the Northeast, as well as the decades-old Maoist insurgency in central and parts of southern and eastern India (such as Odisha, Andhra Pradesh and West Bengal). A similar faultline is seen in Myanmar where ethnic armed groups such as the KIA and AA are fighting the Burmese state over control of local resources.[90] Here, the military

89 "Human Development Index trends, 1990–2019". United Nations Development Program (UNDP): http://hdr.undp.org/sites/default/files/2020_statistical_annex_table_2.pdf.

90 Beech, Hannah. "Battling for Blood Jade." *Time*, March 9, 2017. https://time.com/battling-for-blood-jade/; also see Woods, Kevin M. "The Conflict Resource Economy and Pathways to Peace in Burma." Peaceworks report no. 144. United States Institute of Peace (USIP) (Nov 2018). https://www.usip.org/sites/default/files/2018-11/pw_144_the_conflict_resource_economy_and_pathways_to_peace_in_burma.pdf.

has traditionally used timber for quick profits, a practice that has proliferated after the February 2021 coup, causing widespread deforestation—an example of how certain conflict dynamics could themselves adversely affect the climate security cycle.[91]

While the primary faultline in these cases is between state and society, resource conflict can also trigger inter-group friction, such as between the Nagas and Kukis in Northeast India, the Arakanese and Bamars in Myanmar, and the Tamils and Sinhlaese in Sri Lanka. In Bangladesh, resource-driven intergroup faultlines are visible between local ethnic communities and Bengali migrants in the CHT, and between Rohingya refugees and locals in Cox's Bazar. Northern Indonesia's resource-rich Aceh region witnessed an intense phase (1976-2005) of conflict between ethnic separatist groups and the TNI. Initial ethno-religious tensions flared up due to perceived resource exploitation by the state.

Within resource-driven faultlines, land conflicts feature prominently in all five countries. Along the littoral areas of eastern India, land conflict over industrial and connectivity projects, mining and other activities is common.[92] In Myanmar, a decades-old policy of land confiscation by the military has driven social discontent and economic disenfranchisement in the countryside.[93] Similarly, exploitation of resources and the local population in Aceh, Indonesia, was a key precursor to the armed rebellion.[94]

A low-intensity, resources-linked faultline in all five countries is between rural-to-rural or rural-to-urban migrants and locals. Conflict here is manifested in intergroup clashes, ethno-political violence and high crime rates. In the countryside, tensions may flare up over control of resources along caste, class, ethnic or religious hierarchies.

ii) Identity-based

Identity-based faultlines in the region are based on politico-cultural and economic dividers. Tensions between Assamese-speaking and Bengal-origin groups in Assam, which have often snowballed into violent conflict, are informed by both cultural

91 Heubi, Ben. "Myanmar's military coup linked to illegal deforestation". *Engineering and Technology*, April 23, 2021. https://eandt.theiet.org/content/articles/2021/04/myanmar-s-military-coup-linked-to-illegal-deforestation/.

92 Open-source data from Land Conflict Watch: https://www.landconflictwatch.org/#home.

93 ""Nothing for Our Land": Impact of Land Confiscation on Farmers in Myanmar". *Human Rights Watch* report (July 2018). ISBN: 978-1-6231-36369. https://www.hrw.org/sites/default/files/report_pdf/burma0718_web2.pdf.

94 Miller, Michelle Ann. 'The Conflict in Aceh: Context, Precursors and Catalysts'. Reconfiguring Politics: the Indonesia-Aceh Peace Process. Accord, no. 20 (2008): 12. https://www.c-r.org/accord/aceh-indonesia/economic-injustice-cause-and-effect-aceh-conflict.

protectionism and socioeconomic anxieties over resource control. A similar faultline exists in Myanmar between the dominant Bamar ethnic group and minorities, as well as between different ethnic minorities, such as the Rakhine Buddhists and Rohingya Muslims in Rakhine State.

In some contexts, identity- and resource-based faultlines overlap, such as in the Maoist insurgency in India and ethnic separatism in Northeast India. Here, resource contestations are often framed in ethno-cultural terms along the 'tribal vs non-tribal' binary. In its initial phases, Indonesia's Aceh insurgency had an ethno-religious underpinning as it sought to create an Islamic state in Indonesia. Sectarian tensions between the Sinhalese and Muslims in Sri Lanka intensified in the post-war period, especially after the Easter Sunday bombing in 2019.[95] Ethno-cultural identity also shapes faultlines between non-tribal Bengalis and the tribal Jumma people in Bangladesh's CHT.[96]

iii) Migration-induced

The region has porous international borders that cut across territories hosting socio-culturally contiguous groups of people. This, combined with high levels of social, economic, and political insecurity across the region, has triggered cycles of cross-border as well as internal migration.

Inter- and intra-country migration in the region have created faultlines between communities that have sometimes led to violent conflict. This pattern can be called conflict-generating migration. Two examples of this are: ethnonationalist, anti-immigrant violence in Assam in the backdrop of mixed and long-term migration across the India-Bangladesh border, and armed insurgency in Bangladesh's CHT, partly arising from a sustained (and often state-sponsored) internal migration of plains Bengalis to the tribal-dominated hill tracts.[97]

To a lesser degree, state-sponsored migration of settlers from dominant ethno-religious communities in areas inhabited by minorities is seen in Myanmar's Rakhine State and

95 Siddiqui, Jumaina, and Melissa Nozell. "Two Years after Easter Attacks, Sri Lanka's Muslims Face Backlash." United States Institute of Peace. 17 September 2021. https://www.usip.org/publications/2021/04/two-years-after-easter-attacks-sri-lankas-muslims-face-backlash.

96 Panday, Pranab Kumar and Jamil, Ishtiaq. "Conflict in the Chittagong Hill Tracts of Bangladesh: An Unimplemented Accord and Continued Violence". *Asian Survey*, Vol. 49, No. 6 (November/December 2009): 1054. http://www.jstor.org/stable/10.1525/as.2009.49.6.1052.

