4 WHO IS MOST AT RISK?

My body is fractured like the thirsty earth
All moistness gone with the tears
that now feed rivers in other lands
I no longer can cry
No trace remains of the lagoons that flooded
the basins of my eyes
Liquid salt
evaporated by time
What silence did heaven pray to summon
the footprints of my waters
and rip them from this agonizing body?

From 'Desert' by Irma Pineda, of the Zapoteca Nation of Mexico, translated from the Spanish by Alexandra Walter[1]

On the far northern Caribbean coast of Colombia, near Camarones in La Guajira, lives an indigenous community called the *palaima*. In the Guayuna language, the name *palaima* translates as 'what sea and sand are,' says community leader Sixto Andrés Ávila Iguarán. The *palaima* are part of the wider Wayuu Apalanchi indigenous peoples. 'This area in which my community and other communities in the territory were located, has been used from generation to generation by the Wayuu Apalanchi indigenous people who live off the sea and fishing, whether in the lagoon, rivers or lakes,' explains Sixto, speaking in Spanish. 'That is a Wayuu Apalanchi – someone who lives from the sea.' The region is now a designated Flower and Fauna Sanctuary, and Sixto works for the parks service

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alongside his community advocacy work. 'The Wayuu population came here nomadically during high fishing seasons, and in this way they stayed and separated themselves in different places, creating their own communal clans and families,' he explains. Their way of life, however, so attuned with nature and the sea, and all with the lightest of footprints, is now under threat. 'In my short life, in my 28 years of age, I have seen drastic changes of climate in my territory,' he says. 'When I was a child I knew many tall trees – huge trees that showed a stable climate, a climate that all the old people could predict without any trouble. Every season of the year they predicted. But over the last few years, we've seen the climate changing and the normal yearly cycles are all messed up: the rain, summer, everything. Many of those tall trees have perished, they have died from the changes.'

The *palaima* recently lived through a three-year drought in La Guajira, he says: 'Our lagoons dried up completely. It was quite difficult to see. Our families and all the communities that are settled in the protected area ... were in very terrible need due to the droughts.' The lagoons provide the main livelihood for the community via self-sustenance fishing using traditional methods, and in recent years ecotourism. But because of the drought, the likes of which the community elders had not seen before, 'we didn't have a lagoon, we didn't have any of these options to subsist or live in this territory. Some people had to leave the territory during that time to work in other places, in cities and so on.' Sixto describes the situation as 'a weather mess'. Ancient mangroves – the poster-child of international climate adaptation and nature-based carbon sequestration efforts – died in the drought. 'They have dried up completely. The black mangrove, the white mangrove, the bobo mangrove. All types of mangroves at the edge of the lagoons have been very affected by these strong droughts ... nowadays we sometimes go from a totally dry, totally arid season, to sudden rains, thunderstorms, gales; this has caused many trees to fall, and many

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houses to be affected.' The true horror is perhaps too much to recount in conversation. According to research by the academic William Avilés, between 2007 and 2017 approximately 5,000 children of the Wayúu tribe in Guajira state died, largely from lack of access to clean water.[2] The poem that opens this chapter, by Irma Pineda, former president of Mexico's national organisation of indigenous-language authors (ELIAC), is based on a photograph taken by Colombian photographer Maria Faciolince, and refers to the Wayuu children who died without shedding a tear because of the severity of their dehydration.

The region and land, to which the Wayuu are so intimately connected, is becoming an alien, hostile place. Sixto sees no support forthcoming. 'Many of these communities, including mine, are totally ignored,' he says. High-level talk of managed displacement, relocation, or climate migration is not a reality that indigenous communities can contemplate. 'From our roots as indigenous people we are very tied to our territory, we are very tied to the spiritual world, to the ancestral world, to all this knowledge that we have had from generation to generation,' says Sixto. While individuals may move to find work, the idea of the whole community leaving is inconceivable. Sixto also believes that, with the right help and recognition, it would be unnecessary. 'We persist and endure throughout our lives in our territory, because we know that we can adapt and we can receive what Mother Nature can continue to give us,' he says. 'We have the tools, we have the respect for our territory, respect for our Mother Earth. I think it is something that leads us to adapt to certain changes, but also because we respect nature, we know how far we have been allowed to go and how far nature can contribute to us and we can contribute to it . . . We, as indigenous communities, are not here to generate pollution, we are not here to generate [mining] excavation, we are not here to damage the ecosystem of our Mother Earth.' And yet, indigenous peoples such as the *palaima*, unrecognised and unsupported, find

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themselves amongst the most vulnerable to a situation they did nothing to create.

