Strengthening Regional Policy Frameworks to Better Respond to Environmental Migration: Recommendations for the UK Government

Amelia Dal Pra, Mariam Traore Chazalnoël, and Helen Dempster

Abstract

The Bay of Bengal, the Sahel, and Small Island Developing States (SIDS) are especially vulnerable to the impacts of slow-onset climate events resulting from climate change. Global temperature warming is leading to a dramatic rise in sea levels, which will lead to coastal erosion and land loss across SIDS and the Bay of Bengal. Such warming will also contribute to increasing desertification and water scarcity issues in the Sahel. This environmental damage is irreversible and may seriously threaten economies as well as the daily lives of communities. Without strong policy interventions to bolster in-situ resiliency and increase climate change adaptation and mitigation, including migration, the regions most vulnerable to climate impacts might experience major human security and security crises. This paper provides an analysis of some of relevant regional frameworks that could be useful in addressing environmental migration across these three regions. It concludes that high-income countries such as the UK should do two things: provide financial and technical support to bolster climate adaptation in regions uniquely vulnerable to slow-onset climate events; and support the establishment and / or implementation of regional migration frameworks and free movement agreements (FMAs) that can potentially offer safe, orderly, and regular migration pathways to those affected by the impacts of slow-onset climate events.

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Introduction

Global policy debates surrounding migration are increasingly connected to international climate change policy discussions. Across the globe, both countries vulnerable to climate impacts and populations being affected by environmental disruptions have been calling upon the international community for tangible measures and guiding principles to manage the increasing impacts of climate change on migration patterns.

In the last five years, the momentum surrounding climate action and environmental migration (see box 1), including those displaced internally and across international borders, has led states and international institutions to support the creation of frameworks applicable in countries and regions on the front lines of climate change.[1] In particular, the principles articulated under the 2018 Global Compact for Safe, Orderly, and Regular Migration (GCM)[2] and in the Recommendations[3] developed under the United Nations Framework Convention on Climate Change (UNFCCC) through its Task Force on Displacement (TFD)[4] are important international policy milestones.

These texts illustrate existing political will to address environmental migration and propose tangible actions that states can implement in a context of worsening climate and environmental shocks. While there is no universally binding international protection regime for people moving due to environmental disruptions, some existing approaches are applicable to internal, regional, and international environmental migration, and can provide protection and assistance to people on the move in a changing climate.[5]

As the severity of slow-onset environmental disruptions continues to be exacerbated by climate change in a carbon-intensive world, policies must be forward looking and prepare for a future with an increased number of environmental migrants. Unlike the short-term migration caused by sudden-onset events, slow-onset events can lead to *permanent* and *irreversible* shocks and damage including land degradation and loss, and food and water

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[1] For more information about the legal and policy frameworks supporting those displaced across international borders, please see the supplementary paper to this one: Helen Dempster, Amelia Dal Pra, and Mariam Traore Chazalnoël, *Facilitating Environmental Migration through Humanitarian and Labour Pathways: Recommendations for the UK Government* (Washington DC: Center for Global Development (CGD), 2021), [forthcoming].

[2] Dina Ionesco and Mariam Traore Chazalnoël, "Advancing the Global Governance of Climate Migration through the Unite," *Taylor & Francis*, February 6, 2018, https://www.taylorfrancis.com/chapters/edit/10.4324/9781315109619-7/advancing-global-governance-climate-migration-united-nations-framework-convention-climate-change-global-compact-migration-mariam-traore-chazalnoel-dina-ionesco.

[3] Mariam Traore Chazalnoël, "IOM Perspectives on Climate Change and Migration," International Organization for Migration (IOM) Environmental Migration Portal, https://environmentalmigration.iom.int/blogs/iom-perspectives-climate-change-and-migration.

[4] The Task Force on Displacement (TFD) comprises 13 members, including the International Organization for Migration (IOM), from both within and outside the United Nations Framework Convention on Climate Change (UNFCCC), chosen for their complementarity of expertise. See the UNFCCC website for more information, https://unfccc.int/process/bodies/constituted-bodies/WIMExCom/TFD.

[5] See Annexes 1 and 2.

scarcity.[6] While it is challenging to predict the scope and scale of future slow-onset events, it is important to note that these permanent shocks are predicted to lead to increasing permanent migration.[7] Three geographic groupings are particularly vulnerable to slow-onset environmental disruptions, all addressed in this paper (table 1). The Sahel is vulnerable to *desertification*, which will have impacts on economic livelihoods and contribute to food and water insecurity. Small Island Developing States (SIDS) are particularly vulnerable to *sea level rise* and subsequent loss of land, loss of biodiversity, salinization, and land degradation. Another potential loss is coral bleaching and warming oceans, which may impact livelihoods dependent on tourism. The Bay of Bengal is vulnerable to both *sea level rise* and recurrent *droughts*, which have many implications for livelihoods and are already causing people to migrate.

Table 1. Focus countries for this paper

Region	Countries
The Bay of Bengal	Bangladesh, India (including Andaman and Nicobar Islands), Indonesia, Burma (Myanmar), and Sri Lanka
The Sahel	Burkina Faso, Cameroon, Chad, The Gambia, Guinea, Mauritania, Mali, Niger, Nigeria, and Senegal
Small Island Developing States (SIDS)*	Antigua and Barbuda, The Bahamas, Barbados, Belize, Cabo Verde, Comoros, Cook Islands, Cuba, Dominica, Dominican Republic, Fiji, Grenada, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Singapore, Seychelles, Solomon Islands, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Tuvalu, and Vanuatu

Note: Not technically a region, SIDS are spread throughout the world (see figure 8)

While projections vary, as land becomes increasingly inhospitable across these three groupings, people might move internally, regionally, and internationally. Developing adequate policy responses to anticipate and respond to future challenges is complex, especially considering the lack of international infrastructure and protections for international environmental migrants. Most environmental migration is likely to take place internally or regionally, and there is widespread agreement that regional policy responses are likely to be the most efficient. This paper will therefore focus on regional legal and policy frameworks, their effective implementation, and ways that high-income countries such as the

[6] Internal Displacement Monitoring Centre (IDMC), "Thematic Series: No Matter of Choice: Displacement in a Changing Climate," https://www.internal-displacement.org/sites/default/files/publications/documents/20180608-idmc-economic-impacts-framework_0.pdf.

[7] Internal Displacement Monitoring Centre (IDMC), "Thematic Series: No Matter of Choice: Displacement in a Changing Climate," https://www.internal-displacement.org/sites/default/files/publications/documents/20180608-idmc-economic-impacts-framework_0.pdf.

United Kingdom of Great Britain and Northern Ireland (UK) can bolster these regional frameworks.

If migration continues to grow and shift because of irreversible climate change, and is not managed adequately, there is the potential for major human security and security concerns. These include threats to food and water security, as well as inadequate urban infrastructure to accommodate increased populations.[8] This could cause clashes between culturally, ethnically, and religiously diverse groups, potentially leading to civil unrest, conflict, and destabilization. One example of this is Bangladesh, which faces major land loss and degradation due to sea level rise. Bangladeshi migrants might be forced to move to culturally and ethnically diverse neighbouring countries, like India, where existing refugees and migrants are already facing restrictions and violations. Without pathways to bolster safe, orderly, and regular migration in climate-vulnerable regions, the potential outcomes of inaction could lead to larger migration movements and potentially destabilization in the long-term. The frameworks mentioned in this paper are therefore vital for policymakers.

While this paper concludes there will be an increasing need for international financial and technical support for regional protocols and agreements on environmental migration, action on migration policy has to go hand-in-hand with efforts to reduce global carbon emissions, since the severity of slow-onset events is largely tied to carbon intensive human activity.[9] The UK is uniquely positioned to lead on both of these fronts thanks to its global role in climate change mitigation and adaptation efforts. For example, the UK's role in the development and adoption of the Paris Agreement, national decarbonization efforts, and the political will expressed throughout their COP26 Presidency, have postured the country to lead efforts to address adverse environmental impacts on migration and bolster resilience.[10]

The recent rapid evidence assessment (REA) on the impacts of climate change on migration patterns, commissioned by the UK's Foreign, Commonwealth, and Development Office (FCDO), provides an advanced analysis of the current literature surrounding the nebulous connection between migration patterns and environmental disruptions.[11] Building off the REA, this paper will begin by briefly analysing some of the current environmental changes and natural hazards across the Bay of Bengal, the Sahel, and SIDS, with a particular focus on slow-onset events as drivers of migration. The paper will then outline a limited selection of existing regional protocols, specifically free movement agreements (FMAs), that could help countries manage regional environmental migration. Through a non-exhaustive review of the

[8] Jon Barnett and Neil Adger, "Climate change, human security and violent conflict," *ScienceDirect*, Political Geography 26, no. 6 (2007): 639–655, https://doi.org/10.1016/j.polgeo.2007.03.003.

[9] Vivian Clement, Kanta Kumari Rigaud, Alex de Sherbinin, Bryan Jones, Susana Adamo, Jacob Schewe, Nian Sadiq, and Elhamm Shabaha, *Groundswell Part 2: Acting on Internal Climate Migration* (Washington DC: World Bank, 2021), https://openknowledge.worldbank.org/handle/10986/36248.

[10] "UK Climate Leadership," UN Climate Change Conference (COP26) at the SEC—Glasgow 2021, October 26, 2021, https://ukcop26.org/uk-presidency/uk-climate-leadership/.

[11] Jan Shelby and Gabrielle Daoust, *Rapid Evidence Assessment (REA) on the Impacts of Climate Change on Migration Patterns* (London: Foreign, Commonwealth, and Development Office (FCDO), 2021), https://www.gov.uk/research-for-development-outputs/rapid-evidence-assessment-on-the-impacts-of-climate-change-on-migration-patterns.

implementation of said frameworks, the paper will discuss whether these existing mechanisms can help states manage projected changes in environmental migration patterns and contribute to mitigating the loss and damage caused by climate change. Finally, this paper will provide recommendations on ways the UK Government can support and bolster effective regional responses to environmental migration and prepare for the long-term impacts of slow-onset climate shocks.

Environmental migration: What is driving people to move?

The United Nations (UN) estimates there are over 279 million international migrants across the globe.[12] In addition, at the end of 2020, there were 55 million internally displaced people according to the Internal Displacement Monitoring Centre (IDMC).[13] While the drivers of internal and international migration vary, the decision to move is often rooted in similar considerations. Climate events and environmental impacts already influence the decision to migrate, which is normally multi-causal. This situation is likely to escalate in the years ahead, even with strong climate change mitigation and adaptation measures.[14] This is mainly because already fragile states cannot always cope economically, socially, politically, or structurally with extreme climate events and environmental change, including both slow- and sudden-onset events.[15] Environmental migration can be seen as a way to avoid the loss and damage resulting from climate change and natural disasters.[16] This paper will specifically focus on the reduction of personal and national loss and damage through the bolstering of strong regional mechanisms to support environmental migration.

In some of the most disaster-prone and climate-vulnerable regions, evidence suggests migration represents a strategy to cope with environmental events.[17] This is illustrated by populations moving to escape droughts in Somalia, flooding in Bangladesh, or turbulent weather conditions in Kenya.[18] Yet while many expect an increase in national, regional, and

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[12] United Nations Department of Economic and Social Affairs (UN-DESA), "The Number of International Migrants Reaches 272 Million, Continuing an Upward Trend in All World Regions, Says UN," United Nations (UN), https://www.un.org/development/desa/en/news/population/international-migrant-stock-2019.html.

[13] Internal Displacement Monitoring Centre (IDMC), "Global Internal Displacement Database," https://www.internal-displacement.org/database/displacement-data.

[14] IPCC, "Climate Change 2021: The Physical Science Basis," Sixth Assessment Report, accessed November 10, 2021, https://www.ipcc.ch/report/ar6/wg1/.

[15] Rita Floyd and Richard A. Matthew, *Environmental Security: Approaches and Issues* (Abingdon, Oxon: Routledge, 2013), https://doi.org/10.4324/9780203108635.

[16] Platform on Disaster Displacement (PDD), "United Nations system's mandates with respect to averting, minimizing and addressing displacement related to climate change: considerations for the future," *Platform on Disaster Displacement (PDD)*, July 2018, https://environmentalmigration.iom.int/sites/environmentalmigration/files/document/WIM%20TFD%20II.3%20Output%20final%20-%20updated%20171018.pdf.

[17] Rita Floyd and Richard A. Matthew, *Environmental Security: Approaches and Issues* (Abingdon, Oxon: Routledge, 2013), https://doi.org/10.4324/9780203108635.

[18] Richard Black, Stephen R. G. Bennett, Sandy M. Thomas, and John R. Beddington, "Migration as Adaptation," *Nature* 478 (2011): 447–449, https://www.nature.com/articles/478477a.

international migration due to climate change,[19] the development of safe, regular, and orderly migration pathways and policies remain largely underexplored.

Box 1. Defining "environmental migration"

In this paper, we will use the International Organization for Migration's (IOM) terminology on the links between climate change and migration. IOM defines an "environmental migrant" as:

> *"a person or group(s) of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are forced to leave their places of habitual residence, or choose to do so, either temporarily or permanently, and who move within or outside their country of origin or habitual residence."*[a]

This term, "environmental migration," is also commonly used by leading experts in the field such as the Hugo Observatory at the University of Liège.[b]

We acknowledge the complex relationship between the environment and migration and do not intend to use the term to create a new category of migrant, refugee, or otherwise displaced person. The term "environmental migration" is merely used as shorthand. We also acknowledge that the vast amount of people who move in the context of disasters, climate change, and environmental degradation move internally and regionally, and that the number of people moving internationally is very small.