97 Levene, Mark. "The Chittagong Hill Tracts: A Case Study in the Political Economy of 'Creeping' Genocide." Third World Quarterly 20, no. 2 (1999): 339–69. http://www.jstor.org/stable/3992921.

other ethnic regions in the north and east.[98] Myanmar is an example of how migration- and resource-based faultlines intersect, wherein "livelihood vulnerability-induced displacement" remains the "primary form of internal and external migration."[99]

Southeastern Bangladesh where nearly a million Rohingya refugees from Myanmar currently live offers another example of intergroup (host-migrant) and state-society faultlines—manifested in local anti-Rohingya protests.[100] Additionally, a refugee-host state friction point is also emerging as Dhaka transfers thousands of refugees from their camps in Cox's Bazar to the remote island of Bhashan Char.[101] A similar faultline may appear between Burmese refugees and certain ethnic groups in the border states of Northeast India.

In all five countries, internal migration—such as from the coastal belts to the hinterland–could lead to uncontrolled urbanisation.[102] This could give rise to intergroup tensions and crimes. Migration that is directly caused by conflict—conflict-generated migration—is also prevalent in the region. The Rohingya case fits here, with violent sectarian conflict and military campaigns in Myanmar's Rakhine State displacing the stateless community internally and across international borders. The CHT case echoes this pattern, with sustained pressure on land and local identity from Bengali settlers having pushed indigenous ethnic groups, such as the Chakmas and Hajongs, across the international border to India. The Sri Lankan Civil War also led to mass internal and international displacement of Tamils.

98 Bosson, Andrew. "Forced Migration/Internal Displacement in Burma". Report commissioned by Internal Displacement Monitoring Centre (IDMC) (May 2007): 17. https://www.refworld.org/docid/464826422.html.

99 South, Ashley. "Conflict and Displacement in Burma/Myanmar." In *Myanmar: The State, Community and the Environment*, edited by Skidmore Monique and Wilson Trevor, 56. Canberra: ANU Press, 2007. Accessed June 10, 2021. http://www.jstor.org/stable/j.ctt24hbh2.13.

100 Open-source data taken from the Armed Conflict Location & Event Data Project (ACLED): https://acleddata.com/#/dashboard.

101 Al Jazeera. "Bangladesh Starts Moving More Rohingya Refugees to Remote Island." *Al Jazeera*, 28 Dec 2020. https://www.aljazeera.com/news/2020/12/28/bangladesh-begins-moving-second-batch-of-rohingya-to-bhashan-char.

102 Kapur, Manavi, and McDonnell, Tim. "India's Megacities Aren't Prepared for a Wave of Climate Migrants." *Quartz*, September 2, 2020. https://qz.com/1895253/climate-change-in-india-is-fueling-unchecked-urbanization/; Rana, Md Masud, and Irina N. Ilina. "Climate Change and Migration Impacts on Cities: Lessons from Bangladesh." Environmental Challenges 5 (2021): 100242. https://doi.org/10.1016/j.envc.2021.100242.

Table 3 Sociopolitical conflict threat matrix for BoB countries, with focus on immediate and extended littoral spaces

Threat level[104] → Country ↓	Very Low *No disruptions or damage; heavily localized*	Low *Temporary disruptions and limited damage; largely localized*	Medium *Lingering disruptions and moderate damage to property and lives; limited spillover*	High *Significant and lingering disruptions and damage to both human lives and property; high spillover effects*	Very High *Dramatic and persistent disruptions; widespread damage to human lives and property; extended spillover*
India	Ethnic friction between groups in parts of Northeast India and migrants from Myanmar.	Friction between corporates or state and local communities over land and other natural resources.	Ethno-linguistic tensions between Assamese- and Bengali-speaking (or -origin) groups in Assam. Intergroup tensions over caste and religious identity.	Sectarian violence against ethno-religious minorities. Ethnic insurgencies in parts of the Northeast.	Maoist insurgency in central states and parts of eastern coastal belt.
Bangladesh	Intergroup tensions and social unrest in major cities due to influx of rural internal migrants.	Tensions between Rohingya refugees and local communities in Cox's Bazar and surrounding areas. Tensions between Rohingya refugees and the state.	Tensions between indigenous tribes in CHT and the state.	Religious extremism against the state and sectarian minorities. Human security threat to Rohingya refugees in Cox's Bazar.	

104 Here, defined as the overall likelihood of faultlines developing into violent conflict.

Threat level[103] → Country ↓	Very Low *No disruptions or damage; heavily localized*	Low *Temporary disruptions and limited damage; largely localized*	Medium *Lingering disruptions and moderate damage to property and lives; limited spillover*	High *Significant and lingering disruptions and damage to both human lives and property; high spillover effects*	Very High *Dramatic and persistent disruptions; widespread damage to human lives and property; extended spillover*
Myanmar		Intergroup tensions and social unrest in major cities and ethnic minority areas due to influx of rural internal migrants.	Friction between local communities and project developers (including Chinese, Thai and Indian).	Tensions between various ethnic groups. Friction between Rakhine Buddhists and Rohingya Muslims in Rakhine State.	Conflict between ethnic minorities (including armed groups) and the military. Conflict between the military regime and majority civilian groups.
Sri Lanka			Exacerbation of the old and ongoing ethnic/sectarian frictions and conflict due to internal migration.		
Indonesia		Ethno-religious friction between the Acehnese population and mainland Indonesia.	Inter-state tensions over land and natural resources; internal migration.		

103 Here, defined as the overall likelihood of faultlines developing into violent conflict.

5.2 Climate risks

While climate-related factors do not have a linear causal link with violent conflict, they aggravate the adverse impacts of primary stressors, which widen existing faultlines.[105] See Figure 5 for a visual representation of this non-linear chain of consequences.