Over 1,500 km away, towards the southern end of Colombia's Pacific Coast, the climate is entirely different for the Andean *Ampiuile* people. Yet the story is much the same. 'Where we are located, companies compete directly for fundamental resources such as water ... we could almost say in direct confrontation,' says Víctor Yalanda, an *Ampiuile* leader. 'Four or five municipalities benefit directly from the waters of our territory ... the aqueduct companies of the municipal capitals have policies of use, management, distribution and collection to supply water to their users and so on – yet as a territory where we have the sources of water, but we have no rights.' Unlike the *palaima*, the *Ampiuile* achieved recognition from the state in 2014. But it changed little in practice. 'We could not have imagined the size of the [climate] problem,' he says. 'Today, we have it in our lives, we are facing it. It is too difficult to turn back time, to be able to take back the harmful, negative actions that have been done, that humanity has done ... the coming times are going to be very complex, especially for our next generations, for our children, for our grandchildren.'

Over 18,000 km away, in Huế City, Vietnam, local NGO the Centre for Social Research and Development (CSRD) works with climate-vulnerable communities. Situated beside Tam Giang Lagoon – the largest lagoon of Southeast Asia – Huế is caught between a ferocious pincer movement of sea-level rise and catastrophic inland flooding in the wet season. In October 2020, when Tropical Storm Linfa hit Huế, it was the second of nine tropical cyclones to hit Vietnam that year alone. But something about Linfa was different. The recorded rainfall figure for Thua Thien Huế province, which includes Huế city, from 5 October to 11 October is 1,888 mm.[3] As a point of comparison, in southern England the annual average rainfall is 600 mm, meaning that Huế received more than three years' worth of English rain in just one week. The effects were

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catastrophic, flooding over 310 km^2 of land. Over a thousand homes were destroyed, over 100,000 damaged, hundreds of kilometres of roads broken, 7,000 hectares of rice crops and vegetable crops gone, and 2,000 hectares of aquaculture killed off along with half a million land-based livestock.[4]

'The impact of these storms has three levels: before, during and after,' explains Nguyen Thi Nhật Anh, formerly a project coordinator at the CSRD. 'For the "before", vulnerable groups like woman and elderly or children will be impacted a lot because they need to prepare the area and must move people to safe shelters to stay there during the storm. But much more than that it is the impact after the storm because most of their livelihood will disappear. The livelihood of the local people here is mostly agriculture or aquaculture. They raise fish in the lagoon. And such a storm throws out almost everything . . . every year they face the impact of the storms. However, they have no insurance to recover after the storm.' The CSRD conduct twice-yearly climate-resilience surveys with the local population, and 'we see that many people are still impacted by Linfa [three years on]. Then directly after that storm, they faced COVID-19.'

Between 1999 and 2018, Vietnam ranked sixth among the world's top 10 countries most affected by extreme weather events.[5] And as Figure 4.1 shows, *The Monitor* predicts Vietnam to be highly vulnerable to a 2 degree pathway. Each year, a new cyclone presses the reset button on lives and livelihoods – and it's often left to the nation's women to pick up the pieces. 'The impact on the women is hardest,' says Nguyen. 'They take care of the elderly, the children, they must clean out everything after storms, they are impacted by disease from wastewater. In rural areas in Vietnam now, so many men must move to urban areas to earn money with more stable income. So it means there's a double impact on the women because they must now also do the heavy tasks of the men, too.' CSRD research shows that rural women in Vietnam work on average 18 hours a day compared with 12 hours a day for men.[6]