Using the term environmental migration allows us to account for the variety of movements linked to environmental impacts. While we will be utilizing the term throughout our paper, it is done with the understanding there are many drivers that contribute to migration; environmental disruptions and climate change usually being one among many factors contributing to the decision to migrate.[c] Other drivers that shape the ultimate decision to migrate include inadequate infrastructure to withstand climatic shocks, famine, health crises, conflict, and labour shortages. These drivers are not being dismissed in the usage of this term.[d]

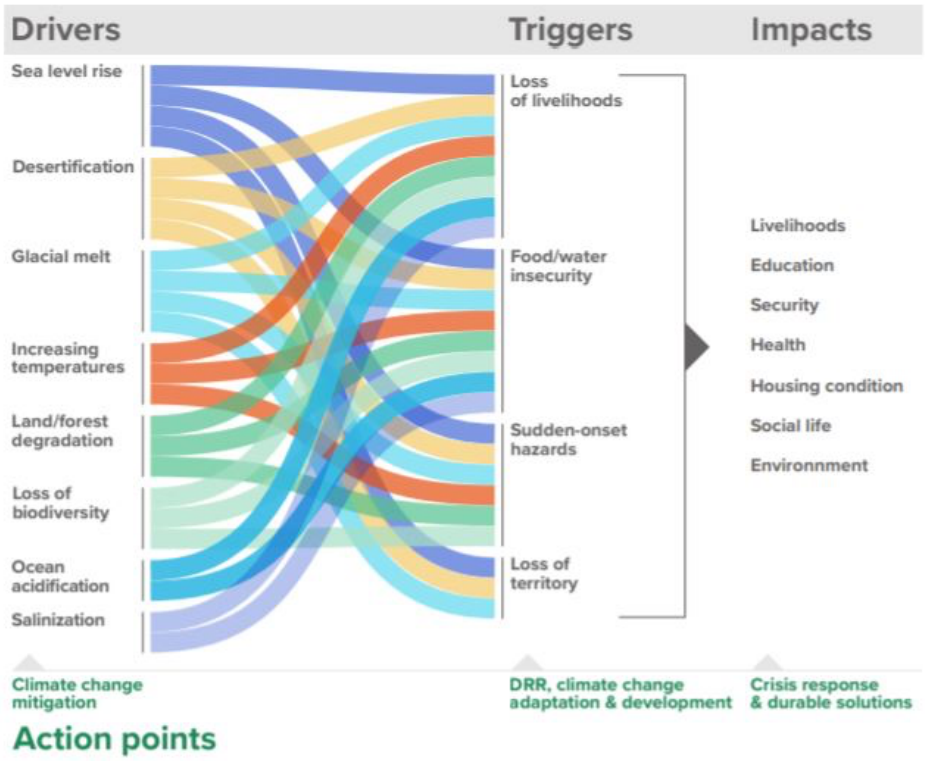
a. International Organization for Migration (IOM), "Glossary on Migration—IOM Online Bookstore," https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf.
b. Caroline Zickgraf, Tatizna Castillo Betancourt, and Elodie Hut (eds.) The State of Environmental Migration 2020: a review of 2019 (Liège: Presses Universitaires de Liège, 2021), https://www.hugo.uliege.be/upload/docs/application/pdf/2021-03/sem_2020.pdf.
c. Dina Ionesco, Daria Mokhnacheva, and François Gemenne, "The Atlas of Environmental Migration," 2017, https://environmentalmigration.iom.int/atlas-environmental-migration.
d. Government Office for Science, Final Project Report: Foresight: Migration and Global Environmental Change (London: The Government Office for Science, 2011), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf.

[19] Government Office for Science, *Final Project Report: Foresight: Migration and Global Environmental Change* (London: The Government Office for Science, 2011),

Slow-onset environmental events

Slow-onset environmental events that might drive people to migrate include rising sea levels, water scarcity, soil degradation, desertification, loss of biodiversity, lower crop productivity, and heat stress.[20] These climate stresses, caused by often irreversible climate changes, take place over a prolonged period of years, and it can be challenging to pinpoint the exact start date of the triggers that lead to slow-onset climate events. Figure 1 reveals the variety of slow-onset drivers, triggers, and impacts that contribute to the decision to migrate.[21]

Figure 1. Drivers, triggers, and impacts of slow-onset environmental disruptions



Source: Internal Displacement Monitoring Centre (IDMC), Thematic Series: No Matter of Choice: Displacement in a Changing Climate (Geneva: IDMC, 2021), https://www.internal-displacement.org/sites/default/files/publications/documents/20180608-idmc-economic-impacts-framework_0.pdf.

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf.

[20] Adelle Thomas, "Climate Change and Small Island Developing States," *Annual Reviews* 45 (2020): 1–27, https://www.annualreviews.org/doi/10.1146/annurev-environ-012320-083355.

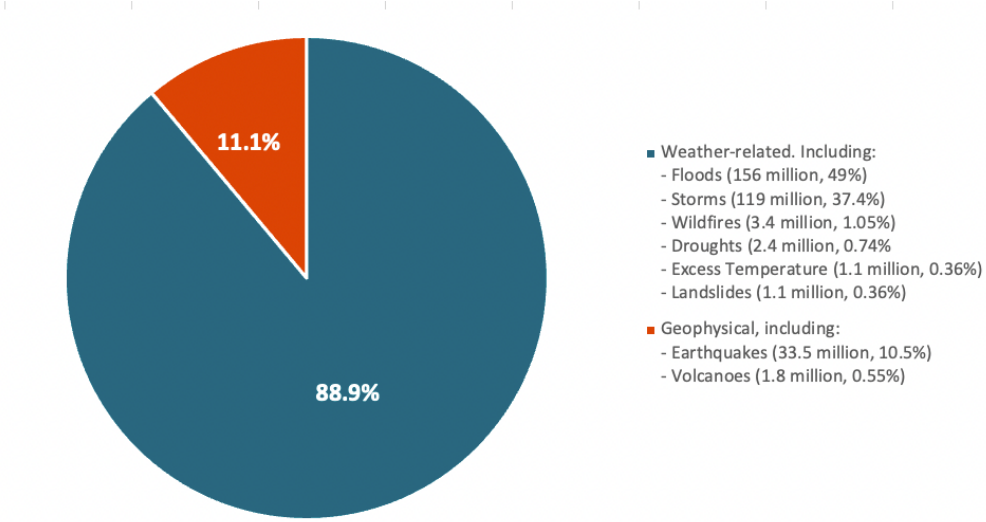
[21] Internal Displacement Monitoring Centre (IDMC), "Thematic Series: No Matter of Choice: Displacement in a Changing Climate," *Internal Displacement Monitoring Centre (IDMC)*, accessed October 2021, https://www.internal-displacement.org/sites/default/files/publications/documents/20180608-idmc-economic-impacts-framework_0.pdf.

As mentioned, these drivers are often irreversible, and the triggers associated with these events impact already complicated socio-economic regional issues that influence migration decision-making. For example, global warming contributes over time to glacial retreat, water salinization, loss of biodiversity, saltwater intrusion, land degradation and, importantly, rising sea levels.[22] These effects of global warming in turn lead to loss of arable land and adverse impacts on agricultural and fisheries production. As a result, some regions of the world might become uninhabitable or at the very least, characterized by increasingly hostile conditions. For example, some estimates suggest that Kiribati could be unfit for human habitation by 2035.[23] As global temperatures continue to rise, the severity of these issues and the number of impacted people will only increase.

Sudden-onset environmental events

Sudden-onset environmental events are often less nebulous than slow-onset. These events typically take place within a finite period or are patterned weather events. These events, including severe storms, cyclones, flooding, and landslides, contribute to 88.9 percent of the annual number of people displaced internally by disasters, as illustrated in figure 2.[24]

Figure 2. New displacements by sudden-onset weather hazards, 2008–2020



Source: Internal Displacement Monitoring Centre (IDMC), 2021 Global Report on Internal Displacement (Geneva: IDMC, 2021), https://www.internal-displacement.org/global-report/grid2021/.

[22] GermanWatch, *Slow-onset Processes and Resulting Loss and Damage—An introduction* (Bonn: GermanWatch, 2021), https://germanwatch.org/sites/default/files/FINAL_Slow-onset%20paper%20Teil%201_20.01.pdf.
[23] Migration Data Portal, "Migration data in Oceania," June 14, 2021, https://migrationdataportal.org/regional-data-overview/oceania.
[24] Internal Displacement Monitoring Centre (IDMC), *2021 Global Report on Internal Displacement* (Geneva: IDMC, 2021), https://www.internal-displacement.org/global-report/grid2021/.

Migration associated with sudden-onset or extreme weather events is often internal, temporary, and circular; it is only sometimes protracted or international.[25] While this paper focuses on slow-onset environmental migration triggers, we are providing an overview of sudden-onset environmental drivers of migration for reference. It is important to note that as slow-onset environmental fragility increases, there will be an increase in sudden-onset events. For example, rising sea levels will lead to stronger currents, more damaging, storms, and more frequent tropical storms.[26]

Box 2. Trapped populations: Drivers, impacts, and outcomes

While many people will move in the face of both slow- and sudden-onset environmental events, other people will not have the ability to move, so-called "trapped populations."[a]

Climate change and environmental degradation may result in diverse migration outcomes but can also lead to forced immobility. Households with low-income levels, few alternative livelihood options, and limited social capital usually have a low capacity to cope with adverse impacts.[b] This means that some populations might not have the financial means or social networks to migrate out of environmentally fragile areas and are exposed to increased levels of risk.

Immobility can also have gendered consequences. In some climate-vulnerable areas, such as the Upper Indus Basin, many women and children are left behind whilst men migrate to find economic opportunities.[c] Such situations can potentially create further layers of vulnerability for women who might need to shoulder increasing domestic and economic burden. In addition, the voices of women left behind are often not being heard and it is difficult to include their perceptions and experiences in policy development and program design and implementation.[d]

Children left behind might also experience negative impacts linked to the absence of one or both parents, such as increased vulnerability to abuse, being forced to make a living which in turns reduces access to education, and adverse psychosocial impacts linked to parental absence.[e] In some contexts, such as the United States-Mexico border, unaccompanied migrant children might travel alone—and face specific protection issues—whilst the rest of the family stays behind. They often originate from areas that are especially vulnerable to climate impacts that might drive the decision to migrate.[f]

[25] Michael Berlemann and Max Friedrich Steinhardt, "Climate Change, Natural Disasters, and Migration—A Survey of the Empirical Evidence," *CESifo Economic Studies* 62, no. 4 (2017): 353–385, https://doi.org/10.1093/cesifo/ifx019.

[26] GermanWatch, *Slow-onset Processes and Resulting Loss and Damage—An introduction* (Bonn: GermanWatch, 2021), https://germanwatch.org/sites/default/files/FINAL_Slow-onset%20paper%20Teil%201_20.01.pdf.

Migration can represent in some cases a way to adapt and cope with the adverse effects of climate change. However, it is also important to consider the cost of immobility in policy discussions related to environmental migration.

a. Trapped populations do not migrate, yet are situated in areas under threat, […] at risk of becoming 'trapped' or having to stay behind, where they will be more vulnerable to environmental shocks and impoverishment. See International Organization for Migration (IOM), "Glossary on Migration—IOM Online Bookstore," https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf.

b. Susanne Melde, Frank Laczko, and François Gemenne (eds.) *Making Mobility Work for Adaptation to Environmental Changes* (Geneva: International Organization for Migration [IOM], 2017), https://publications.iom.int/system/files/pdf/meclep_comparative_report.pdf.

c. International Organization for Migration (IOM), *IOM Outlook on Migration, Environment, and Climate Change* (Geneva: International Organization for Migration (IOM), 2014: 124), https://publications.iom.int/system/files/pdf/mecc_outlook.pdf.

d. International Organization for Migration (IOM), *IOM Submission to the United Nations Framework Convention on Climate Change (UNFCCC) on Climate Change, Migration, and Gender*, September 2019, https://environmentalmigration.iom.int/sites/environmentalmigration/files/document/2019%20September_IOM%20Submission%20to%20the%20UNFCCC%20_%20Gender_0.pdf.

e. Mariam Traore Chazalnoël, Dina Ionesco, and Iulia Elisabeta Duca, *Children on the Move; Why, Where, How?* (Geneva: International Organization for Migration (IOM), 2014), https://environmentalmigration.iom.int/sites/environmentalmigration/files/Children%20on%20the%20Move_%20Why%2C%20Where%2C%20How_0.pdf.

f. Mariam Traore Chazalnoël, Dina Ionesco, and Iulia Elisabeta Duca, *Children on the Move; Why, Where, How?* (Geneva: International Organization for Migration (IOM), 2014: 5), https://environmentalmigration.iom.int/sites/environmentalmigration/files/Children%20on%20the%20Move_%20Why%2C%20Where%2C%20How_0.pdf.

Analysis of climate-vulnerable regions

According to the 2021 Long-Term Climate Risk Index (CRI), some of the most climate-vulnerable countries are, or are or in the same geographic region as, SIDS, as well as countries in the Bay of Bengal and the Sahel.[27] For example, Myanmar, Haiti, The Bahamas, and Bangladesh are all among the most vulnerable countries to climate change hazards, and are in the regions this paper analyses. This measure of vulnerability, developed by Germanwatch, assesses data from 2000 to 2019 that quantifies the impact of climate events on state fragility (table 2).

[27] David Eckstein, Vera Kunzel, and Laura Shafer, *Global Climate Risk Index 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000–2019* (Bonn: GermanWatch, 2021), https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf.

Table 2. The Long-Term Climate Risk Index (CRI):
The 10 countries most affected, 2000–2019 (annual average)

CRI 2000–2019 (1999–2018)	Country	CRI score	Fatalities	Fatalities per 100,000 inhabitants	Losses in million US$ PPP	Losses per unit GDP in %	Number of events (2000–2019)
1 (1)	Puerto Rico	7.17	149.85	4.12	4,149.98	3.66	24
2 (2)	Myanmar	10.00	7,056.45	14.35	1,512.11	0.80	57
3 (3)	Haiti	13.67	274.05	2.78	392.54	2.30	80
4 (4)	Philippines	18.17	859.35	0.93	3,179.12	0.54	317
5 (14)	Mozambique	25.83	125.40	0.52	303.03	1.33	57
6 (20)	The Bahamas	27.67	5.35	1.56	426.88	3.81	13
7 (7)	Bangladesh	28.33	572.50	0.38	1,860,04	0.41	185
8 (5)	Pakistan	29.00	502.45	0.30	3,771.91	0.52	173
9 (8)	Thailand	29.83	137.75	0.21	7,719.15	0.82	146
10 (9)	Nepal	31.33	217.15	0.82	233.06	0.39	

Source: David Eckstein, Vera Kunzel, and Laura Shafer, *Global Climate Risk Index 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000–2019* (Bonn: GermanWatch, 2021), https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf.

The CRI delves into the risk to a state or region from increasingly recurrent climate events, projections on long-term climate variability, the number of people moving due to slow- or sudden-onset events, and the damage to infrastructure and development. In addition to having a high vulnerability score for climate risk, these regions have limited infrastructure to mitigate the growing risk of slow- and sudden-onset climate events.[28]

Many people in the Bay of Bengal, the Sahel, and SIDS are dependent on stable weather patterns for their livelihoods. For example, tens of millions of people in the Sahel are pastoralists.[29] Recurrent droughts in the region have exacerbated social, economic, and even political issues that are leading people to migrate in the region.[30] For SIDS, increasing

[28] Florence De Longueville, Pierre Ozer, François Gemenne, Sabine Henry, Ole Mertz, and Jonas Ø. Nielsen, "Comparing Climate Change Perceptions and Meteorological Data in Rural West Africa to Improve the Understanding of Household Decisions to Migrate," *Climatic Change* 160 (2020): 123–141, https://doi.org/10.1007/s10584-020-02704-7.