While this is also generally true in the BoB context, climate threats could directly threaten at-risk communities in some cases. Hence, as far as conflict in the region is concerned, climate threats may be seen as both "risk multipliers" and "threat multipliers," with the former carrying greater contextual relevance.[106]

Resource-based and migration-induced faultlines, given that both often feed into each other, are the most vulnerable.[107] Here, we assume livelihood loss to be an extrapolation of resource depletion. In the BoB context, rising temperatures, SLR, and more frequent cyclonic events could exhaust coastal livelihoods, as global evidence also forewarns, and force communities to migrate to the hinterlands.[108]

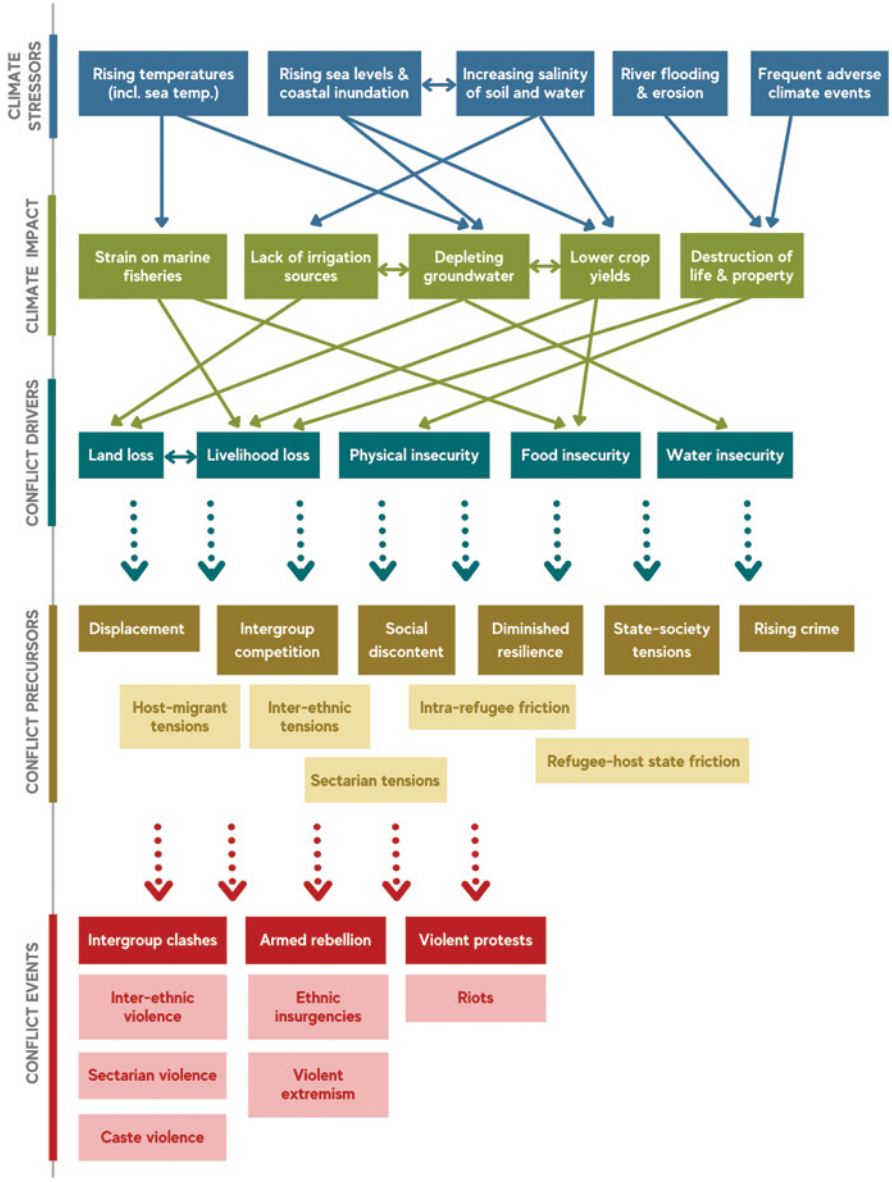
105 Scheffran, Jürgen and Battaglini, Antonella. "Climate and conflicts: the security risks of global warming". Reg Environ Change (2011) 11 (Suppl 1): S28. DOI 10.1007/s10113-010-0175-8 S28.

106 Mosello, Beatrice, König, Christian, Day, Adam & Nagarajan, Chitra. "Addressing Climate-related Security Risks: Towards a Programme for Action". Berlin: adelphi (2021): 4. https://bit.ly/3xGiU3N.

107 Here, 'resources' means natural resources used for both everyday sustenance and long-term livelihood.

108 Guston, Georgina. "Climate Change Threatens the World's Fisheries, Food Billions of People Rely On". *Inside Climate News* (29 Sept 2019). https://insideclimatenews.org/news/29092019/ocean-fish-diet-climate-change-impact-food-ipcc-report-cryosphere/.

Figure 5 Chain of consequences between climate threats and violent conflict.



According to Win Myo Thu, Director, EcoDev Myanmar, 200,000 people are vulnerable to the adverse effects of SLR in Myanmar's southern delta region.[109] Rafiqul Islam Montu, an environment journalist in Bangladesh, argues that "the number of displaced people [from coast to hinterlands in Bangladesh] will increase a lot more in the coming years as the sea level rises."[110] A 2020 survey found that "climatic events such as floods, cyclones, and riverbank erosion contributed to the migration decisions" of Bengali fishermen who moved from Bangladesh's southern coast to the CHT.[111] Further, in-migration due to SLR to the ethnically-sensitive region around Chittagong could fuel fresh tensions.[112] A 2009 study identifies Cox's Bazar as a common destination for internal migrants affected by SLR and hinterland areas such as Dhaka and Bogra as target destinations for those affected by river flooding and erosion.[113] These movements could render the people displaced in a double jeopardy of facing aggravated risks in common destinations that are themselves vulnerable to climate threats.[114]

Climate-induced land loss would also compel agrarian communities to migrate to cities. In the non-coastal hinterlands, degradation of agricultural land through rising salinity in soil and irrigation sources could affect rural communities by stressing water resources and crop yields. This would fuel livelihood insecurity, intergroup competition and even violence. For instance, there have been "periods of violence" between agricultural and shrimp farmers in Bangladesh's Khulna division over water resources strained by increased salinisation.[115]

In Myanmar, frequent cyclones could displace people living along the southern coastal regions. Win Myo Thu noted the volume of migration to hinterland cities such as Yangon and even across the border to Thailand after the devastating Cyclone Nargis in May 2008.[116] This may occur again, particularly given the military coup and ensuing

109 Interview conducted by authors.

110 Interview conducted by authors.

111 Islam, Rafiqul, Schech, Susanne & Saikia, Udoy. "Climate change events in the Bengali migration to the Chittagong Hill Tracts (CHT) in Bangladesh". *Climate and Development* (June 2020). DOI: 10.1080/17565529.2020.1780191.