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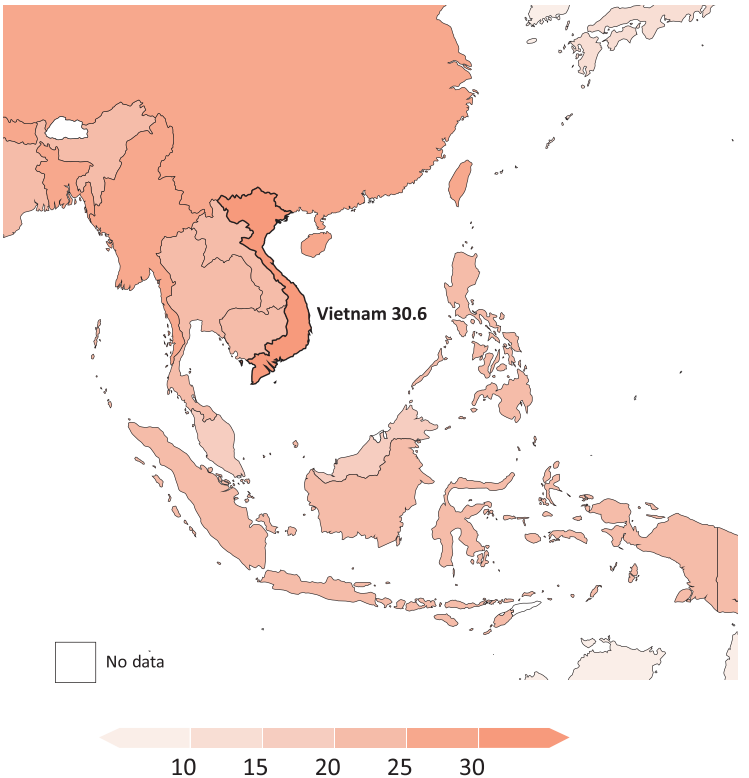


Figure 4.1 Vietnam. Composite GDL Vulnerability Index in 2090 'below 2 °C' path. Note: This GDL Vulnerability Index (GVI) is based on evidence of currently observed socio-economic vulnerability in the areas of economic growth and poverty, education, health, gender inequality, governance, demography and access to basic infrastructure.[7] It brings together these different facets of vulnerability into one composite index that provides a global picture of differential vulnerability across the world. Values for 2030, 2050, and 2090 are based on projections of the underlying indicators along the Shared Socioeconomic Pathways.[8] The GVI scale runs from 0 to 100, with 0 meaning lowest vulnerability and 100 meaning highest vulnerability. Details of procedures and sources are available in Smits & Huisman (2023) and Huisman, Martyr & Smits (2023). (*CVM3* Biophysical Data Explorer. 2022)[9]

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The women are responsible for looking after the whole family, they often work in the fields to help produce food, do all of the housework, care for the children, cook food for the family, ensure the family is kept healthy, and manage the family budget. Yet women are often not consulted in decision-making in the home or in their village life. And girls leave school earlier than boys because they are expected to marry, while boys are seen as needing a career.

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Mohamed Shahudh, an economist in the Maldives, is keen to stress at the start of our virtual meeting that he is 'not a climate change expert'. But then he pauses thoughtfully and adds that everyone in the Maldives is a climate change expert to some extent. It is one of the most climate-vulnerable countries in the world, and everyone here has a story to tell. 'I was born and raised in the Maldives,' he says, speaking from his office in the capital, Male. 'Climate change, as far as I can remember, has been an incredibly important topic. If you go back even 30 years, you will see our presidents talking about climate change, from President Mar to President Nasheed, who was the founder of the Climate Vulnerable Forum ... The Maldives was one of the first countries to bring to the attention of the global community that sea levels rising would mean an existential threat.'

Shahudh originally comes from Atoll City, in the south Maldives. 'Over the past couple of decades, we have seen sea-level rise cause the erosion of entire islands,' he explains. 'And saltwater intrusion in many islands, particularly in the largest parts of the country – in the Greater Male region and in the largest cities of Maldives, saltwater intrusion is such that we rely almost completely on desalinated water now. Our freshwater reserves have been depleted.' The majority of the Maldives' 1,192 islands, 187 of which are inhabited, are just 1.5 metres above sea level, with 75% of critical infrastructure lying within 100 metres of the coastline.[10] For