[29] Madeline Vellturo, "The Erosion of Pastoralism in the Sudano-Sahel," *Stimson Center*, August 24, 2020, https://www.stimson.org/2020/the-erosion-of-pastoralism-in-the-sudano-sahel/.

[30] Laura Herzer Risi and Maxine Burkett, "Reorienting Perceptions of Climate Change, Migration, & Displacement," *The Wilson Center*, September 30, 2020, https://www.wilsoncenter.org/article/reorienting-perceptions-climate-change-migration-displacement.

rainfall, flash floods, and sea level rise threaten livelihoods that are dependent on tourism and agricultural productivity.[31]

Regional patterns and trends

According to a recent report by the Internal Displacement Monitoring Center (IDMC), there have been approximately 24.5 million people moving globally due to disasters every year since 2008.[32] Many of these people are displaced in low- and middle-income settings, including in the regions surveyed in this report. The World Bank's 2021 *Groundswell Part II* report on environmental migration predicts that between 44 million and 216 million people might migrate internally due to environmental stress and degradation in North Africa, Sub-Saharan Africa, Eastern Europe and Central Asia, East Asia and the Pacific, and Latin America by 2050.[33] This figure includes those moving due to both slow- and sudden-onset environmental drivers. However, as detailed in the REA, these projected numbers may not be completely accurate, given what we know about migrant decision-making.[34] These projections also represent a potential worst-case scenario, if policies and measures adopted and implemented are insufficient. That being said, it is more urgent than ever to reshape global, regional, and national migration governance to ensure that any movement is well managed.

The projections on the number of people who will be impacted by slow-onset climate events are varied. However, some predict hundreds of millions will be vulnerable if sea level rises to 0.32 meters by 2050 and 0.84 meters by 2100.[35] Other projections find that 268–286 million people will be at risk of coastal flooding by 2030. Between 72 and 187 million people in the Caribbean, Indian Ocean, and the Pacific Islands will be vulnerable to coastal erosion and flooding due to sea level rise.[36] Not every person exposed to risks will want, or have the means to, migrate out of affected areas. However, slow-onset impacts will have widespread

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[31] Radio New Zealand (RNZ), "Sea Level Rise Worse in Pacific than other regions," *The Cuba Press*, October 12, 2018, https://www.rnz.co.nz/international/pacific-news/368514/sea-level-rise-worse-in-pacific-than-other-regions.

[32] Internal Displacement Monitoring Centre (IDMC) and Norwegian Refugee Council, *2021 GRID on Internal Displacement in a Changing Climate*,
2021, https://www.internal
displacement.org/sites/default/files/publications/documents/grid2021_idmc.pdf#page=26?v=2.

[33] Vivian Clement, Kanta Kumari Rigaud, Alex de Sherbinin, Bryan Jones, Susana Adamo, Jacob Schewe, Nian Sadiq, and Elhamm Shabaha, *Groundswell Part 2 : Acting on Internal Climate Migration* (Washington DC: World Bank, 2021), https://openknowledge.worldbank.org/handle/10986/36248.

[34] Jan Shelby and Gabrielle Daoust, *Rapid Evidence Assessment (REA) on the Impacts of Climate Change on Migration Patterns* (London: Foreign, Commonwealth, and Development Office (FCDO), 2021),
https://www.gov.uk/research-for-development-outputs/rapid-evidence-assessment-on-the-impacts-of-climate-change-on-migration-patterns.

[35] Scott A. Kulp and Benjamin H. Strauss, "New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding," *Nature Communications* 10, no. 4844 (2019), https://doi.org/10.1038/s41467-019-12808-z.

[36] Robert J. Nicholls, Natasha Marinova, Jason A. Lowe, Sally Brown, Pier Vellinga, Diogo de Gusmao, Jochen Hinkel, and Richard S. J. Tol, "Sea-level rise and its possible impacts given a 'beyond 4°C world' in the twenty-first century," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 369, no. 1934 (2011): 161–181, https://doi.org/10.1098/rsta.2010.0291.

impacts on already stressed infrastructures, societies, and economies, especially those relying on eco- and environmental tourism and agriculture for social, political, and economic stability.[37] Therefore, slow-onset changes may eventually contribute to the decision[38] to migrate, depending on the impacts experienced on lives and livelihoods.[39]

Without the security and stability provided by adequate infrastructure, some communities might struggle to adapt and cope with changing environments. Others will face land degradation, with some regions rendered unhospitable. The longer-term implications of global warming and varied weather patterns may also lead to other water-related issues, including water shortages, which has the potential to impact millions as well.[40] Table 3 below presents different kinds of slow-onset climate events and the related projections on their scope of impact. Table 4 outlines current environmental drivers of migration within the focal regions of this paper along with the current figures and projections on slow- and sudden-onset environmental migration.

While the World Bank, IDMC, and the IOM Migration Data Portal each have figures on internal or international migration, there are no consistent sources on country-by-country internal and international environmental migration. This represents a clear gap in terms of policy development and prioritization of efforts. Having a better sense of the number of people moving internally and internationally due to climate events can only help inform national and regional policymakers on where to allocate resources and bolster migration mechanisms to support vulnerable communities.

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[37] Internal Displacement Monitoring Centre (IDMC), *Thematic Series: No Matter of Choice: Displacement in a Changing Climate* (Geneva: IDMC, 2021), https://www.internal-displacement.org/sites/default/files/publications/documents/20180608-idmc-economic-impacts-framework_0.pdf.

[38] Mariam Traore Chazalnoël, "Migration in the context of the slow onset impacts of climate change: Taking stock and taking action," *World Migration Report 2022 (WMR)* (Geneva: IOM, 2022) [forthcoming].

[39] Barbara Neumann, Athanasios T. Vafeidis, Juliane Zimmermann, and Robert J. Nicholls, "Future coastal population growth and exposure to sea-level rise and coastal flooding: a global assessment," *PLOS One* 10, no.6 (2015), https://doi.org/10.1371/journal.pone.0118571.

[40] Andrea Milan, Robert Oakes, and Jillian Campbell, *Tuvalu: Climate Change and Migration: Relationships Between Household Vulnerability, Human Mobility, and Climate Change*, Report No. 18 (Bonn: United Nations University, Institute for Environment and Human Security (UNU-EHS), November 2016), https://collections.unu.edu/eserv/UNU:5856/Online_No_18_Tuvalu_Report_161207_.pdf.

Table 3. Slow-onset environmental drivers of migration, future projections

Type of Event	Projected Number of People Impacted
Sea level rise Coastal Flooding Loss of land Increased Severity of Storms Salinization	Projection 1: 268 to 286 million (at risk of coastal flooding) by 2100.[41] Projection 2: 72 to 187 million vulnerable to loss of land and flooding (Caribbean, Indian Ocean, and Pacific) by 2030.[42]
Desertification Loss of biodiversity Land degradation Loss of crop productivity Food and water scarcity	Projection 1: Global population living in drylands projected to increase to by 43 percent to 4 billion, by 2050.[43] Projection 2: Severity of droughts to increase by 50–200 percent over most of Americas, Europe, Africa, Australia. Widespread crop shortages and land degradation will be tied to these droughts.[44] Projection 3: By 2025, 1.8 billion will live in water scare regions and two-thirds of the global population in water stressed regions.[45]

[41] Scott A. Kulp and Benjamin H. Strauss, "New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding," *Nature Communications* 10, no. 4844 (2019), https://doi.org/10.1038/s41467-019-12808-z.

[42] Robert J. Nicholls, Natasha Marinova, Jason A. Lowe, Sally Brown, Pier Vellinga, Diogo de Gusmao, Jochen Hinkel and Richard S. J. Tol, "Sea-level rise and its possible impacts given a 'beyond 4°C world' in the twenty-first century," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 369, no. 1934 (2011): 161–181, https://doi.org/10.1098/rsta.2010.0291.

[43] Robert Scholes, Luca Montanarella, Anastasia Brainich, Nichole Barger, Ben ten Brink, Matthew Cantele, Barend Erasmus, Judith Fisher, Toby Gardner, Timothy G. Holland, Florent. Kohler, Janne. S. Kotiaho, Graham Von Maltitz, Grace Nangendo, Ram Pandit, John Parrotta, Matthew D. Potts, Stephen Prince, Mahesh Sankaran, and Louise Willemen (eds.), *The Assessment report on Land Degradation and Restoration: Summary for Policymakers* (Bonn: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018), https://ipbes.net/sites/default/files/spm_3bi_ldr_digital.pdf.

[44] Tianbao Zhao and Aiguo Dai, "The magnitude and causes of global drought changes in the twenty-first century under a low–moderate emissions scenario," *Journal of Climate* (2021): 4490–4512, https://doi.org/10.1175/JCLI-D-14-00363.1.

[45] Intelligence Community Assessment, *Global Water Security* (Washington DC: U.S. Office of the Director of National Intelligence, February 2, 2012), https://www.dni.gov/files/documents/Special%20Report_ICA%20Global%20Water%20Security.pdf.

Table 4. Slow- and sudden-onset environmental drivers of migration, current figures, and future projections

Region	Slow- and sudden-onset environmental drivers	Consequences	Existing data—number of people displaced internally by disasters	Projected number of internal migrants by 2050
The Bay of Bengal	*Slow* Sea level rise Desertification *Sudden* Coastal flooding Tropical Storms Earthquakes	Salinization Land degradation Loss of land Loss of biodiversity Food and water scarcity	*South Asia:* 9.3 million in 2020	*South Asia:* between 16.9 and 35.7 million
The Sahel	*Slow* Desertification Extreme heat *Sudden* Heat waves Flash flooding	Loss of biodiversity Land degradation Food and water scarcity	*Sub-Saharan Africa:* 4.3 million in 2020	*Sub-Saharan Africa:* between 28.3 and 71.1 million
Small Island Developing States (SIDS)	*Slow* Sea level rise *Sudden* Coastal flooding Earthquakes Tropical Storms	Loss of land Loss of biodiversity Food and water scarcity Salinization	*East Asia and the Pacific (includes many SIDS):* 12.1 million in 2020	*East Asia and the Pacific:* between 20.2 and 36.2 million

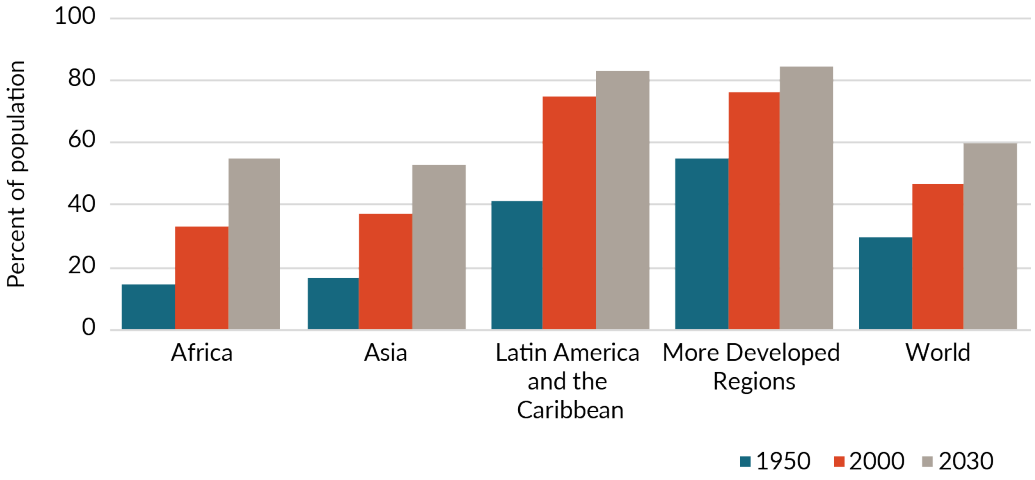
Sources: Vivian Clement, Kanta Kumari Rigaud, Alex de Sherbinin, Bryan Jones, Susana Adamo, Jacob Schewe, Nian Sadiq, and Elhamm Shabaha, *Groundswell Part 2 : Acting on Internal Climate Migration* (Washington DC: World Bank, 2021), https://openknowledge.worldbank.org/handle/10986/36248; and Internal Displacement Monitoring Centre (IDMC) and Norwegian Refugee Council, *2021 GRID Internal Displacement in a Changing Climate* (Geneva: Internal Displacement Monitoring Centre (IDMC), 2021), https://www.internal-displacement.org/sites/default/files/publications/documents/grid2021_idmc.pdf#page=26?v=2.

Unfortunately, there is no detailed data available on *international migration* linked to the slow-onset drivers presented in tables 3 and 4. This is because it is challenging to make projections on environmental migration when there are many variables involved and when the decision to migrate is multi-causal.[46]

[46] Robert Scholes, Luca Montanarella, Anastasia Brainich, Nichole Barger, Ben ten Brink, Matthew Cantele, Barend Erasmus, Judith Fisher, Toby Gardner, Timothy G. Holland, Florent. Kohler, Janne. S. Kotiaho, Graham Von Maltitz, Grace Nangendo, Ram Pandit, John Parrotta, Matthew D. Potts, Stephen Prince, Mahesh Sankaran, and Louise Willemen (eds.), *The Assessment report on Land Degradation and Restoration: Summary for Policymakers* (Bonn:

Urbanization is projected to continue increasing in the coming decades (figure 3). Worsening slow- and sudden-onset climate events might drive more people to move from rural to urban areas in search of better livelihood options and more secure environments. Unmanaged migration towards cities might however add additional stress on city capacity to offer services and infrastructure. As urban areas become more densely populated, this could also add another layer of challenge when slow-onset changes and disasters affect cities with little capacity and poor infrastructure to cope with environmental stressors.[47]

Figure 3. Regional trends in urbanization, 1950–2030



Source: Population Reference Bureau, "Climate Change impacts and Emerging Population Trends: A Recipe for Disaster?", October 1, 2021, https://www.prb.org/resources/climate-change-impacts-emerging-population-trends-disaster/.