112 Brennan, "Understanding climate-related," 10.

113 "Climate Change and Security in Bangladesh: A Case Study". Joint research report by Bangladesh Institute of International and Strategic Studies (BIISS) and Saferworld (June 2009): 5. https://www.files.ethz.ch/isn/103629/Bangladesh_climat_change_June09.pdf.

114 Walter, Pierre. "Floods and Rural-Urban Migration in Bangladesh". In "The State of Environmental Migration 2015", ed. Francois Gemenne, Caroline Zickgraf and Dina Ionesco. The Hugo Observatory & Sciences Po (2015): 60. http://labos.ulg.ac.be/hugo/wp-content/uploads/sites/38/2017/11/The-State-of-Environmental-Migration-2015-51-64.pdf.

115 Brennan, Madeline. "Understanding climate-related security risks in Bangladesh". UNDP Issue Brief, FBA Fellowship, Issue no. 23/2020 (2020): 6.

116 Interview conducted by authors.

escalation in armed conflict. Further, non-coercive internal migration due to factors such as food insecurity and natural disasters could proliferate under the stress of climate threats and result in new cycles of intergroup conflict, such as if Rohingya Muslims move into Buddhist-majority areas.[117]

Recent research suggests that climate-induced migration in the Indian Bengal Delta will continue in the near future.[118] Since this ecologically-sensitive belt straddles India's West Bengal and southwestern Bangladesh, cross-border migration will be a likely eventuality. Abnormal displacement patterns from land and livelihood loss—triggered by heightened coastal flooding, and erosion and salinisation of soil and groundwater—are already visible in the mangrove forests of the Sundarbans.[119] Areas that already have underlying intergroup friction, especially an 'insider-vs-outsider' dynamic, are doubly vulnerable. For instance, the influx of climate refugees from Bangladesh into the Indian state of Assam, and to a lesser degree West Bengal, could intensify sectarian and ethno-linguistic tensions. Ambassador (Retd) Tariq Karim of Bangladesh, who is now a humanitarian professional working with Rohingya refugees, agreed that such cross-border migration could take place.[120]

Sri Lanka's northern and eastern parts—inhabited by minority Tamils and Muslims—are predominantly identified as dry zones, predicted to face severe water scarcity.[121] Combined with SLR that would impact livelihoods, this could lead to displacement of minorities to majority Sinhalese-dominated urban areas.[122] This could lead to a re-emergence of ethnic conflict between the Sinhalese majority and the Tamil minority, and aggravate ongoing sectarian conflict between the former and the Muslim minority.

In communities that already share an antagonistic relationship with the state, resource depletion, particularly dispossession of land, could deepen ethnic discontent and fuel (or refuel) armed insurgencies. In Myanmar, further loss of arable land due to climate

117 John T.Slagle. "Climate change in Myanmar: impacts and adaptation". PhD Thesis: NPS Institutional Archive (2014): 5. http://hdl.handle.net/10945/44672.

118 Danda, Anamitra Anurag. "Environmental Security in the Sundarban in the Current Climate Change Era: Strengthening India-Bangladesh Cooperation". ORF Occasional Paper #220, Observer Research Foundation (Nov 2019): 13. https://www.orfonline.org/wp-content/uploads/2019/11/ORF_OccasionalPaper_220_Sundarban_NEW-13Nov.pdf.

119 Augustin, Johan. "On the front line of climate change in India's Sundarbans". *Mongabay*, Oct 17, 2019. https://news.mongabay.com/2019/10/sundarbans-climate-change-tigers-india/.

120 Interviews conducted by authors.

121 Gothami Chandrarathna, E R I A C Kularathna, Deshani Herath & Menake Wijesinghe. "Is Climate Change Fuelling Migration In Sri Lanka?". Joint research report by Janathakshan GTE Ltd, Climate Action Network South Asia (CANSA), Action Aid International, and Bread for the World (November 2020): 6. https://cansouthasia.net/wp-content/uploads/2021/02/Climate-Induced-Migration_Sri-lanka_18_12_2020.pdf.

122 Ibid, 7.

stressors could deepen the divide between rural ethnic communities and the state. In fact, climate stressors could exacerbate land conflict in all five countries, generating political violence in some of them. India's eastern coastal belt where land disputes overlap with an active Maoist insurgency against the state and corporate entities is another case-in-point.

Climate threats can also severely impact the resilience of communities displaced by conflict, as seen among Rohingya refugees in Bangladesh and IDP camps in Myanmar's Rakhine State. Increased frequency of adverse climate events such as cyclones and heatwaves resulting in floods and droughts would render the refugees in southeastern Bangladesh vulnerable to re-displacement. Serious concerns about preparedness in refugee camps were raised by UN agencies after Cyclone Fani in 2019 and Cyclone Amphan in 2020.[123] SLR, erosion and cyclones could severely impact refugee living conditions on Bhashan Char.[124] Similarly, Rohingya IDPs in Rakhine State would be ill-equipped to cope with such climate events due to lack of overall safeguards. According to Khin Maung, a Rohingya refugee community activist in Bangladesh, there is no coherent understanding of the climate security concept amongst policy planners or aid agencies, and mitigation strategies are often ad hoc or event-specific.[125] The humanitarian professional working with Rohingya refugees noted that the camps lack even basic safeguards against climate events, such as cyclone shelters.[126]

123 Peter Kenny, "Cyclone Amphan's impact on Rohingya worries UN agencies," *Anadolu Agency*, 22 May 2020: https://www.aa.com.tr/en/asia-pacific/cyclone-amphan-s-impact-on-rohingya-worries-un-agencies/1850591; Dave Grunebaum, "Cyclone Raises Fears About Vulnerability of Rohingya Refugee Camps," *Voice of America*, 9 May 2019: https://www.voanews.com/south-central-asia/cyclone-raises-fears-about-vulnerability-rohingya-refugee-camps.