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a country that relies on tourism, any environmental degradation is devastating both ecologically and economically. It is written into the Constitution that it is the responsibility of every citizen 'to preserve and protect the natural environment, biodiversity, resources and beauty of the country and to abstain from all forms of pollution and ecological degradation.'[11] But the climate is no respecter of citizenship. Major El Niño events in 1998 and 2016 led to the widespread bleaching of 98% of the coral reefs,[12] while recent coastal flooding in 2023, Shahudh says, left 'parts of our capital city essentially underwater when waves came. These islands are so small, and the elevation is [such that] when waves come and hit the islands, it really inundates our entire infrastructure. And more recently, we have also experienced rain – non-stop for four or five days, something which was difficult to imagine when we were children. And every time that happens, even the bigger islands in the Maldives experience a lot of flooding.'

El Niño and La Niña are the two phases of the naturally occurring climate phenomenon known as the El Niño–Southern Oscillation (ENSO). El Niño is characterised by warmer global temperatures, while La Niña years are typically cooler. El Niño was declared most recently in 2023 and can increase the risk of extreme weather for around 6–12 months, especially in equatorial regions. However, while naturally occurring, its effects are heightened by anthropogenic climate change. A recent study by Cai et al. (2023) found that current sea surface temperature extremes driven by El Niño have intensified by around 10% compared with pre-1960 levels.[13] Other studies have predicted that the frequency of extreme El Niño events could double over the next century because of warming oceans.

These combined climate pressures make the Maldives uniquely vulnerable. Because of the small size and low-lying nature of its islands, the entire human population has probably experienced flooding of some sort in their

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lives. Climate report after climate report suggests the Maldives will be entirely inundated by the waves and made uninhabitable by 2050.[14] It's a reality that weighs heavily on the national psyche. 'It causes infrastructure damage, damages from beach erosion, the loss of landmass in some of the tiny resorts, damage to over-the-water villas, which is very common in the Maldives as far as tourism infrastructure is concerned,' says Shahudh, with an economist's matter-of-factness. 'So, these are some of the things that we are dealing with . . . Every Maldivian is quite used to seeing this, it would be fair to say.' The Maldives, as described in a UNDP report co-authored by Shahudh with Christine Grüning, 'will be the most climate vulnerable nation in South Asia,' with an anticipated 'total economic loss to the Maldives' economy from climate change on average 2.3% of Gross Domestic Product (GDP) by 2050.'[15] Given the threat of sea-level rise to the Maldives, the UNDP raises the need for actions 'beyond adaptation', with alternative approaches in small island nations including 'raising existing areas and advancing land to reduce risk, particularly where infrastructure is yet to be built, with the objective to concentrate the population on a limited number of islands.' Yet, it notes, 'The extent to which financial compensation may be claimed from e.g., largest historical emitters is not yet agreed at the international level'.[16]

Bangladesh, as the world's eighth most populous country, is far from being a small island nation. Yet, with 80% of the country considered floodplain, rising seas and heavier rains threaten to swamp people here, too. Bangladesh is also third on the UN's Least Developed Countries list,[17] making it particularly vulnerable. Hafijul Islam Khan, a Bangladeshi lawyer working for climate justice, explains what climate vulnerability means to the people here: 'In 2022, floods occurred twice as often as usual . . . These types of floods occur after sudden heavy rains, and the rivers in Bangladesh cannot drain these water masses into the sea, resulting in sudden floods and

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associated landslides. This causes great damage to crops.' Tidal waves also cause enormous damage to coastal infrastructure, damaging crops and claiming many lives. 'These sudden-onset disasters are clearly climate-related,' says Islam Khan. A 'sudden-onset disaster' emerges quickly or unexpectedly, in contrast to a 'slow-onset disaster' which emerges gradually over time, such as drought, desertification and sea-level rise. These slow-onset effects also slowly erode not just the coastline, but the population's mental resilience. 'Some communities in the coastal regions are already facing salt-water intrusion,' he says. 'The effects are already visible ... If greenhouse emissions do not fall quickly and rapidly, it would be a total disaster. Sea-level rise will be a big problem in Bangladesh.'