The Bay of Bengal

Environmental migration drivers and patterns

The Bay of Bengal, which contains many low-lying islands, and Bangladesh, a low-lying delta, is prone to massive land loss due to sea level rise and the entire region is extremely vulnerable to extreme tropical storms.[48] Sea level rise in Bangladesh is estimated to exacerbate population displacement as the land mass continues to shrink; by 2050 an

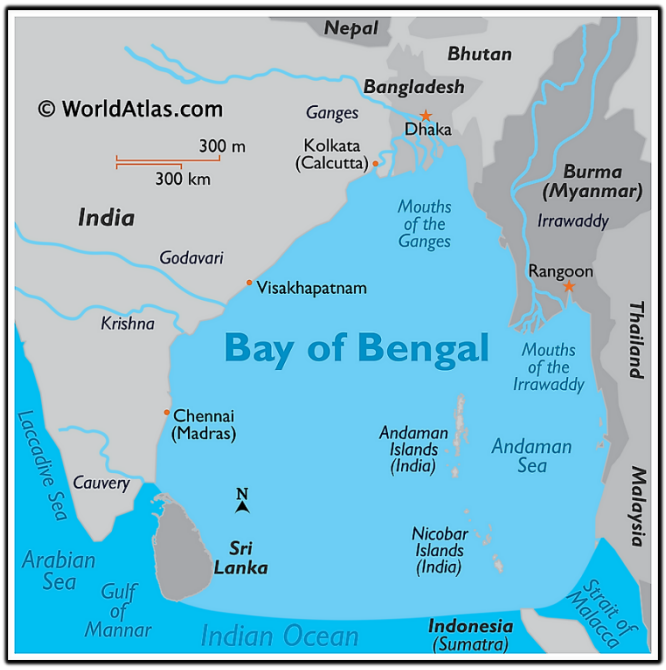
Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2018), https://ipbes.net/sites/default/files/spm_3bi_ldr_digital.pdf.

[47] Population Reference Bureau, "Climate Change impacts and Emerging Population Trends: A Recipe for Disaster?," October 1, 2021, https://www.prb.org/resources/climate-change-impacts-emerging-population-trends-disaster/.

[48] Ministry of Environments and Forests and Ministry of Finance of the People's Republic of Bangladesh, "Bangladesh: Linking Climate Science to Climate Policy and Practice," May 2018, https://www.climateinvestmentfunds.org/sites/cif_enc/files/dialogue_session_1.1_shamshur_khan_bangladesh.pdf.

estimated one in every seven people in Bangladesh could migrate due to climate events and 11 percent of Bangladesh land will be underwater.[49]

Figure 4. A map of the Bay of Bengal



Source: John Misachi, "Bay of Bengal," WorldAtlas, February 4, 2021, https://www.worldatlas.com/bays/bay-of-bengal.html.

A study from the Island of Hatia in Bangladesh, seems to indicate a trend in migration from rural areas to urban centres to cope with environmental events.[50] This study revealed that 22 percent of households migrated to cities following tidal surges and more than 15 percent chose to migrate following erosion of riverbanks.[51] Sea level rise also threatens the low-lying Andaman and Nicobar Islands and some of these islands may face inhabitability in the years to come.[52]

The coastal erosion experienced by Bangladesh and other low-lying countries in the Bay of Bengal is predicted to continue to decrease biodiversity and lead to permanent land

[49] Environmental Justice Foundation, "Climate Displacement in Bangladesh," accessed October 2021, https://ejfoundation.org/reports/climate-displacement-in-bangladesh.

[50] P.R. Rajalakshmi and Hema Achyuthan, "Climate Change as Observed in the Bay of Bengal," *Journal of Climate Change* 7, no. 3 (2021): 69–82, https://content.iospress.com/articles/journal-of-climate-change/jcc210020.

[51] Government Office for Science, *Migration and Global Environmental Change: Future Challenges and Opportunities* (London: Government Office for Science, 2011), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf.

[52] The Times of India, "Andaman, Nicobar Islands may not be inhabitable in future due to rise in sea level: IPCC," September 25, 2019, https://timesofindia.indiatimes.com/india/andaman-nicobar-islands-may-not-be-inhabitable-in-future-due-to-rise-in-sea-level-ipcc/articleshow/71298163.cms.

degradation.[53] This land degradation and increasing salinization of water[54] is already impacting crop yields, agriculture, and aquaculture centres across the Bay of Bengal and is predicted to increase dramatically in the next thirty years.[55]

Salinization will specifically impact rice production, which is expected to decline by 12 percent.[56] The practice of aquaculture, including fisheries and shrimp farming, is also linked to massive pollution issues, coral reef destruction, and increased land degradation across Bangladesh. Aquaculture will continue to exacerbate the long-term impacts of land degradation and the discontinuation of maladaptive practices will impact communities economically. People across Bangladesh are now citing the pollution caused by aquaculture as a contributing factor to their decision to migrate (mostly internally).[57]

There is also evidence that sudden-onset events are increasing *temporary* displacement across the Bay of Bengal, as the region is especially vulnerable to monsoons, cyclones, and flooding.[58] Bangladesh is extremely vulnerable to cyclones, with its most deadly cyclone in recent history being Cyclone Bhola in 1970, when more than 500,000 people lost their lives.[59] Myanmar is at risk for increasing floods, droughts, and climate events, which will likely exacerbate an already politically tense country plagued by genocide and conflict.[60] Given the salinization of water, depleted fish stocks are increasing the risk of future food security issues throughout the region.[61]

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[53] Kabir Uddin, Kundan Shrestha, and Rajesh Bahadur Thapa, "Natural coastal land expansion offers hope to low-lying Bangladesh," *Servir Hindu Kush Himalaya*, May 3, 2021, https://servir.icimod.org/news/natural-coastal-land-expansion-offers-hope-to-low-lying-bangladesh.

[54] Anirban Nath, Sourav Samanta, Saon Banerjee, Anamitra Anurag Danda, and Sugata Hazra, "Threat of arsenic contamination, salinity and water pollution in agricultural practices of Sundarban Delta, India, and mitigation strategies," *SN Applied Sciences* 3, no. 560 (2021), https://doi.org/10.1007/s42452-021-04544-1.

[55] Eduardo Garcia, "Rising Salinity batters Bay of Bengal farmers," *CorrectIV*, July 28, 2017, https://correctiv.org/en/latest-stories/sea-level-rising/2017/07/28/rising-salinity-batters-bay-of-bengal-farmers/.

[56] Anirban Nath, Sourav Samanta, Saon Banerjee, Anamitra Anurag Danda, and Sugata Hazra, "Threat of arsenic contamination, salinity and water pollution in agricultural practices of Sundarban Delta, India, and mitigation strategies," *SN Applied Sciences* 3, no. 560 (2021), https://doi.org/10.1007/s42452-021-04544-1.

[57] Bishwajit Ghose, "Fisheries and Aquaculture in Bangladesh: Challenges and Opportunities," SciMedCentral 1, no. 1 (2014): 1001, https://www.jscimedcentral.com/Aquaculture/aquaculture-1-1001.php.

[58] Eduardo Garcia, "Rising Salinity batters Bay of Bengal farmers," *CorrectIV*, July 28, 2017, https://correctiv.org/en/latest-stories/sea-level-rising/2017/07/28/rising-salinity-batters-bay-of-bengal-farmers/.

[59] Tahmina Hadi, Md. Sirajul Islam, Denise Richterm, and Bapon (SHM) Fakhruddin, "Seeking Shelter: The factors that influence refuge since Cyclone Gorky in the Coastal Area of Bangladesh," *Progress in Disaster Science* 11 (October 2021), https://doi.org/10.1016/j.pdisas.2021.100179.

[60] United Nations Environment Programme, "Myanmar Gears up for Action on Climate Change," April 21, 2020, https://www.unep.org/news-and-stories/story/myanmar-gears-action-climate-change.

[61] Mohammad Arju, "Jailing fishers won't safe the fish of the Bay of Bengal," *China Dialogue: Ocean*, June 3, 2020, https://chinadialogueocean.net/13955-jailing-fishers-wont-save-bay-of-bengal-fish/.

Climate experts estimate that rainfall across India has increased threefold since the 1950s.[62] The increased rainfall has led to increased floods and landslides that have devastated India. The increasing temperatures across the country have led to droughts in some regions and the thawing of glaciers and increasing avalanches in others.[63] The World Bank predicts more than half of the population of India, millions living nearby the Bay of Bengal, will have lower standards of living by 2050.[64] The daily lives of inhabitants of the region are adversely affected by climate and environmental impacts. These disruptions might in turn influence the decision to migrate to cope with and adapt to changing environments.

Regional policy developments of relevance to environmental migration

The Colombo Process (CP) is a state-led, non-binding, regional consultative process on migration, bringing together states from South and South-East Asia. The twelve Asian countries active in the CP[65] are discussing mechanisms and ways to implement safe and regular migration pathways for workers.[66] The CP is meant to be mutually beneficial for both countries of origin and destination by encouraging greater cooperation on the management of labour migration.[67]

Every member of the CP is experiencing an increase in the number of labour migrants originating from other member countries.[68] Many of these migrants are temporary labour migrants who are moving seasonally and are from areas vulnerable to sudden-onset climate shocks. Labour migration supports vulnerable communities to make a living whilst helping to fill in labour gaps in countries of destination. Considering the detrimental consequences of climate change on livelihoods in some of the CP countries, providing enhanced safe, regular, and orderly labour migration pathways could benefit migrants, their communities, and Member States. CP members could examine ways to facilitate labour migration out of areas experiencing the worse of climate impacts and ensure that this migration takes place in conditions that are safe and fair for the workers. Such labour migration partnerships could be on a seasonal or temporary basis, based upon the needs of countries of origin and destination.

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[62] Murali Krishnan, "Climate Change: IPCC warns India of Extreme Heat Waves, Droughts," *Deutsche Welle*, August 8, 2021, https://www.dw.com/en/india-climate-change-ipcc/a-58822174.

[63] Ryan Plano, "Himalayan Glacier Disaster Shows Importance of Listening to Experts and Locals Alike," *Climate Refugees*, February 11, 2021, https://www.climate-refugees.org/spotlight/tag/India.

[64] World Bank Group, "Climate Change Could Depress Living Standards in India, says New World Bank Report," June 28, 2018, https://www.worldbank.org/en/news/press-release/2018/06/28/climate-change-depress-living-standards-india-says-new-world-bank-report.

[65] Members include Afghanistan, Bangladesh, Cambodia, China, India, Indonesia, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, and Vietnam.

[66] The Colombo Process, "Overview of Colombo Process," *International Organization for Migration (IOM) and Swiss Agency for Development and Cooperation (SDC)*, https://www.colomboprocess.org/about-the-colombo-process.

[67] Migrant Forum in Asia (MFA), "Colombo Process," https://mfasia.org/mfa_programs/advocacy/colombo-process/.

[68] Dovelyn Rannveig Agunias and Christine Aghazarm, *Labour Migration From Colombo Process Countries: Good Practices, Challenges and Ways Forward* (Geneva: International Organization for Migration (IOM), May 2012), https://www.migrationpolicy.org/pubs/ColomboProcessBrief.pdf.

Enhancing adaptation and resilience through human mobility in the region

Countries in the region are using human mobility in different ways when faced with environmental impacts. In recent history, anticipatory evacuations have also helped reduce the number of lives lost due to sudden-onset climate events. For example, during the 2017 Cyclone Mora, the Government of Bangladesh evacuated hundreds of thousands of people ahead of the storm; a relatively small number of lives (seven) was lost.[69] In 2020, Cyclone Amphan resulted in thousands of planned evacuations and only 22 deaths.[70]

Some governments across West Bengal are also initiating long-term internal relocations in order to mitigate the number of livelihoods threatened by flooding and extreme storms.[71] In the 1960s, the Government of Bangladesh constructed 139 artificial islands to relocate vulnerable groups.[72] The government moved people to these artificial islands, especially focusing on populations vulnerable to land degradation, sea level rise, and coastal erosion. Today, more than eight million people reside on these artificial islands which are now built up with vegetation to prevent coastal erosion. Yet, these artificial islands are now themselves vulnerable to rising sea levels.

While there have been substantial advancements in government protocols surrounding permanent and temporary relocations, and planned evacuations, these kinds of interventions should be a last resort, considering the immense impacts on populations and the logistical and financial cost of moving entire communities. Recent studies suggest that some populations refuse to leave due to fear of property loss.[73] Many are also reluctant to upend their lives and leave their ancestral lands. Yet, in some contexts, permanent planned relocations might be a way to reduce the impacts of extreme loss and damage of assets for migrants, and could help prevent instances of trapped populations unable to migrate out of dangerous areas. Planned relocations are currently happening within countries, but there might be a tipping point in the future when cross-border planned relocation might need to be considered in the region. This would mean looking at new legal and regulatory challenges, as well as working within regional political economies. In any case, strong and well managed

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[69] Tom Di Liberto, "Cyclone Mora hits vulnerable Bangladesh," *National Oceanic and Atmospheric Administration (NOAA)*, June 9, 2021, updated July 16, 2021, https://www.climate.gov/news-features/event-tracker/cyclone-mora-hits-vulnerable-bangladesh.

[70] Tahmina Hadi, Md. Sirajul Islam, Denise Richter, and Bapon (SHM) Fakhruddin, "Seeking Shelter: The factors that influence refuge since Cyclone Gorky in the Coastal Area of Bangladesh," *Progress in Disaster Science* 11 (October 2021): https://doi.org/10.1016/j.pdisas.2021.100179.

[71] Colette Mortrux, Ricardo Safra de Camposa, Neil Adger, Tuhin Ghosh, Shouvik Das, Helen Adams, and Sugata Hazra, "Political Economy of planned relocation: a model of action and inaction in government responses," *Global Environmental Change* 50 (May 2018): 123–132, https://doi.org/10.1016/j.gloenvcha.2018.03.008.

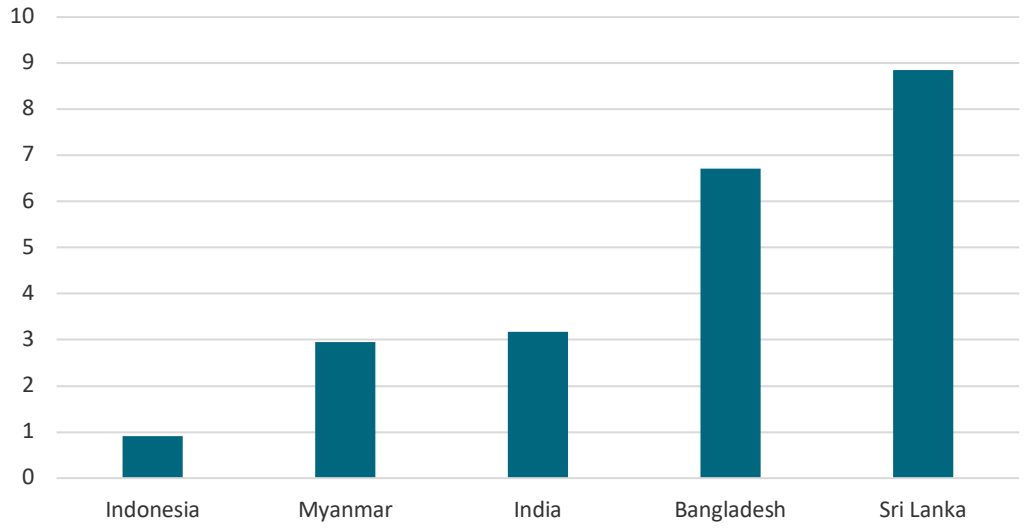
[72] Warren Cornwall and Tanmoy Bhaduri, "As Sea Levels Rise, Bangladeshi Islanders Must Decide Between Keeping the Water Out—Or Letting It In," *Pulitzer Center*, March 2, 2018, https://pulitzercenter.org/stories/sea-levels-rise-bangladeshi-islanders-must-decide-between-keeping-water-out-or-letting-it.