124 Saleh Noman, "Rohingya refugees live in fear of cyclones on Bangladesh island," *The Third Pole*, 3 June 2021: https://bit.ly/3yVRmre; interview with Rafiqul Islam Montu.

125 Interview conducted by authors.

126 Interview conducted by authors.

Table 4 Climate threats and impacts in BoB littoral countries [social and economic stresses (black, non-italic), and their consequences (blue, italic)]

Country → Climate threat ↓	India	Bangladesh	Myanmar	Sri Lanka	Indonesia
Rising Temperatures (including sea temperature)	Strain on marine fishing sector; socio-economic insecurity: *intergroup friction; distress migration from coastal areas to hinterlands*	Strain on marine fishing sector; socioeconomic insecurity: *displacement of fishing communities from coast to hinterlands; intergroup friction* Drying up of water sources in agricultural belts and ethnic minority regions like CHT: *distress migration (rural-to-rural, rural-urban); ethno-political tensions*	Strain on agricultural communities due to seasonal shifts, leading to lower productivity and yields: *distress migration (rural-to-rural, rural-urban); ethno-political tensions*	Strain on farming and fishing communities; loss of livelihoods: *distress migration (rural-to-rural, rural-urban); ethno-political tensions*	Strain on farming and fishing communities; loss of livelihoods: *distress migration (rural-to-rural, rural-urban); ethno-political tensions*
River flooding and erosion		Physical impact on rural agrarian communities: *distress migration to hinterlands including cities; strain on resources and hyper-urbanisation; intergroup friction, high crime rates*			Physical impact on local Achenese population; loss of resources and livelihoods: *distress migration to mainland Indonesia, strain on; resources and hyper-urbanization; intergroup friction*

Country → Climate threat ↓	India	Bangladesh	Myanmar	Sri Lanka	Indonesia
Rising sea levels and coastal inundation		Physical impact on coastal communities: *distress migration to hinterlands including cities and ethnic minority regions like CHT; strain on resources and hyper-urbanisation; intergroup friction, ethnic tensions*	Physical impact on Rohingya community in Rakhine State: *distress migration to hinterlands including Buddhist-majority areas in and outside Rakhine State; new ethno-religious tensions* Physical impact on ethnic communities in Rakhine State and south-western Delta region: *distress migration to hinterlands; new inter-ethnic tensions; socio-political instability aggravated by state fragility*		
Increased salinity in soil and water sources		Stress on agricultural land: *inter-sectoral conflict, such as between agricultural and shrimp farmers; integroup land conflict; tribal-vs-non-tribal tensions in CHT*			

Country → Climate threat ↓	India	Bangladesh	Myanmar	Sri Lanka	Indonesia
Adverse climate-induced events (cyclones, floods, landslides, droughts, etc.)	Physical impact on coastal and vulnerable hinterland communities: *distress migration; intergroup friction along class, caste, religious or other social cleavages*	Physical impact on coastal and vulnerable hinterland communities: *distress migration (rural-to-urban, coastal-to-ethnic minority areas (like CHT); strain on resources and hyper-urbanisation; intergroup friction; high crime rates* Physical impact on Rohingya refugees in Cox's Bazar; impact on essential resources: *diminished resilience; intra-refugee friction over limited resources; refugee-host community tensions; refugee-state tensions; likelihood of re-displacement* Physical impact on indigenous population of CHT: *diminished resilience; distress migration across international borders; greater ethnic discontent against state; intergroup friction between Jumma people and Bengali settlers*	Physical impact on coastal and vulnerable hinterland communities: *distress migration (rural-to urban, rural-to-rural); strain on resources and hyper-urbanisation; inter-ethnic friction due to influx of mixed migrants to ethnic minority areas, such as Kachin, Shan and Karen States* Physical impact on the Rohingya community in Rakhine State, including Rohingya IDPs: *diminished resilience; inter-ethnic friction; Rohingya-state tensions*	Physical impact on coastal and vulnerable hinterland communities: *distress migration: rural-to urban, rural-to-rural; strain on resources and hyper-urbanisation; inter-ethnic friction due to influx of minority community migrants to ethnic majority/ politically strong areas*	Physical impact on coastal and vulnerable hinterland communities: *distress regional migration: Aceh to mainland/ international; inter-ethnic friction could open up old wounds*

6 Climate security hotspots: five case studies

This section outlines BoB case studies that exemplify the climate-security nexus. They range from at-risk strategic infrastructure to climate-induced displacement.

Figure 6 Location of the five case study areas in the BoB region

6.1 Northern Province, Sri Lanka

The Northern Province is considered the primary site of the Sri Lankan Civil War. It is also home to a high concentration of naval bases, operationally under the Navy's NNA. Towns like Karainagar and Ponnalai host bases closer to the BoB region, while four others directly face the Palk strait.

Figure 7 Location of key towns in Sri Lanka's Northern Province

These coastal towns and islets are located in low-lying areas with an elevation range between 11-22 m. A number of low-lying littoral areas like Punkudutivu and Velanai have already given in to SLR. Sri Lanka is also highly exposed to frequent and adverse weather events such as floods, hurricanes and typhoons, notwithstanding annual weather patterns such as the Southwest Monsoons that have caused a number of in-land floods and landslides.[127]

Continued climate change impacts could alter the SLN force posture in the north, while causing immense destruction of lives and livelihood. Irregular migration towards the southern provinces could also ignite inter-ethnic and sectarian tensions. The combination of climate threats with additional anthropogenic factors may further deepen challenges to effective governance, economy and other spheres.