For the most vulnerable countries and communities, simply 'adapting' isn't always an option. 'It is not possible to adapt to this kind of impact,' argues Khan. 'In the coastal areas, we have to relocate people. But Bangladesh is a small country. You cannot simply resettle these people in the mountainous regions. The coastal fisher folk, for example, are used to fishing on the coast. If you bring them to the hill areas, how will you teach them how to farm in the hills? And there will be a conflict between the receiving community and the migrants. So, there will be social unrest. To be honest,' laments Khan, 'though I have been working at the community level for many years, I don't know how to deal with it.' But one thing is for sure, he says: 'We need to recognize the disproportionate contribution of the developed country parties to the cause of climate change ... At the same time, we need to recognize the disproportionate impacts and vulnerabilities faced by vulnerable developing countries'.

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The impacts of climate change are far from homogeneously distributed. Every 0.1 degrees Celcius of global warming affects vulnerable and disadvantaged populations the most,

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exacerbating existing inequalities. Dealing with this reality has already left climate-vulnerable countries with more than $2.3 trillion of external debt. Hot areas, including Africa (particularly Central and West Africa) and South and Southeast Asia, are expected to be affected the most by heat-related health consequences if no climate action is taken (see Figure 4.2). As V20 member Njuguna Ndung'u, former Minister of Finance, Kenya, comments, without action 'the vulnerabilities in the future are going to continue, and they are going to be more pervasive.'

The IPCC warned in 2022 that despite efforts to limit global temperature increases, 'losses and damages stemming from climate change are not preventable' as there is a 'locked-in' level of warming at 1.1 degrees Celcius already causing unavoidable consequences. The decision at COP27 that year to establish a Loss and Damage Fund was therefore

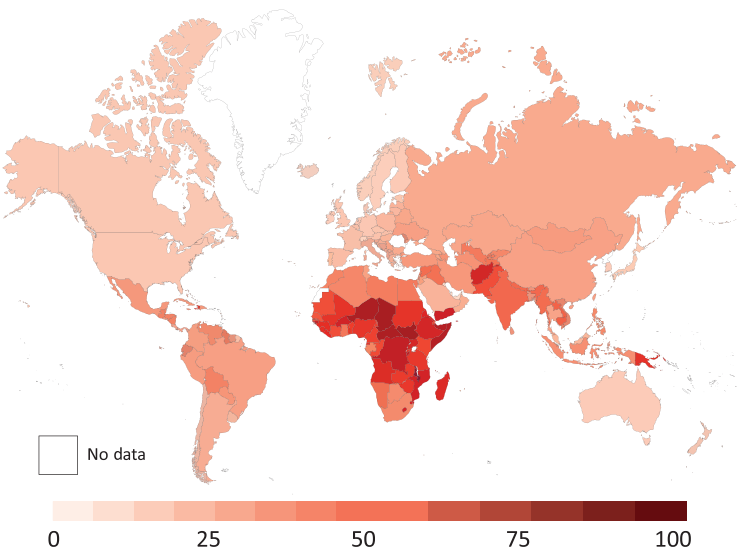


Figure 4.2 The GDL Vulnerability Index (GVI): vulnerability to climate change. Index number in 2030 with no policy action. (*CVM3* Biophysical Data Explorer. 2022)[18]

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widely welcomed, as was the agreement on the very first day of COP28 to operationalise the fund. However, says a UNDRR report, 'with no specific or precise universally adopted definition of loss(es) and damage(s) it is difficult to standardise estimates for the costs of loss and damage, the appropriateness and availability of finance to meet those costs, and loss and damage funding gaps'. Such gaps in international funding support, continues UNDRR, 'limits the ability of national governments and communities to address climate-related loss and damage ... funding requirements for such events have risen nearly eight times higher today than they were 20 years ago ... [Yet] Despite increased adaptation finance in recent years, international finance flows to developing countries are five to ten times below the estimated annual needs.'[19] This 'unmet' funding need exacerbates global disparities between the vulnerable and protected; between the climate 'haves' and the climate 'have nots'. In short, climate change is further trapping vulnerable countries into a cycle of poverty.