[73] Eduardo Garcia, "Rising Salinity batters Bay of Bengal farmers," *CorrectIV*, July 28, 2017, https://correctiv.org/en/latest-stories/sea-level-rising/2017/07/28/rising-salinity-batters-bay-of-bengal-farmers/.

national relocation measures, conducted in a participatory way with affected communities, might be an option for vulnerable communities.

Facilitating migration could also increase remittances, which have been shown to play a role in strengthening household coping ability to cope with climate impacts. Recent studies on social resilience in rural Bangladesh indicate that remittances are improving resilience through supporting the building of stronger economic infrastructure and increasing education access.[74] While the overall percentage of gross domestic product (GDP) attributed to remittances received across the Bay of Bengal is less than other regions analysed in this paper, the two most climate-vulnerable countries in the region—Sri Lanka and Bangladesh—have the highest percentage of GDP in 2020 based upon remittances, at 8.85 and 6.7 percent respectively (figure 5). Supporting the development of new migration pathways, or making existing pathways more accessible to people originating from areas vulnerable to climate change, could help increase remitting habits. With the right regulatory framework—such as one that lowered the cost of financial transfers—remittances could help communities of origin reduce their environmental vulnerability through investments in climate proof infrastructure or more sustainable farming practices. Increased remittances could also bolster domestic GDP and help national governments invest in climate action.

Figure 5. The Bay of Bengal: Personal remittances received, 2020 (% of GDP)



Source: The World Bank Group, "Personal remittances, received (% of GDP)—Sri Lanka, Bangladesh, India, Myanmar, Indonesia," accessed September 2021, https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?locations=LK-BD-IN-MM-ID.

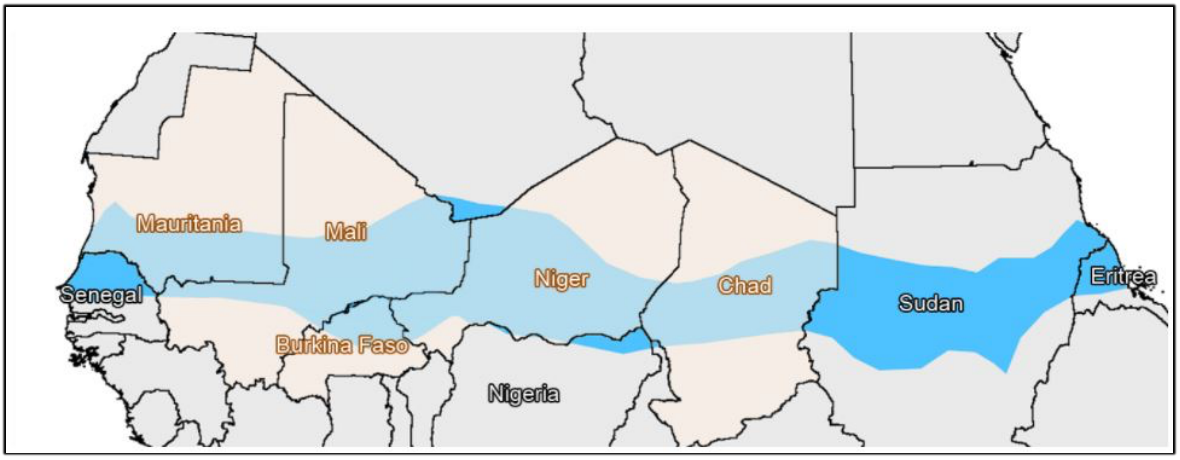
[74] Mohammad Jalal Uddin Sikder and Vaughan Higgins, "Remittances and social resilience of migrant households in rural Bangladesh," *Migration and Development* 6, no.2 (2017): 253–275, https://doi.org/10.1080/21632324.2016.1142752.

The Sahel

Environmental migration drivers and patterns

Throughout sub-Saharan Africa, climate change is impacting livelihoods: nearly all people in sub-Saharan Africa reside in drought-prone areas.[75] In the Sahel, rising temperatures and declining rates of precipitation are increasingly causing extreme events, like droughts and flooding.[76] While the region has contributed the least to global emissions levels, it is suffering the most from climate shocks as a climate change "hotspot."[77] This is especially true since its population relies heavily on weather patterns and crop yields for survival; in the Sahel region, most of the 150 million inhabitants are dependent on agriculture for their livelihoods.[78] Temperatures in the Sahel are expected to rise 1.5 times faster than the average of the rest of the world.[79]

Figure 6. Map of the Sahel



Source: Office of the Special Envoy for the Sahel, "Sahel Map," United Nations, accessed October 2021, https://oses.unmissions.org/map.

[75] Congressional Research Service, "Sub-Saharan Africa: Key Issues and U.S. Engagement," February 17, 2021, https://doi.org/10.1016/j.gloenvcha.2018.03.008.

[76] Chandni Singh, Garima Jain, Vibhas Sukhwani, and Rajib Shaw, "Losses and damages associated with slow-onset events: urban drought and water insecurity in Asia," *Current Opinion in Environmental Sustainability* 50 (June 2021): 72–86, https://doi.org/10.1016/j.cosust.2021.02.006.

[77] Scott Fields, "Continental Divide: Why Africa's Climate Change Burden is Greater," *Environmental Health Perspectives* 113, no. 8 (August 2005), https://doi.org/10.1289/ehp.113-a534.

[78] United Nations Office for the Coordination of Humanitarian Affairs (OCHA), "The Sahel: Converging Challenges, Compounding Risks: A Region Under High Pressure," January 2016, https://reliefweb.int/sites/reliefweb.int/files/resources/Sahel%20Info%20Sheet%20Jan%202016.pdf.

[79] Julie Mayans, "The Sahel at the Heart of Climate Change Issues," *Solidarites International*, March 16, 2020, https://www.solidarites.org/en/live-from-the-field/the-sahel-in-the-midst-of-climate-change/.

Across the Sahel, rainfall, severe drought, and flooding are all jeopardizing the work of pastoralists.[80] The Intergovernmental Panel on Climate Change (IPCC) predicts that agricultural yields will fall by 20 percent every decade by the end of the 21st century in some areas of the Sahel.[81] Already, these recurrent droughts are disrupting livelihoods and driving migration. For example, the East Africa drought of 2011, caused in part by changing weather patterns, heat, and decreasing precipitation, led to widespread poor crop yields and caused more than 11.5 million people to be at risk of famine across Somalia, Kenya, and Ethiopia.[82] It caused the largest humanitarian crisis in the world at the time, with millions internally and internationally displaced.[83]

In September 2020, severe flooding affected more than 700,000 Sahelians, displacing hundreds of thousands of people.[84] Many of those impacted were already in conflict-vulnerable regions, including Burkina Faso and Mali. Unfortunately, it is challenging to calculate the impact of climate shocks across the Sahel. This knowledge gap hinders policy development and the implementation of appropriate measures. There is evidence, however, that through strong adaptation mechanisms and an increase in infrastructure capacity, the Sahel can better cope and adapt in-situ.[85] Therefore, a focus on climate adaptation could reduce the adverse environmental drivers of migration and help avoid displacement.

Regional policy developments of relevance to environmental migration

Across the Sahel, some binding conventions are applicable, including the 1969 Convention Governing the Specific Aspects of Refugee Problems in Africa, the 2009 Kampala Convention of the African Union (AU), and the 1979 Economic Community of West African States (ECOWAS) Protocol on Free Movement of People and Goods. These conventions and protocols are landmarks as they seek to provide binding protection to people fleeing slow- and sudden-onset climate events, unlike other non-binding regional approaches.

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[80] Luis Gustavo Barioni, Tim G. Benton, Mario Herrero, Murukesan Krishnapillai, Emma Liwenga, Prajal Pradhan, Marta G. Rivera-Ferre, Tek Sapkota, Francesco N. Tubiello, and Yinlong Xu, *Special Report: Special Report on Climate Change and Land: Food Security* (Geneva: Intergovernmental Panel on Climate Change (IPCC), 2021), https://www.ipcc.ch/srccl/chapter/chapter-5/.

[81] Mohamed A. Abdrabo, Ama Essel, Christopher Lennard, Jonathan Padgham, and Penny Urquhart, "Adaptation, and Vulnerability. Part B: Regional Aspects," contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge: Cambridge University Press, 2021), https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap22_FINAL.pdf.

[82] Andrew Seal and Rob Bailey, "The 2011 Famine in Somalia: lessons learnt from a failed response?," *Conflict and Health* 7, no. 22 (2012), https://doi.org/10.1186/1752-1505-7-22.

[83] Oxfam, *East Africa Food Crisis: Poor rains, poor response*, Oxfam Briefing Note, July 20, 2011, https://oxfamilibrary.openrepository.com/bitstream/handle/10546/137669/bn-east-africa-food-crisis-200711-en.pdf;jsessionid=8ABFAE1FE5BF0CE99663B14CF150D4EC?sequence=1.

[84] UN News, "Deadly flooding adds new danger to communities fleeing Sahel violence," September 24, 2020, https://news.un.org/en/story/2020/09/1073452.

[85] Andrew Seal and Rob Bailey, "The 2011 Famine in Somalia: lessons learnt from a failed response?," *Conflict and Health* 7, no. 22 (2012), https://doi.org/10.1186/1752-1505-7-22.

The Sahel also includes countries that participate in FMAs. For example, six of the nine Sahelian countries are Member States of ECOWAS: Burkina Faso, The Gambia, Mali, Niger, Nigeria, and Senegal. Under the ECOWAS Protocol on Free Movement of People and Goods, citizens of ECOWAS Member States have the right of free mobility and can work in all Member States without visas.[86] This means that, technically, citizens experiencing environmental degradation or facing disasters linked to climate impacts are able to move cross-border with basic identification papers and an ECOWAS travel certificate. In 1985, a "brown card scheme" was initiated to indicate which vehicles had permits to travel between Member States, aiming to facilitate free movement for international motorists within the community.[87]

In theory, the Protocol should be able to facilitate migration linked to adverse climate impacts. In practice, the uneven implementation of the Protocol reduces some of its potential benefits (table 5). If these issues were resolved, this protocol has the potential to increase resilience of people in regions especially vulnerable to recurrent climate events by facilitating temporary, circular, or even permanent movement. Economic cooperation communities can allow for a creative implementation of free movement measures that can help populations adapt to climate impacts.[88] Such agreements, like the Protocol, have provided a strong foundation for robust legal and policy pathways for environmental migrants.[89]

[86] Ayodeji Aduloju, "ECOWAS Protocol on Free Movement and Trans-border Security in West Africa," *Journal of Civil and Legal Sciences* 4 (2015): 154, http://dx.doi.org/10.4172/2169-0170.1000154.
[87] Aderanti Adepoju, Alistair Boulton, and Mariah Levin, *Promoting Integration Through Mobility: Free movement and the ECOWAS Protocol*, Research Paper no. 150 (Geneva: UNHCR Policy Development and Evaluation Service, December 2007), https://www.unhcr.org/476650ae2.pdf.
[88] African Union, "Protocol To The Treaty Establishing The African Economic Community Relating to Free Movement of Persons, Right of Residence, and Right of Establishment," January 29, 2018, https://au.int/sites/default/files/treaties/36403-treaty-protocol_on_free_movement_of_persons_in_africa_e.pdf.
[89] Human Rights Council, "The slow onset effects of climate change and human rights protection for cross-border," Annual report of the *United Nations High Commissioner for Human Rights and reports of the Office of the High Commissioner and the Secretary-General*, March 22, 2018, https://www.ohchr.org/Documents/Issues/ClimateChange/SlowOnset/A_HRC_37_CRP_4.pdf.

Table 5. The implementation of selected initiatives of the ECOWAS Protocol on Free Movement of Persons and Goods, 2007

Country *Date of ratification of 1979 Protocol*	Abolition of visa and entry requirements for 90-day stay	Implementation of ECOWAS travel certificate	Harmonized immigration and emigration forms	National committee for monitoring free movement of persons and vehicles	ECOWAS Brown Card scheme
Benin *January 4, 1981*	●	○	○	●	●
Burkina Faso *April 6, 1982*	●	●	○	●	●
Cape Verde *June 11, 1984*	●	○	○	○	N/A
Côte d'Ivoire *January 19, 1981*	●	○	○	○	●
The Gambia *October 30, 1980*	●	●	○	○	●
Ghana *April 8, 1980*	●	●	○	○	●
Guinea *October 17, 1979*	●	●	○	○	●
Guinea Bissau *August 20, 1979*	●	○	○	○	●
Liberia *April 1, 1980*	●	○	○	○	○
Mali *June 5, 1980*	●	○	○	●	●
Niger *January 11, 1980*	●	●	○	●	●
Nigeria *September 12, 1979*	●	●	○	●	●
Senegal *May 24, 1980*	●	○	○	●	●
Sierra Leone *September 15, 1982*	●	●	○	○	●
Togo *December 9, 1979*	●	○	○	●	●

Note: ○ = Not Yet Implemented; ● = Implemented

Source: Aderanti Adepoju, Alistair Boulton, and Mariah Levin, *Promoting Integration Through Mobility: Free movement and the ECOWAS Protocol*, Research Paper no. 150 (Geneva: UNHCR Policy Development and Evaluation Service, December 2007), https://www.unhcr.org/476650ae2.pdf.

Importantly, the foundation of the Protocol is the OAU Convention Governing the Specific Aspects of Refugee Problems in Africa. It allows for "events seriously disturbing public order" to justify refugee status. The OAU definition of a refugee was evoked in 2011 and 2012 to receive Somali migrants fleeing drought and famine across East Africa, which allowed for thousands of Somalis to be resettled in Kenya and Ethiopia.[90]

The Kampala Convention[91] also protects *internally* displaced persons (IDPs) fleeing their homes, including from natural disasters.[92] This Convention explicitly provides legal protections for individuals internally migrating, and argues states are responsible to protect those displaced.[93] It builds upon the UN's non-binding 1998 Guiding Principles (see annex 1), though the Protocol is binding for its Member States. It is historic in the protections it provides for internal environmental migrants.[94] This convention is one step closer toward binding or international protections for IDPs, including those moving due to environmental shocks.[95]

More than a decade since its inception, the Convention's membership has increased from 15 to 30 Member States (see annex 2). The Convention has supported domestic policies and legislation across Member States; some countries have even adopted new, more inclusive laws. For example, Niger implemented and adopted the Convention. Central African Republic, Liberia, Mali, and South Sudan also have laws established for the implementation of the Convention.[96] Nigeria's National Commission on Refugees, Migrants and Internally Displaced Persons Act also includes Convention provisions. In addition, the Convention has led to widespread coordination across Member States, which has helped with the development of effective responses to internal displacement, including due to climate events.