127 "Sri Lanka: Floods - Final Report (DREF n° MDRLK011) - Sri Lanka." *ReliefWeb*, International Federation of Red Cross and Red Crescent Societies, 27 Oct. 2021, https://reliefweb.int/report/sri-lanka/sri-lanka-floods-final-report-dref-n-mdrlk011; "Floods and Landslides in Sri Lanka Kill at Least 150 People." *The Guardian*, Guardian News and Media, 28 May 2017, https://www.theguardian.com/world/2017/may/28/floods-and-landslides-and-in-sri-lanka-kill-at-least-150-people. Reuters.

6.2 Visakhapatnam, India

Visakhapatnam, a historic port city, hosts India's Eastern Naval Command headquarters. It is vulnerable to climatic and environmental hazards that could destroy, degrade or render military infrastructure like ports, roads, and airfields redundant. Any disruption to normal operational capacities could change India's military posture in the eastern seaboard, and pose a long-term threat to its strategic and comparative naval advantages.

Figure 8 Location of Visakhapatnam, Andhra Pradesh, eastern coast of India

Visakhapatnam has been exposed to a number of cyclonic storms, most classified as 'very severe'.[128] As SST rises and the frequency of such storms increases, Visakhapatnam will see higher life and livelihood destruction. The closest river, Godavari, emits about 974 tonnes of plastic per year, and sea surface velocities by the coastline are slowing down, choking roads and canals, thereby impacting ease of and regular movement to and from the area.[129] With an average coastal elevation of 6m above sea-level, parts beyond the coastline could also be affected by SLR.

128 Cyclone Warning Centre, Visakhapatnam. "Cyclonic Storms Those Affected Andhra Coast from 1970." *Cyclone Warning Centre, Visakhapatnam*, Cyclone Warning Centre, Visakhapatnam, 2018, www.cwcvsk.gov.in/strmlist.html.

129 Kuttyattu Rayaroth, Mridula, et al. "High-Resolution Surface Circulation of the Bay of Bay Derived From Satellite Observation Data." *Journal of Marine Science and Technology*, Journal of Marine Science and Technology, 2016, www.jmst.ntou.edu.tw/marine/24-3/656-668.pdf.

6.3 Bhashan Char, Bangladesh

Bhashan Char, an island used by the Bangladesh government to host Rohingya refugees, has also been considered as a site for a naval base.[130] A product of silt formation, the Char faces periodic and sustained flooding, with much of the northern parts now approximately 6 m below sea-level.

Figure 9 Location of Bhashan Char island, off the southern coast of Bangladesh

A geomorphologically vulnerable island with limited adaptation measures and a rising population, Bhashan Char will not be able to withstand the effects of cyclonic storms, floods and SLR. It is at the mouth of one of the world's most polluted rivers, Meghna, which emits an estimated 115,462 tonnes of plastic per year, which could accelerate the island's erosion and eventual submersion.[131] Even Dhaka's planned security infrastructure investments on the island could be washed away as easily as the Char itself.

130 Islam, Shafiqul. "NavaNoman, Saleh. "Rohingya Refugees Live in Fear of Cyclones on Bangladesh Island." *The Third Pole*, 10 June 2021, www.thethirdpole.net/en/climate/rohingya-refugees-fear-cyclones-bhashan-char-bangladesh. ; I Base at Bhashan Char." *Bangla Tribune*, 21 Sept. 2019, www.en.banglatribune.com/national/news/88016/Naval-base-at-Bhashan-Char.

131 Global Plastic Navigator, World Wide Fund Germany, Sept. 2020, https://plasticnavigator.wwf.de/#/en/stories/?st=0&ch=0&layers=surface-concentration.

6.4 Kyaukphyu, Myanmar

Figure 10 Location of Kyaukphyu, Rakhine State, Myanmar

Kyaukphyu is a natural harbour in Rakhine State. Its development into a modern port city, funded by China, has been stymied by the conflict between the military and the AA.[132] It is the site for a planned dual-use deep sea port and an already operational China-Myanmar oil-and-gas pipeline—both crucial to Beijing's ambitions to secure its energy supply from geostrategic interference.[133]

Rakhine State is prone to frequent cyclones and floods. Kyaukphyu lies at a low elevation (6 m above sea-level) and is particularly exposed to periodic flooding, hostile wind phenomena, and SLR. These pose an existential threat to the local population. China's high-stakes infrastructure in the port city is also significantly vulnerable to emerging climate threats. Moreover, located south of Meghna and Kamaphuli rivers in Bangladesh, and along a coastline with low surface current velocities, it is also exposed to pollution hazards such as chemicals and plastics—both of which can destroy lives and livelihoods, degrading local biodiversity—and erosion.

132 Ryack, Gene. "A Hitch in the Belt and Road in Myanmar." *The Diplomat*, The Diplomat, 3 Dec. 2020, www.thediplomat.com/2020/12/a-hitch-in-the-belt-and-road-in-myanmar.

133 Xinhua. "Xinhua Headlines: Kyaukpyu Port to Become Model Project in China-Myanmar BRI Cooperation - Xinhua | English.News.Cn." *Xinhua News*, Xinhua Net, 18 Jan. 2020, www.xinhuanet.com/english/2020-01/18/c_138716099.htm.

6.5 Sabang, Indonesia

Figure 11 Location of Sabang, Aceh Province, Indonesia

Sabang, a port city on the northern tip of the Indonesian archipelago, became a critical element of the India–Indonesia Strategic Partnership when New Delhi acquired the port from Jakarta in 2018.[134] It has been part of the BoB's strategic history since World War II, and plays a crucial role in monitoring military and civilian activity to and from the Malacca Strait.

Sabang is highly exposed to natural disasters.[135] Adverse climate events, most prominently SLR, tsunamis and cyclones, can affect lives, livelihoods and infrastructure on the island, which is already vulnerable to earthquakes due to its location next to a subduction zone. This could pose a serious threat to Indian investments in the strategic island, including any naval assets that it might place in the future.

134 Chaudhuri, Pramit Pal. "Indonesia Gives India Access to Strategic Port of Sabang." *Hindustan Times*, 17 May 2018, www.hindustantimes.com/india-news/indonesia-gives-india-access-to-strategic-port-of-sabang/story-KPXWKy7PGAHFUi0jCL26yJ.html.