The relocation of the entire Colombian town of Tacamocho, a picturesque riverside town in the state of Bolívar, is a case in point. As the mighty Magdalena River has swelled with the increase in extreme weather events, its banks have pulled many of the town's streets, the main park, many houses, and even its 200-year-old church,[20] into its dark waters. Adapting to this changing environment has meant a constant cycle of residents' dismantling and rebuilding their homes, relocating them just metres away, only to be forced to repeat the process all over again every few years. Recognising just how dire the situation had become, the State Council mandated a complete relocation of the town to a safer area 5 kilometres away, commencing in 2023. In an interview with journalist Juan Manuel Florez from Mutante.org, local resident Diana Rodríguez said, 'People ask God for the river to change again, for it to flow in another direction so that it stops flooding, so that we don't

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have to leave.' As described by Rodriguez, the church's collapse was a dramatic and deeply symbolic event for the community, who likened it to losing a part of their collective heart.

Colombia is considered the most climate disaster-prone in Latin America by the World Risk Index. Colombia's geographic diversity – straddling two oceans, three mountain ranges, and the equator – exposes it to a wide range of climate hazards including droughts, floods, landslides, hurricanes, rising sea levels, and riverbank erosion. The relocated town of New Tacamocho might soon, with a bitter irony, be prone to water scarcity. The Ideam (Colombian National Institute of Hydrology, Meteorology, and Environmental Studies) predicts that rainfall in Bolívar state could decrease by 10–30% by 2041, while temperatures might rise by up to 3.5 degrees Celcius by 2100. The relocation of Tacamocho is also a significant financial undertaking, with costs estimated at around 140,000 million pesos – more than triple the total budget of the Córdoba mayor's office. Manuel Florez draws parallels to Gramalote, a town in northern Santander state destroyed in 2010 by La Niña. It took over a decade for the state to rebuild Gramalote, by which time many residents had moved away and chose not to return.[21]

Of the global cities reporting to the CDP 2021 cities Climate Risk and Vulnerability Assessment, 530 (64%) of 822 cities reported that climate change threatened public health or health services.[22] Often because of scarce financial resources and low capacity, the countries most vulnerable to climate impacts face the most urgent challenges. The 2023 Lancet Countdown describes this as 'the human risks of an unjust transition' and 'a direct consequence of the structural inequities that lie within the root causes of climate change'.[23] Countries within Sub-Saharan Africa, for example, are amongst the most vulnerable countries globally. According to analysis prepared by *The Monitor*'s regional partner Economic Research Southern Africa (ERSA), Southern Africa is one of the regions most exposed to climate-linked food insecurity in the world. Rising temperatures will significantly reduce wheat and maize yields, while climate

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impacts will pose a significant risk to life and livelihoods. The marked difference in vulnerability between the three largest economies in Southern Africa and the rest of the Sub-Sahara means that significant migration to these countries is considered 'likely in response to climate disruption and climate-related disasters elsewhere on the continent' with the potential of immigration to create social instability 'already plainly visible in South Africa. Climate change could exacerbate this problem.'[24]

In Asia, the countries of Vietnam, Lao PDR, and Myanmar are projected to experience the greatest warming. These countries, according to the Southeast Asia Regional Analysis, prepared by *The Monitor*'s regional partner the Global Green Growth Institute (GGGI), are already experiencing higher average temperatures and chronic heat stress, while 'both Hanoi and Ho Chi Minh City are among the urban areas most threatened by deadly heat globally.' Cambodia, Vietnam, Laos, and Thailand also provide further evidence of the global trend toward longer droughts followed by rains that arrive with more intensity, causing more floods. According to *The Monitor*, in a below 2 °C scenario, by the end of the century those countries will indeed see both the highest increase in severe droughts *and* the highest increases in precipitation. The INFORM 2023 Index for Risk Management, led by the European Commission, echoes these findings, predicting: 'extreme precipitation for Southeast Asian countries with high flood risk, including riverine, flash, and coastal flooding'.