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[90] Walter Kälin and Sabine Balk, "Interview: Deciding Whether to Migrate and Where to Go," *Platform on Disaster Displacement*, last modified September 17, 2019, https://perma.cc/MTP3-8A2U.

[91] Albert Kraler, Caitlin Katsiaficas, and Martin Wagner, "Climate Change and Migration: Legal and Policy Challenges and Responses to Environmentally Induced Migration," *Policy Department for Citizen's Rights and Constitutional Affairs of the European Parliament*, July 2020, accessed September 2021, https://www.europarl.europa.eu/RegData/etudes/STUD/2020/655591/IPOL_STU(2020)655591_EN.pdf.

[92] African Union, "African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa: (Kampala Convention)," *International Journal of Refugee Law* 22 (2010): 119–135, https://doi.org/10.1093/ijrl/eeq012.

[93] Adama Dieng, "Protecting internally displaced persons: the Value of the Kampala Convention as a regional example," *International Review of the Red Cross* 99, no. 1 (2017): 263–282, https://doi.org/10.1017/S1816383117000613.

[94] Flavia Zorzi Giustiniani, "New Hopes and Challenges for The Protection of IDPs in Africa: The Kampala Convention for The Protection and Assistance of Internally Displaced Persons in Africa," *Denver Journal of International Law & Policy* 39, no. 5 (2021): 347–370, https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1184&context=djilp.

[95] Adama Dieng, "Protecting internally displaced persons: the Value of the Kampala Convention as a regional example," *International Review of the Red Cross* 99, no. 1 (2017): 263–282, https://doi.org/10.1017/S1816383117000613.

[96] International Committee of the Red Cross (ICRC), "The Kampala Convention: Key Recommendations Ten Years On," January 27, 2020, https://www.icrc.org/en/document/kampala-convention-key-recommendations-ten-years.

Regional adaptation and resilience projects

ECOWAS has instituted a Climate Change Project Steering Committee to create community resilience and support adaptation to climate change.[97] The Committee has led workshops on resilience and methods for the strengthening of national and regional climate adaptation strategies, and has worked directly with the UNFCCC to advocate for regional needs of ECOWAS Member States.[98] In the Intergovernmental Authority of Development (IGAD) region there is a program created with a special focus on assistance for people vulnerable to displacement due to slow- and sudden-onset events. The World Bank's Project for Sahel Pastoralism (PRAPS) works directly with vulnerable populations to provide mechanisms for coping and adapting to the extreme and patterned weather in the region.[99] This program provides direct support to pastoralist communities, through direct cash transfers to eligible groups, and water salinization programs to support resilience in drought-prone regions.

As with many other climate-vulnerable regions, migrants are supporting adaptation and resilience of the Sahel region through remittances. Many Sahelians have migrated to either Northern or Southern African countries. According to data on remitting patterns across Africa, Sahelian migrants typically remit twice as much as other African migrants.[100] For example, the World Bank data on 2020 personal remittances received as a percentage of GDP across the Sahel range from 15.64 percent in the Gambia to 0.788 percent of GDP in Mauritania (with limited data on Chad, as seen in figure 7). These figures indicate that while the role remittances play in economies varies throughout the Sahel, a future increase in migrants could potentially support growth and resilience.

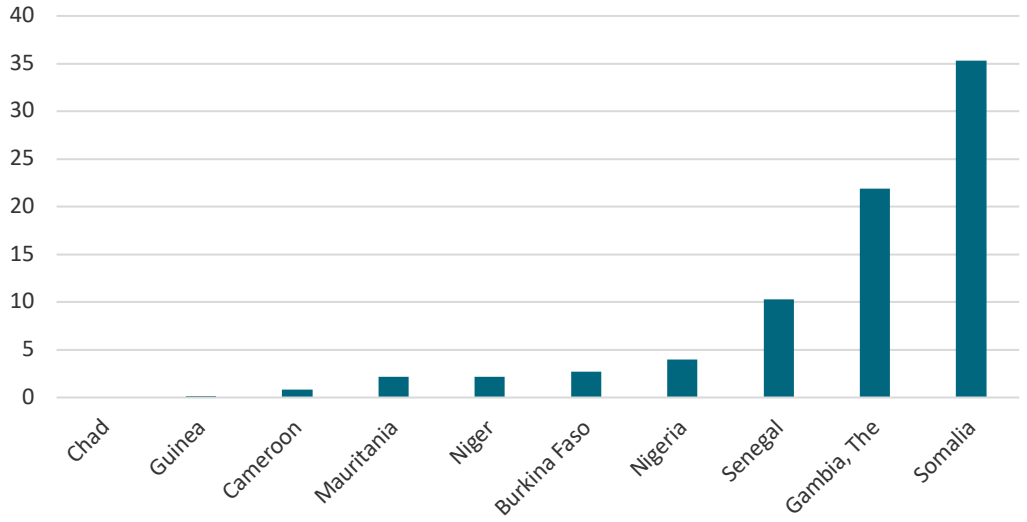
[97] Economic Community of West African States (ECOWAS), "ECOWAS Strengthens regional capacity to adapt to Climate change," April 30, 2019, https://www.ecowas.int/ecowas-strengthens-regional-capacity-to-adapt-to-climate-change/.

[98] United States Agency for International Development (USAID), Coastal Resource Center, Climate Change Resilient Development, and Economic Community of West African States (ECOWAS), "Workshop Proceedings: West Africa Coastal Climate Change: National Adaptation Planning Workshop," June 2013, accessed September 2021, https://www.crc.uri.edu/download/WestAfricaNAPWorkshop.pdf.

[99] Alliance Sahel, "Regional Support Project for Sahel Pastoralism: Perpetuating pastoral activities in all countries of the region—PRAPS)," accessed October 2021, https://www.alliance-sahel.org/en/projects/regional-sahel-pastoralism-support-project-praps/.

[100] Albert Bollard, David McKenzie, and Melanie Morten, "The Remitting Patterns of African Migrants in the OECD," *Journal of African Economies* 19, no. 5 (2010): 605–634, https://doi.org/10.1093/jae/ejq031.

Figure 7. The Sahel: Personal remittances received, 2020 (% of GDP)



Source: The World Bank Group, "Personal remittances, received (% of GDP)—Niger, Mauritania, Mali, Burkina Faso, Chad, Cameroon, Nigeria, Senegal, The Gambia, Guinea," accessed October 2021, https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?end=2020&locations=NE-MR-ML-BF-TD-CM-NG-SN-GM-GN&start=2020&view=bar.

Small Island Developing States (SIDS)

Environmental migration drivers and patterns

Despite their low contribution to global emissions, small island developing states (SIDS) are particularly vulnerable to the effects of climate change, especially those in the Pacific.[101] They are essentially on the "front lines of climate change."[102] The 65 million people currently residing in SIDS are affected by sea level rise, salinization of water, coastal erosion, and land loss and degradation.[103] There have already been cases in the South Pacific where islands have disappeared due to rising tides and sea levels; Kepidau en Pehleng and Nahlapenlohd are two such former islands.[104] Today, islands at risk for inhabitability and for total disappearance include Tuvalu, Kiribati, the Carteret Islands, the Marshall Islands, Micronesia, Trinidad, Tobago, the Solomon Islands, and Pohnpei. Islands across the

[101] Alice Klein, "Eight low-lying Pacific Islands swallowed whole by rising seas," *New Scientist*, September 7, 2017, https://www.newscientist.com/article/2146594-eight-low-lying-pacific-islands-swallowed-whole-by-rising-seas/.
[102] Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle, and Kevon Rhiney, "Climate Change and Small Island Developing States," *Annual Review of Environment and Resources* 45 (2020): 1–27, https://doi.org/10.1146/annurev-environ-012320-083355.
[103] International Organization for Migration (IOM) and the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS), *Climate Change and Migration in Vulnerable Countries: A snapshot of least developed countries, landlocked developing countries and small island developing states* (Geneva: IOM, 2019), https://publications.iom.int/system/files/pdf/climate_change_and_migration_in_vulnerable_countries.pdf/.
[104] Alice Klein, "Eight low-lying Pacific Islands swallowed whole by rising seas," *New Scientist*, September 7, 2017, https://www.newscientist.com/article/2146594-eight-low-lying-pacific-islands-swallowed-whole-by-rising-seas/.

Caribbean, as well as Seychelles and Mauritius, are also grappling with similar problems. For some SIDS, planned relocation may be the only solution. Given their unique reliance on land for livelihoods, and the ongoing threat to existence as global temperatures continue to rise, the UN has recognised these island states as a "special group."[105]

Figure 8. Map of Small Island Developing States (SIDS)

Source: Marlene Attzs, "Supporting small island states," Commonwealth Scholarships, accessed October 2021, https://cscuk.fcdo.gov.uk/ck-articles/supporting-small-island-states/,

While the longer-term existence of SIDS is threatened by slow-onset climate events, sudden-onset events are restricting economic development, tourism, and agriculture-based work. The increasing occurrence of cyclones, marine heatwaves, and flash flooding, have led to diminished economic production in fisheries and up to 50 percent loss of GDP for some tourist-dependent islands.[106] Examples of such extreme events are Hurricane Maria in 2017 which led to a 225 percent loss of GDP in Dominica; Cyclone Pam in 2005 which caused a 64 percent loss of GDP across Vanuatu; and Cyclone Winston in 2016, which displaced 130,000 people across Fiji.[107] These climate events not only trigger mobility, both internal and international, they are leading to major economic losses for SIDS, which are already struggling to develop given limited infrastructure and capacity. The vulnerability of the

[105] Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle, and Kevon Rhiney, "Climate Change and Small Island Developing States," *Annual Review of Environment and Resources* 45 (2020): 1–27, https://doi.org/10.1146/annurev-environ-012320-083355.

[106] Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle, and Kevon Rhiney, "Climate Change and Small Island Developing States," *Annual Review of Environment and Resources* 45 (2020): 1–27, https://doi.org/10.1146/annurev-environ-012320-083355.

[107] Adelle Thomas, April Baptiste, Rosanne Martyr-Koller, Patrick Pringle, and Kevon Rhiney, "Climate Change and Small Island Developing States," *Annual Review of Environment and Resources* 45 (2020): 1–27, https://doi.org/10.1146/annurev-environ-012320-083355.

region is dually rooted in the lack of ability to adapt and build capacity to internally manage vulnerability due to lack of resources.

Regional policy developments of relevance to environmental migration

The increasing impact of environmental disruptions across SIDS has led some to choose migration as an adaptation strategy. Like the ECOWAS Protocol on Free Movement of People, the economic integration schemes of the Caribbean Community (CARICOM), founded in 1973, and the Organization of Eastern Caribbean States (OECS), founded in 1981, have both provided mechanisms for temporary and permanent relocations for populations proceeding sudden-onset events, such as hurricanes.[108]

The CARICOM and OECS protocols call for the (a) absorption of populations impacted and seeking resettlement following the extreme climate events; (b) permanent resettlement and protected migrants through *non-refoulment* regardless of ability to provide necessary documentation; and allow for (c) expedited or even waived labour visas for skilled workers to allow for quick entry.[109] These FMAs were invoked after Hurricane Maria in 2017; Antigua, St. Vincent, Grenada, and St. Lucia all utilized the CARICOM and OECS frameworks to provide six-month visa-free stay for Dominican migrants fleeing their hurricane ravaged island.[110]

These free movement mechanisms allow for a flexible and effective means of facilitating migration of individuals confronted to extreme climate impacts. The OECS and CARICOM frameworks are interesting because of their scope. They are not only concerned with admission of environmental migrants, but also speak to the need for integration, strong pathways for workforce entry, and resettlement for vulnerable groups. Looking at a future when slow-onset events might drive further migration, these two frameworks might be increasingly utilised in the Caribbean region. Since they have also been applied on the ground on several occasions, examining lessons learned from implementation might be extremely useful to the other regions discussed in this paper.

Regional adaptation and resilience projects

In 1990, some low-lying islands and SIDS formed the Alliance of Small Island States (AOSIS) to provide a platform to call for more international support for climate resilience and adaptation mechanisms. Since its establishment, AOSIS has implemented the SIDS

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[108] Ama Francis, *Free Movement Agreements and Climate Induced Migration: A Caribbean Case Study* (Colombia: Sabin Center for Climate Change Law, Columbia Law School, September 2019), http://columbiaclimatelaw.com/files/2019/09/FMAs-Climate-Induced-Migration-AFrancis.pdf.

[109] Kristen Lowitt, Arlette Saint Ville, Caroline S. M. Keddy, Leroy E. Phillip, and Gordon M. Hickey, "Challenges and opportunities for more integrated regional food security policy in the Caribbean Community," *Regional Studies, Regional Science* 3, no. 1 (April 2016): 368–378, https://doi.org/10.1080/21681376.2016.1209983.

[110] Ama Francis, *Free Movement Agreements and Climate Induced Migration: A Caribbean Case Study* (Colombia: Sabin Center for Climate Change Law, Columbia Law School, September 2019), http://columbiaclimatelaw.com/files/2019/09/FMAs-Climate-Induced-Migration-AFrancis.pdf.

Accelerated Modalities of Action (SAMOA) Pathway in 2014.[111] This program created an international framework to create a modality for SIDS to communicate and support sustainable development to create climate resilience, partnerships, and mechanisms for support. The SAMOA pathway priorities range from sustainable development to preserving biodiversity, mitigating climate change, and maintaining safe, drinkable water.

Importantly, the pathway specifically focuses on feasibility and implementation as core to its programming model. Through workshops, events, and convenings, the pathway brings together leaders of Member States for discussions and presentations to discuss hurdles to implementation and improving implementation in various contexts.[112] While the pathway is more of a convening and communication centre for SIDS, it calls upon the international and regional financial institutions to support implementation of development programming across the islands, especially since capacity and resources are especially limited for SIDS.