135 P, Desi. "Aceh Struck by 4.8-Magnitude Earthquake, Damage Reported in Sabang." *Antara News*, Antara News, 4 June 2020, www.en.antaranews.com/news/150100/aceh-struck-by-48-magnitude-earthquake-damage-reported-in-sabang.

7 Climate and security risks: key findings

There are clearly identifiable links between climate threats and conflict in the BoB. These links are not linear or causal; they flow through intermediate factors that act as 'conflict drivers'.

Climate threats will play a significant role in stressing conflict drivers in the medium-to-long-term. Subsequently, the latter could create opportunities for the emergence/resurgence of political and social violence, some of which may escalate into armed conflict. This would pose new security challenges to governments in the region (see Table 5).

These are the report's key findings:

1. **Climate threats could intensify regional inter-state military competition and conflict.** Periodic and sustained climate hazards, especially SLR, could result in land and infrastructure loss, which in turn would complicate traditional military force postures. This could alter the geostrategic environment by affecting strategic planning, asset allocation and location, thus creating new arenas of conflict.

2. **Climate-induced migration will be a major conflict driver.** Climate stressors could compound sociopolitical fragilities in certain pockets of the region that have a history of conflict, provoke further mass displacement, and create fresh conflict cycles across and within international borders. These will create complex security challenges for the region's governments and militaries.

3. **Land loss, exacerbated by climate threats, will be a key conflict driver.** Climate stressors could aggravate patterns of land depletion, dispossession and degradation and fuel regional socioeconomic insecurity, particularly among agrarian communities and ethnic minorities. This will contribute to discontent against governments, intensify intergroup friction and eventually, lead to new phases of violent conflict.

4. **Climate threats will affect the overall resilience of displaced communities.** Due to informal asylum regimes and nearly non-existent government policy towards IDPs, climate threats will diminish the coping capacities of displaced populations. This will fuel greater disaffection amongst such communities, and potentially generate new patterns of migrant-vs-host state/community conflict.

5. **Frequent adverse weather events pose a major long-term threat to national governance and security.** Extreme weather events like cyclones and typhoons can directly degrade strategic assets, critical infrastructure, and livelihoods in coastal regions, indirectly exacerbating traditional security threats. In the medium-to-long term, this will overstretch response mechanisms of governments and militaries in the region.

6. **Strategic assets in the BoB region are highly vulnerable to climate threats.** Low-lying civilian nuclear sites, LNG terminals, drydocks, commercial roadways, airfields, and others are exposed to SLR and adverse and frequent weather events, making them periodically redundant. This will raise strategic costs on governance, economy and national security.

Table 5 Climate-induced social and political risk-impact profile[136]

Seriousness → Likelihood ↓	Negligible *No disruptive effects*	Minor *Situation manageable with current circumstances; temporary inflection in tensions*	Significant *Temporary conflict; limited disruptions and damage; constrained by prevailing circumstances or mitigative processes*	Major *Significant disruptions; but effects limited to a specific area*	Catastrophic *Significant disruptions; effects not limited to a specific area*
Rare *Very unlikely, but might occur in exceptional circumstances*				Large-scale violent conflict between competing social groups affected by climate-induced losses.	Natural disaster or adverse weather damaging a nuclear site.

136 This scale has been determined on the basis of qualitative research and findings, including interviews with experts. The descriptions in the scale have been borrowed from: 'Climate Security in the Western Indian Ocean'. See TABLE 1: Climate-related risks in the WIO region that would require a military involvement (i.e. requiring military involvement). IRIS, Observatoire Défense & Climat, DGRIS, 2020.

Seriousness → Likelihood ↓	Negligible *No disruptive effects*	Minor *Situation manageable with current circumstances; temporary inflection in tensions*	Significant *Temporary conflict; limited disruptions and damage; constrained by prevailing circumstances or mitigative processes*	Major *Significant disruptions; but effects limited to a specific area*	Catastrophic *Significant disruptions; effects not limited to a specific area*
Unlikely *Not likely to take place without significant changes in the current context or circumstances*		Tensions between ethnic groups in parts of Northeast India and migrants from Myanmar displaced by climate-induced factors.	Violent inter-group clashes between host groups at destinations and internal migrants displaced due to climate stressors.	Rising Islamist extremism and recruitment in Bangladesh due to climate-induced socioeconomic deprivation. Re-emergence of tensions between the Acehnese population and Indonesian government forces and/or Indonesian mainlanders due to climate-induced resource crunch and migration.	
Potential *Can occur in most circumstances in the near future*		Heightened sectarian tensions between locals in West Bengal and migrants from Bangladesh displaced by climate factors.		Intensification and proliferation of ethnic insurgencies in Northeast India due to climate-induced resource strain. Violent conflict between Rakhine Buddhists and Rohingya Muslims over climate-induced resource strain in Myanmar's Rakhine State.	Maritime conflict between regional and extra-regional navies. Maritime traffic density build-up, potential loss of critical energy and trade SLOCs, ecological and livelihood destruction, etc.

Seriousness → Likelihood ↓	Negligible *No disruptive effects*	Minor *Situation manageable with current circumstances; temporary inflection in tensions*	Significant *Temporary conflict; limited disruptions and damage; constrained by prevailing circumstances or mitigative processes*	Major *Significant disruptions; but effects limited to a specific area*	Catastrophic *Significant disruptions; effects not limited to a specific area*
Likely *Will occur in current circumstances, with prevailing conditions*			Intensifying tensions between Rohingya refugees in southeastern Bangladesh and local communities over climate-induced resource strain. Intensifying tensions between Rohingya refugees in Southeastern Bangladesh and Bhashan Char and the Bangladesh government. Intensifying friction between local communities and project developers (including Chinese, Thai and Indian) in Myanmar. Terrorism from and at sea. Potential to disrupt SLOCs and destroy coastal infrastructure e.g. pipelines, refineries, ports, docks, shipyards, bridges, etc.	Intensification of intergroup and sectarian tensions between ethnonationalist groups in India's Northeast and migrants from Bangladesh displaced by climate-related factors. Exacerbation of existing sectarian tensions between Sinhalese majority and Muslim minority in Sri Lanka with creation of climate-related faultlines.	Intensifying tensions between military-dominated state and general civil society over climate-induced resource depletion and displacement. Military challenges to territorial status quo, with medium-term confrontations. Maritime confrontation between regional and extra-regional navies. Maritime traffic density build-up, and potential loss of critical energy and trade SLOCs.