Notably, AOSIS, after calling upon the international community through the SAMOA Pathway, was successful in having the situation of SIDS mentioned in the UNFCCC.[113] This is especially important since SIDS are the most vulnerable to slow-onset, and irreversible, climate events. Prior to the lobbying of AOSIS, the UNFCCC did not mention the particular and unique vulnerability of SIDS to the harsh realities of climate change. The National Adaptation Program of Action (NAPA) has historically focused on SIDS and their climate vulnerability; a program on implementing the NAPA was created through UNFCCC to support climate adaptation mechanisms for climate-vulnerable regions in the Global South.[114]

In addition to the strong adaptation and development programming through the SAMOA pathway and AOSIS more broadly, migrants are strengthening economies and building resilience in SIDS through remittances. For example, the Tuvaluan economy is largely driven by remittances, historically accounting for over one third of the Tuvaluan GDP; up to 42.34 percent of households received remittances in 2002.[115] Many Tuvaluans travelled to other SIDS for work in mining, including Kiribati and Nauru. The depletion of many natural resources in Kiribati and Nauru led to a reduction of remittances.[116] However, today, less

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[111] United Nations (UN) Trinidad and Tobago, Aruba, Curacao, and Sint Maarten, "The Samoa Pathway," accessed September 2021, https://www.untrinidadandtobago.org/the-samoa-pathway/.

[112] United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS), *SIDS Accelerated Modalities of Action (S.A.M.O.A.) Pathway* (Geneva: UN-OHRLLS, September 2014), http://prdrse4all.spc.int/sites/default/files/samoa-pathway.pdf.

[113] United Nations Framework Convention on Climate Change (UNFCCC), "Climate Change: Small Island Developing States (SIDS)," 2005, https://unfccc.int/resource/docs/publications/cc_sids.pdf.

[114] UNHCCC, "NAPA Priorities Database," https://unfccc.int/topics/resilience/workstreams/national-adaptation-programmes-of-action/napa-background.

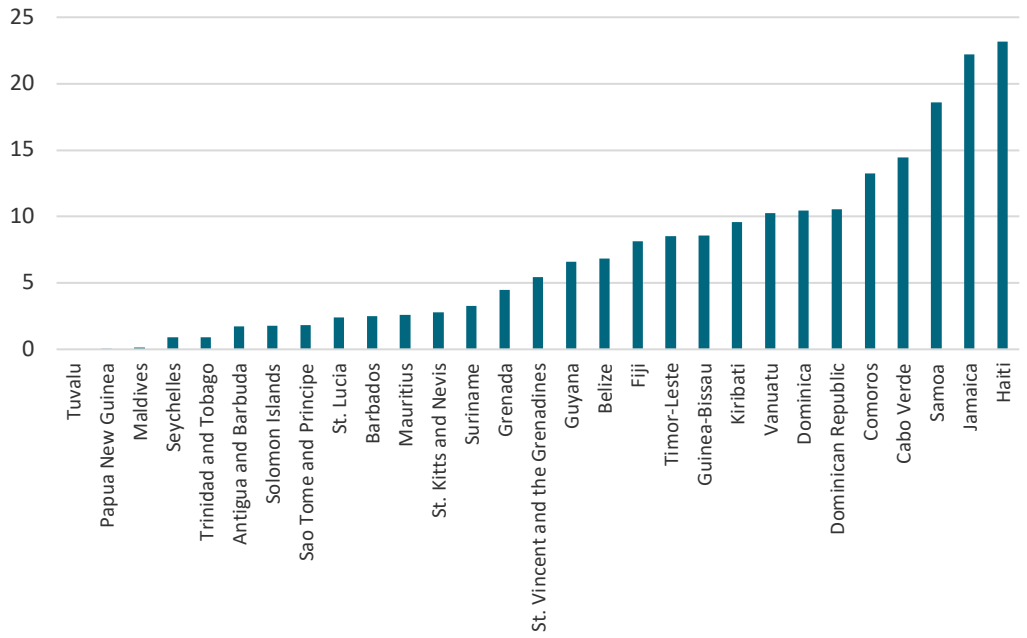
[115] Andrea Milan, Robert Oakes, and Jillian Campbell, *Tuvalu: Climate Change and Migration: Relationships Between Household Vulnerability, Human Mobility, and Climate Change*, Report No. 18 (Bonn: United Nations University, Institute for Environment and Human Security (UNU-EHS), November 2016), https://collections.unu.edu/eserv/UNU:5856/Online_No_18_Tuvalu_Report_161207_.pdf.

[116] The World Bank Group DataBank, "Personal remittances, received (% of GDP): Tuvalu," accessed September 2021, https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?locations=TV.

than one percent of Tuvaluan households receive remittances outside the island.[117] After 2002, remittances were received largely through Pacific labor mobility initiatives like the Pacific Australia Labour Mobility scheme (PALM).[118] As with Tuvalu, remittances historically play a large role in bolstering the resiliency of the economies of SIDS and will continue to do so.

Figure 9 outlines World Bank data on remittance behaviour throughout SIDS. It is important to note that the World Bank does not have remitting data on the Cook Islands or Niue. Personal remittances make up 23.2 percent of GDP in Haiti, 21.4 percent in Jamaica, and 18.6 percent in Samoa. Less data is currently available on Suriname, Papua New Guinea, and Tuvalu (despite Tuvalu's historically high figures). Notably, personal remittances make up 10 percent of annual GDP in nine SIDS. Given this, facilitating safe, orderly, and regular migration pathways, and supporting remittances, will continue to be essential for economies across SIDS.

Figure 9. SIDS: Personal remittances received, 2020 (% of GDP)



Source: The World Bank Group DataBank, "Personal remittances, received (% of GDP): Antigua and Barbuda, Bahamas, The, Barbados, Belize, Cabo Verde, Comoros, Cuba, Dominica, Dominican Republic, Fiji, Grenada, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Micronesia, Fed. Sts., Nauru, Palau, Papua New Guinea, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Samoa, Sao Tome and Principe, Singapore, Seychelles, Solomon Islands, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Tuvalu, Vanuatu," accessed September 2021, https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?contextual=default&end=2020&locations=

[117] The World Bank Group DataBank, "Personal remittances, received (% of GDP): Tuvalu," accessed September 2021, https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?locations=TV.

[118] Australian Government, "Introducing the Pacific Australia Labour Mobility Scheme," https://www.dese.gov.au/seasonal-worker-programme.

AG-BS-BB-BZ-CV-KM-CU-DM-DO-FJ-GD-GW-GY-HT-JM-KI-MV-MH-MU-FM-NR-PW-PG-KN-LC-VC-WS-ST-SG-SC-SB-SR-TL-TO-TT-TV-VU&start=2020&view=bar.

Note: The Bahamas, Cuba, the Federated States of Micronesia, the Marshall Islands, Nauru, Palau, Singapore, and Tonga reported no remittance data in 2020.

Analysis of regional migration policies and programming

As current figures and projections on environmental migration often hinge on a variety of multi-causal social and political factors including state fragility, economic strength, governance, infrastructure, and the ability to cope during (and following) climate shocks, the policy response mechanisms must be equally as comprehensive. To complicate things further, since sudden-onset and severe weather events often result in different outcomes than slow-onset events, the policy responses we evaluate should offer different mechanisms. Given the multifaceted nature of climate shocks and their local impact, regional contexts and credible projections should also be considered when analysing specific policies.

Current gaps in research hinder the development of comprehensive policy analysis of existing measures. This paper examines a narrow selection of existing policy responses in the three regions and tries to evaluate their relevance and effectiveness. The results of this policy analysis could help guide high-income country efforts, including those implemented by the UK, to support the development and implementation of regional legal and policy frameworks to facilitate environmental migration.

While we are aware that our analysis is limited to policy and programming in the three regions analysed here, we hope this analysis is useful in working to determine the status of environmental migration policies and the gaps in policy and protection (see more in annex 1). We are not attempting to draw universal truths but trying to identify practices that have the potential to be replicable and scalable throughout the region and elsewhere. We aim to conduct a straight-forward analysis to better understand *who* is employing policies, whether the policies are *legally binding*, in *which states* the policy applies, whether the policy or framework has been *effectively utilized*, and whether it will *adequately address* projections on internal and international environmental migration flows in the future.

Through a survey of the current regional policies employed across the three regions discussed, some of the most effective mechanisms are those that leverage migration as an effective tool to adapt to worsening climate impacts. While each region does face unique vulnerabilities to environmental disruptions, as discussed, two common and effective frameworks have been: (a) the creation of convening spaces to discuss safe, orderly, and regular migration pathways, determining best practices for implementing climate adaptation and resilience programming; and (b) the establishment of FMAs. Though some regions have already established legally binding frameworks for the explicit protection of environmental migrants, like the Kampala Convention, others are non-binding and informal, like the Colombo Process (CP). All, however, aim to determine how to best implement safe, regular, and orderly migration pathways for people that decide to move. Through an analysis of the

below conventions, protocols, and convenings, we will assess which already existent and effective frameworks the UK can support to facilitate regional environmental migration.

The Bay of Bengal: The Colombo Process (CP)

In the Bay of Bengal, the Colombo Process (CP) facilitates migration and aims to build resilience in climate-vulnerable communities. Creating a strong platform for regional convenings to discuss and monitor migration movements, create climate change mitigation tools, and develop mutually beneficial migration pathways will be a win-win for all participating states. Though this consultative process does not explicitly create protections for environmental migrants and is non-binding, it provides a means for countries to coordinate on their contextual migration and capacity needs and could be a space for discussions on providing future regional protocols and longer-term protections for protracted environmental migration patterns.

The CP has been implemented through the creation of bilateral agreements and memoranda of understanding. Since the creation of this process, there has been a steady flow of labour migrants through official channels. In 2010, just five years after its creation, more than 4.2 million labour migrants migrated through the official channels created by the consultative process.[119] This also allows for more remittances to be sent home, increasing resilience in climate-stressed communities. The challenge, like with other programs, is with implementation: each CP Member State must work to implement the processes on its own. Through additional investments in capacity building, knowledge sharing, and continuing strong dialogue between Member States, this process can be used to effectively bolster and support and bolster regional environmental migration in the years to come.[120]

The Sahel: The Kampala Convention and the ECOWAS Protocol on Free Movement of People and Goods

Across the Sahel, one framework (the Kampala Convention) and one protocol (the ECOWAS Protocol on Free Movement of People and Goods) set a strong foundation to build resilience and support migration. The Kampala Convention is unique as it is the first legally binding framework of its kind for internal migrants, explicitly including those moving due to slow- and sudden-onset environmental disruptions. This regional framework has been adopted in more than 30 Member States since inception, so the value-add of this protective framework could be widespread across Africa. For this to be realised, however, there needs to be adequate support for national and regional implementation.[121] This Convention also

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[119] Dovelyn Rannveig Agunias and Christine Aghazarm, *Labour Migration From Colombo Process Countries: Good Practices, Challenges and Ways Forward* (Geneva: International Organization for Migration (IOM), May 2012), https://www.migrationpolicy.org/pubs/ColomboProcessBrief.pdf.

[120] International Organization for Migration (IOM), "Labour migration from Colombo Process countries Good practices, challenges and ways forward," (Geneva: IOM, October 2015), https://publications.iom.int/books/labour-migration-colombo-process-countries-good-practices-challenges-and-ways-forward.

[121] United Nations High Commissioner for Refugees (UNHCR), "UNHCR calls for robust implementation of the "historic and ground breaking" Kampala Convention," April 6, 2017, https://www.unhcr.org/en-

has the potential to set the tone for future, binding, international frameworks as well. And, if broadened to include protections for international migrants, could be an effective policy instrument, regionally and internationally.

The ECOWAS Protocol on Free Movement of People and Goods and its numerous initiatives also have the potential to provide migration pathways for environmental mobility within Member States. While this regional framework is binding for Member States that have ratified the protocol,[122] there has been uneven implementation as well as security hurdles for some countries. Six of the nine Sahel states are members; if membership is broadened and strong measures for implementation are instituted, this policy framework could also facilitate environmental migration. Through financial and technical support, there could be more harmonized immigration and free movement implementation, and more effective security measures to allow for the safety of migrants. If the international community supports the ratification and implementation of this regional FMA, vulnerable groups will have an additional avenue for coping (through regional migration and remittances) with the increased desertification and heat predicted to plague the Sahel in the coming years.

Small Island Developing States (SIDS): CARICOM and OECS

As discussed, SIDS are particularly vulnerable to slow-onset climate events, especially rising sea levels. In some regions especially vulnerable to coastal erosion and land loss, the sheer amount of habitable space will be greatly reduced. As discussed, people across SIDS are already migrating to nearby islands for work; this has led remittances to make up 10 percent of GDP in nine SIDS. These remittances are helping people in resource-scarce SIDS increase capital and coping capacity. For those that migrate, they can work, contribute to communities, and resettle temporarily or permanently.

Given the discussed benefits of migration and remittances across SIDS, as with other regions, the most effective policies have been FMAs, including those of Caribbean Community (CARICOM) and the Organization of Eastern Caribbean States (OECS). Both of these frameworks create spaces for climate action, discussions around resilience building, and agreements on migration management. Both policies explicitly call for the temporary and permanent absorption of people migrating due to climate shocks. Further, they allow for widespread movement between Member States and create safe, regular, and orderly pathways for labour migration. The protocols allow for expedited visa processing and up to a six-month visa free stay, which allows for speedy resettlement for those especially vulnerable to more frequent severe storms.

If these regional frameworks are broadened and adopted across all SIDS, this could allow for safe resettlement following sudden-onset events, such as its historic use during the severe 2017 hurricane season. This framework could also be utilized to permanently resettle groups

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us/news/press/2017/4/58ecb4fd4/unhcr-calls-for-robust-implementation-of-the-historic-and-ground-breaking.html.

[122] Ayodeji Aduloju, "ECOWAS Protocol on Free Movement and Trans-border Security in West Africa," *Journal of Civil and Legal Sciences* 4 (2015): 154, http://dx.doi.org/10.4172/2169-0170.1000154.

pre-emptively, especially from islands predicted to be severely impacted by sea level rise in the near-, medium-, and long-term.

How the UK government can facilitate regional environmental migration and build resilience

The UK is already financing programmes in the Bay of Bengal, the Sahel, and SIDS. Orienting some of these funds towards climate actions and responding to environmental migration, building upon existing mechanisms, would be beneficial in the long-term. As mentioned, migration increases remittances in countries of origin, boosting household resiliency to slow- and sudden-onset climate shocks. Increased remittances could also reduce the number of trapped populations, given the additional financial cushion for receiving households.

Support climate adaptation efforts in climate-vulnerable regions

On the one hand, the UK could support resilience, development, and adaptation efforts that enhance regional capacity to cope with environmental change. Bolstering climate resilience in vulnerable areas could help avoid instances of distress migration where people are forced to leave to cope with negative impacts. This could be done through increased financial investments and technical assistance to enhance climate action in places where we already observe dynamic migration flows and climate "hotspots" where increasing migration is expected in the future. The policy goal is to address adverse environmental drivers of migration and allow those who want to remain in situ to live productive lives at home. This also means supporting development efforts, including policies and projects that focus on environmentally sustainable economic practices.

The UK can also support these climate-vulnerable regions by looking internally. As the 2021 IPCC report suggests, lowering carbon emissions will slow global warming and subsequently the timeframe of climate change (see further in box 3). However, the global community did not shift away from a carbon and fossil fuel intensive global economy quick enough. The trajectory of climate change, sea level rise, desertification, and other slow-onset events is therefore beyond the "best case scenario." Supporting strong sustainable development practices and moving toward lower carbon consumption in the UK could potentially reduce the number slow- and sudden-onset events in the areas the UK wants to support. This would concurrently build up regional capacities to overcome climate shocks.

Box 3. 2021 IPCC Report: inadequacy of "net zero" as a measure of progress

In the 2021 IPCC report, it is made clear that climate scientists have high confidence that human activities and carbon intensive emissions have contributed to an increase in atmospheric greenhouse gasses.[a] The report explains the global surface temperature has successively increased over the last four decades because of human activity. Further, the report explains that scientists are "virtually certain" that human influence is the main driver of ocean warming, glacial retreat, and extreme temperature.

Countries in the Global North, including the UK, are some of the largest contributors to the decades of high emissions, yet countries in the Global South that contributed the least to global emissions, including in the regions discussed in this paper, will be most impacted by the extreme weather events in the future. Because of the direct role countries in the Global North have played in contributing to climate change, these countries have an obligation to support countries impacted by the negative impacts of global warming, rising sea levels, and degradation.

As a global climate leader, the UK has committed to "net zero" emissions by 2050 and is on target to meet these objectives; its carbon levels have reduced by 51 percent since 1990.[b] While this figure is noteworthy, it does not include emissions because of the goods and services that are imported to and utilized by citizens of the UK. This is important to consider, since this "net zero" figure is being used by many countries as an indicator of climate leadership.

Climate-vulnerable countries will still be impacted by global emissions, even if high-income countries are at "net zero." Instead of considering country-specific "net zero" targets, shifting toward globally reducing emissions or including emissions produced by imported goods, may be a better indicator of the contribution a country has made toward global carbon emission.[c]

Despite the effort of countries to achieve "net zero" domestic emissions, global carbon dioxide emissions, especially that of fossil fuel and industrial processes, continue to increase annually. Though carbon dioxide emissions reduced by 6.4 percent in 2020, this was far less than prominent environmental scientists had predicted. This is important to note since most travel and commerce was halted in 2020. This reveals, unfortunately, that global emissions will likely continue to climb in the years to come unless consumption habits and fossil fuel use is drastically reduced. It is therefore important for the UK and other climate leaders, beyond reducing per capita carbon emissions and consumption, to work with states most vulnerable to and most impacted by climate impacts.

a. Valérie Masson-Delmotte, Panmao Zhai, Anna Pirani, Sarah L. Connors, Clotilde Péan, Sophie Berger, Nada Caud, Yang Chen, Leah Goldfarb, Melissa I. Gomis, Mengtian Huang, Katherine Leitzell, Elisabeth Lonnoy, J. B. Robin Matthews, Tom K. Maycock, Tim Waterfield, Ozge Yelekçi, Rong Yu, and Baiquan Zhou (eds.), "IPCC, 2021: Summary for Policymakers," in *Climate Change: The Physical Science Basis, Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf.
b. Simon Evans, "Analysis: UK is now halfway to meeting its 'net-zero emissions' target," *Carbon Brief*, March 18, 2021, https://www.carbonbrief.org/analysis-uk-is-now-halfway-to-meeting-its-net-zero-emissions-target.
c. Rita Floyd and Richard A. Matthew, *Environmental Security: Approaches and Issues* (Abingdon, Oxon: Routledge, 2013), https://doi.org/10.4324/9780203108635.

Support regional migration protocols, especially free movement agreements (FMAs)

Facilitating migration in response to both sudden- and slow-onset events and processes can save lives, provide alternative livelihood options, boost community resilience—notably through remittances—and benefit countries of origin experiencing labour gaps. In addition, environmental migrants fleeing irreversible environmental disturbances, such as extreme heat, decade long droughts, land degradation, or sea level rise that has swallowed land masses, may simply not be able to return to especially vulnerable areas.[123] Therefore, the UK should support efforts that facilitate the movement of people in climate-vulnerable regions.

As the impacts of slow- and sudden-onset events are varied, the two categories of environmental disruptions might require separate migration policy responses and programming. Temporary evacuations or policies that encourage more remittances might help household and communities build immediate resilience to sudden-onset events. Slow-onset processes require longer term and sometimes more permanent measures, such as planned relocations of communities and strong migration pathways, including labour migration, to ensure that the most vulnerable can migrate away from vulnerable areas safely and regularly.

This can be done through facilitating seasonal migration and planned relocation efforts, especially in regions particularly vulnerable to recurrent slow-onset climate events. Facilitating state-led policy discussions, and providing finance and technical assistance can all support the implementation of existing regional frameworks, such as the Colombo Process, ECOWAS, Caribbean Community (CARICOM), the Organization of Eastern Caribbean States (OECS) and the Kampala Convention.

[123] Chris Funk, "Ethiopia, Somalia and Kenya face devastating drought," *Nature*, October 15, 2020, https://www.nature.com/articles/d41586-020-02698-3.

Support Global Compact for Safe, Orderly and Regular Migration (GCM) implementation efforts

In cases where climate impacts are grave and irreversible, climate leaders can support policy thinking on how to best develop and make available safe, orderly, and regular migration pathways.[124] In that respect, the UK, with its noteworthy leadership role regarding COP26, GCM implementation, and in the UNFCCC work related to human mobility, could play an important role in supporting the development and implementation of new types of migration policies and practices.

The UK implementation of the GCM at the domestic level and support to the GCM implementation in climate-vulnerable countries is particularly important to address multiple dimensions of the environment and migration nexus. Though the GCM is a non-binding international agreement, it provides a set of principles that can help states address adverse climate and environmental impacts on international migration.[125] The GCM proposes a dual approach to respond to these challenges. The priority is to develop strategies in countries of origin that seek to reduce adverse environmental drivers of migration, such as climate change mitigation and adaptation and disaster risk reduction measures. In cases where adaptation in situ or return of migrants is not possible, the GCM highlights the need to strengthen regular migration pathways. The text also encourages signatories to bolster state-led or regional initiatives already taking place in regions most impacted by environmental disruptions. The UNFCCC TFD *"Recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change"* are aligned with the GCM objectives and support the inclusion of migration dimensions in national climate responses and the development of regular migration pathways when necessary.[126]

Therefore, UK support to the dual implementation of the GCM and TFD Recommendations in countries most vulnerable to climate impacts could help enhance national and regional responses to environment migration.

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[124] Government Office for Science, *Migration and Global Environmental Change: Future Challenges and Opportunities* (London: Government Office for Science, 2011), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf.

[125] United Nations (UN), "Global Compact for Migration," https://refugeesmigrants.un.org/migration-compact.

[126] Dina Ionesco and Mariam Traore Chazalnoël, "IOM Perspectives on Climate Change and Migration," International Organization for Migration (IOM), August 2018, https://environmentalmigration.iom.int/blogs/iom-perspectives-climate-change-and-migration.

Conclusion

Global climate leaders, like the UK, can play a vital role in supporting populations to adapt to climate impacts. This can be done through a reduction in UK's carbon consumption and additional support for sustainable development programming across the Bay of Bengal, the Sahel, and SIDS. Additionally, through supporting strong regional implementation of FMAs and protocols, safe, orderly, and regular migration pathways can be assured for groups vulnerable to the impacts of climate shocks. These migration pathways can also build resilience and coping capacities in climate-vulnerable regions through remittances. Through these efforts and with the implementation of GCM, climate leaders, like the UK, can support climate adaptation and mitigation mechanisms in areas characterized by high levels of migration, to bolster the resilience of populations who wish to live productive and decent lives at home and avoid migrating out of necessity.

In cases where climate impacts are grave and irreversible, climate leaders can support policy thinking on how to best develop and make available safe, orderly, and regular migration pathways. In that respect, the UK, with its noteworthy leadership in global climate change mitigation efforts and its leadership role in the implementation of the GCM, could play an important role in supporting the development and implementation of new types of migration policies and practices.

The UK implementation of the GCM at the domestic level and support to the GCM implementation in climate-vulnerable countries is particularly important to address the multiples dimensions of the environment and migration nexus. Though the GCM is a non-binding international agreement, it provides a set of principles that can help states address adverse climate and environmental impacts on international migration. The GCM proposes a dual approach to respond to these challenges. The priority is to develop strategies in countries of origin that seek to reduce adverse environmental drivers of migration, such as climate change mitigation and adaptation and disaster risk reduction measures. In cases where adaptation in situ or return of migrants in not possible, the GCM highlight the need to strengthen regular migration pathways.

Annex 1. Regional frameworks and policies discussed

Initiative, Program, or Partnerships	Year Established	Regional Focus	Category	Members	Binding?	Framework type: local, regional, national?	Overview/Summary	Policy invoked?	Adequately address future projections?
Convention Governing the Specific Aspects of Refugee Problems in Africa	1969	African Union Member States	Framework for Protection and Reception of Environmental Migrants	41 signatories, ratified by 46 of 55 Member States	Binding as regional legal instrument	Regional	Protects people fleeing internationally if events are "seriously disturbing public order."	Yes	Yes, sets strong foundation for protection and reception protocols in Africa, if adhered to.
Alliance of Small Island States (AOSIS)	1990	Small Island Developing States (SIDS)	Convening and Advocacy Platform	44 Member States across the Pacific, Caribbean, Atlantic, and Indian Ocean	N/A	Regional	Platform for advocacy and lobbying the international community to support sustainable development and adaptation for SIDS.	Yes	Potentially, with effective implementation.
Colombo Process	2003	South and South-East Asia	Migration Consultative Process	Afghanistan, Bangladesh, China, India, Indonesia, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand, and Vietnam	Non-binding	Regional	Avenue for some migrant workers to migrate out of vulnerable SIDS, first took place in Sri Lanka.	Yes	Potentially, with effective implementation.
Kampala Convention	2012	African Union Member States	Framework for Protection and Reception of Environment	Angola, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Djibouti, Equatorial Guinea, Eswatini, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lesotho, Liberia, Malawi, Mali, Mauritania, Niger, Nigeria, Republic of Congo, Rwanda, Sierra Leone, South Sudan, Togo, Uganda, Zambia, Zimbabwe, and the Sahrawi Arab Democratic Republic	Binding	Regional Convention and Protection Framework	Protects IDPs fleeing homes, including from natural disasters. Noteworthy in that it is the first convention that provided explicit rights for IDPs, including people displaced following environmental disasters.	Yes	Potentially, with effective implementation.
ECOWAS Protocol on Free Movement of Persons and Goods	1979	Economic Community of West African States (ECOWAS)	Free Movement Agreement	ECOWAS Member States, including nine states in the Sahel	N/A	Regional Convening	Committee created to focus on coping and adaptation frameworks and strategies. Serves as an evaluation space of adaptation programming progress and implementation.	Yes	Potentially, with effective implementation.

Initiative, Program, or Partnerships	Year Established	Regional Focus	Category	Members	Binding?	Framework type: local, regional, national?	Overview/Summary	Policy invoked?	Adequately address future projections?
SIDS Accelerated Modalities of Action (SAMOA) Pathway	2014	SIDS	Framework for climate resilience, partnerships, and support mechanisms	SIDS	N/A	Regional	Created an international framework to create a modality for SIDS to communicate and support sustainable development. Lobbying space for SIDS to gain more international support for their unique vulnerabilities and capacity limitations.	Yes	Potentially, with effective implementation.
Caribbean Community Climate Change Centre (CCCCC)	2004	Centre partnering with international community to strengthen policies and frameworks in Caribbean	Initiative to bolster international support for climate resilience for Caribbean Islands	Caribbean Islands, SIDS members	Regional	Regional initiative	Support for Caribbean islands in adaptation cooperation and coordination.	Yes	Potentially, with effective implementation.
Caribbean Community (CARICOM)	1973, Treaty of Chaguaramas	SIDS in the Caribbean	Free Movement Agreement (FMA)	Caribbean Islands	Binding	Regional Protocols and Agreements	Provide support for temporary and permanent relocation for people fleeing climate disasters and events. Allow for six-month visas.	Yes	Potentially, with effective implementation.
Organization of Eastern Caribbean States (OECS)	1981, Treaty of Basseterre	SIDS in the Eastern Caribbean	Free Movement Agreement (FMA)	Eastern Caribbean Islands	Binding	Regional Protocols and Agreements	Provide support for temporary and permanent relocation for people fleeing climate disasters and events. Allow for six-month labour visas and permanent resettlement if necessary.	Yes	Potentially, with effective implementation.

Annex 2. International frameworks and principles discussed

Initiative, Program, or Partnership	Year Established	Regional Focus	Category	Binding?	Framework type: local, regional, national?	Overview/Summary
Convention Relating to the Status of Refugees (1951 Refugee Convention)	1951	International	International Framework	Binding	International focus on "refugees"	Rights and protection for "refugees" as defined by fleeing for "...well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion." Does not include climate events.
Guiding principles on Internal Displacement	1998	International	Principles/ Framework	Non-binding	IDPs	Protects IDPs that are fleeing natural disasters.
Cartagena Declaration	1984	Central American Countries	International Framework	Binding	International, not invoked successfully for environmental migrants	Protects: "lives, safety or freedom have been threatened by generalized violence, foreign aggression, internal conflicts, massive violation of human rights or other circumstances which have seriously disturbed public order."
UN Framework Convention on Climate Change (UNFCCC)	1994	International	Principles/ Framework	Binding	International	Support climate adaptation mechanisms for climate-vulnerable regions in the Global South.
Agenda for Protection of Cross-Border Displaced Persons in the Context of Climate Change	2015	International	Principles/ Framework	Non-binding	International	Agenda for international response to natural disaster displacement.
Paris Agreement and Task Force on Displacement	2015	International	Principles/ Framework	Binding	International	
Guidelines to protect migrants in countries experiencing conflict or natural disasters	2016	International	Principles/ Framework	Non-binding	International	Suggested framework and priorities for reception of migrants in conflict or natural disaster-prone issues.
Global Compact for Safe, Orderly, and Regular Migration (GCM)	2018	International	Principles/ Framework	Non-binding	International	Suggested responses to human migration resulting from natural disasters, climate change, and environmental degradation.