Seriousness → Likelihood ↓	**Negligible** *No disruptive effects*	**Minor** *Situation manageable with current circumstances; temporary inflection in tensions*	**Significant** *Temporary conflict; limited disruptions and damage; constrained by prevailing circumstances or mitigative processes*	**Major** *Significant disruptions; but effects limited to a specific area*	**Catastrophic** *Significant disruptions; effects not limited to a specific area*
Almost certain *Already occurs regularly*		Increased piracy, illicit narcotics and arms trade, due to climate-induced socioeconomic insecurities. Disasters or adverse weather phenomena damaging energy grids by destroying electrical lines, hub stations, generation sites, etc.	Continued plastic and particulate pollution. Impact on local biodiversity and human population. Increased IUU fishing in the BoB as SST rises and local marine biodiversity falls.	Intensification of armed conflict between Maoist insurgents and Indian armed forces due to land loss and resource depletion. Severe impact on community resilience in the Rohingya refugee camp in Bangladesh due to rising frequency of adverse climate events.	Intensification of ethnic armed conflict in Myanmar due to climate-induced land loss, resource depletion and displacement.

8 Scope for regional climate security cooperation

This section explores current regional cooperation mechanisms in the BoB, particularly institutions and processes that could be leveraged for climate security cooperation. It proposes a set of recommendations to foster a region-wide understanding of climate security and create collaborative opportunities.

8.1 Opportunities and challenges

Regional cooperation on climate security in the BoB is theoretically possible. This is because of the non-antagonistic relationships between the five countries and existing synergies of multilateral and multi-sectoral cooperation within BIMSTEC and other formations.

Intergovernmental efforts to cooperate on climate change have been undertaken primarily through BIMSTEC, wherein member states added 'Climate Change' as a cooperation area in 2009.[137] Notably, climate change cooperation in the BoB has also taken place through various bilateral and trilateral partnerships, and other organisations such as BOBLME and SACEP.

In reality, however, states in the region continue to largely sideline climate change action within bilateral and multilateral frameworks, least of all its implications on security dynamics. Ambassador Karim also points out that cooperative mechanisms, like BIMSTEC, have done little in this regard.[138]

National policy frameworks in BoB countries indicate that regional cooperation on offsetting climate risks and addressing ensuing common security risks have not been prioritised yet. Even if climate change is taken up, it continues to be relegated to the bottom rung of policy priorities and thus, starved of diplomatic and financial capital.

137 "Climate Change", Areas of Cooperation, official website of Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC): https://bimstec.org/?page_id=290.

138 Interview conducted by authors.

The discursive focus on climate change within regional organisations like BIMSTEC and bilateral discussions is reactive and event-specific, instead of mitigation- and resilience-centric. Most collaborative frameworks don't take into account long-term climate-induced changes that require large-scale interventions, such as the 2011 MoU between India and Bangladesh on Conservation of the Sundarban.[139]

Climate security challenges are not state-specific, and cannot be effectively dealt with in national or local silos. This is especially true for the BoB, where socioeconomic fragility and climate threats cut across countries. Further, a regional-level framework for climate security circumvents Western dominance in the international climate debate, as separate from the issue of developed-developing country global climate negotiations.

In all, there is an acute lack of political and collective will in the region to consider climate risks as a threat that could destabilise societies and trigger new security challenges. Yet, given that governments in the region accord particularly high priority to security issues, the securitisation of climate threats could spur greater regional cooperation.

8.2 Recommendations

1. **Create a 'climate security working group' (CSWG) within BIMSTEC's 'Climate Change' vertical to facilitate regional knowledge-building and sharing.** The CSWG will act in tandem with the BIMSTEC Centre for Weather and Climate (BCWC), BIMSTEC National Security Chiefs Meeting (BNSC), and the yet-to-be established Track 1.5 BIMSTEC Security Dialogue Forum (BSDF), while also leveraging specific expertise from the Coalition for Disaster Resilient Infrastructure (CDRI). This will create a comprehensive and multidimensional regional mechanism to address the effects of climate threats on regional security.

2. **Countries should develop a framework to acknowledge and address climate-induced distress migration across and within international borders.** This will help countries create common minimum technical standards and norms for their own national policy frameworks with the aim of monitoring and regulating irregular patterns of migration fueled by climate threats. This will, in turn, build a better regional understanding of transnational climate hazards and related conflict-drivers that can pose a threat to national and regional security.

139 Danda, "Environmental Security," 13-14.

3. **Create a multi-agency BoB HA/DR taskforce to develop shared information-gathering and operational capacities to deal with adverse weather events.** This taskforce will comprise representatives from relevant disaster management ministries/departments and defence forces, and sectoral experts from all five countries. It will aim to create better early warning mechanisms, exposure profiles of strategic assets, and emergency response modules.

4. **Incorporate climate security-centric norms and practices into military doctrines, structures and operational modules.** This should include mapping vulnerable domestic hotspots and conflict drivers, developing climate-sensitive technologies and defence equipment, mainstreaming climate change in military intelligence, and allocating funds within the defence budget towards climate risk mitigation activities.

5. **Countries should expand the scope of their national climate policies from short-term response to long-term adaptation.** Focus on building community-level resilience against climate threats within at-risk populations. This should entail a multi-pronged strategy of creating awareness about emerging climate threats, supporting traditional community-level mitigation strategies, encouraging grassroots-level leadership, redirecting central and state-level finances towards new adaptation strategies, and building public-private partnerships to develop innovative mitigation strategies.

6. **Expand the mandate of the SAARC Disaster Management Centre (SDMC).** This will aim to monitor at-risk population groups and assets. A key role that an expanded SDMC can play is to provide both short-term early warning data and long-term granular data on adverse climate events for regional adaptation and mitigation.