Meanwhile, UN Secretary-General António Guterres has described the Caribbean as 'ground zero for the global climate emergency'. Magdalena Mirwald and Jwala Rambarran write for the Caribbean Policy Development Centre (CPDC) publication *At a Glance* that 'The climate is changing, and Caribbean people are acutely feeling it firsthand in the form of frequent flooding, stronger hurricanes, and longer dry seasons. Despite having contributed only 1% to historical greenhouse gas emissions,

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the region has been identified as one of the most vulnerable – if not the most vulnerable – to climate change.' On average, Caribbean nations suffer annual losses equivalent to 17% of their GDP due to storm damage.[25] As well as causing high economic costs, with several Caribbean islands amongst the most indebted in the world, Mirwald and Rambarran also raise the issue of 'non-economic losses' which are 'equally devastating but are not measured monetarily. These include impacts on human life (health and wellbeing), loss of meaningful places and cultural heritage, values, as well as biodiversity and ecosystems. While these intangible losses are of great significance for humans and nature, they have received less attention and research.'[26]

In 2017, of 29 Caribbean Island states, 22 experienced at least one hurricane of category 4 or category 5 status, with the number of people internally displaced by storms and flooding rising annually. Around 3.4 million people were internally displaced from 2014 to 2018 alone, including 761,000 children – six times more than the preceding five-year period.[27] The frequency of tropical cyclones of categories 4 and 5 has increased by 25–30% since 1975 owing to man-made global warming.[28] 'This trend is expected to continue as Caribbean SIDS [small island developing states][a] face more intense hurricanes,' write Mirwald and Rambarran (see, for example, Dominica's vulnerability in Figure 4.3). 'Sea level rise, coupled with storm surges and waves, is expected to exacerbate coastal inundation and the potential for increased saltwater intrusion into aquifers ... The impacts of climate change on the economic activity in the Caribbean are and will be enormous'. The Lancet Countdown's Marina Romanello says that 'our recent

[a] Small island developing states (SIDS) are a distinct UN grouping of 39 States and 18 Associate Members that face unique social, economic, and environmental vulnerabilities. SIDS are located across three geographical regions: the Caribbean, the Pacific, and the AIS (Atlantic, Indian Ocean, and South China Sea).

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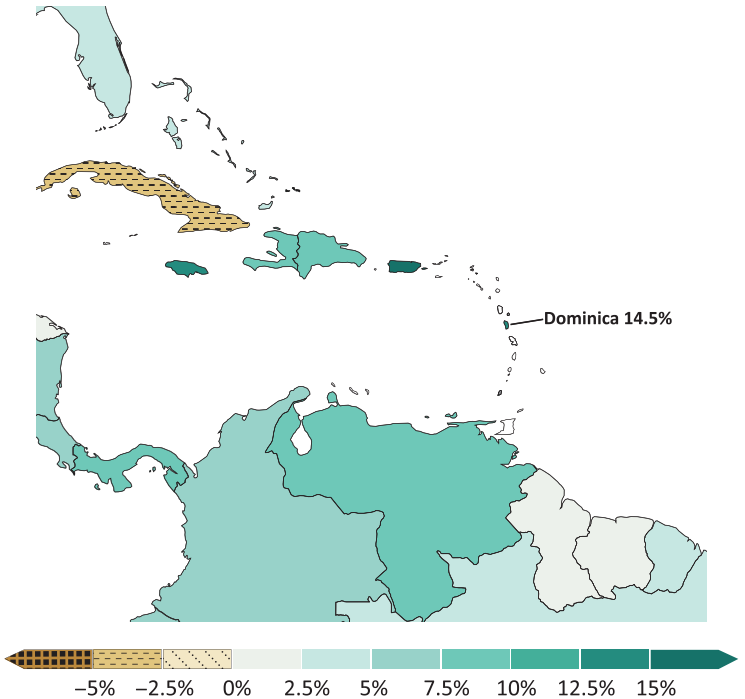


Figure 4.3 Dominica. Percentage change in extreme precipitation between 2021 and 2040, 'below 2 °C' path, impacts at 1.5 °C. (*CVM3* Biophysical Data Explorer. 2022)[29]

findings show how under-studied SIDS are. We find that, in 2022, only 51 peer-reviewed scientific articles covered the connection between climate change and health in SIDS, making it the world's least-studied region, despite being composed of some of the world's most vulnerable countries. This stands in stark contrast with the 1095 studies published in 2022 focusing on Asia, and the 398 and 305 focusing on North America and Europe, respectively.'[30]

Vulnerability is the key to understanding overall climate risk. Until the 2012 publication of the IPCC report *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*,[31] vulnerability was understood to be the

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outcome of the interplay of climate hazards, the sensitivity to suffer harm as a consequence of these hazards, and the system's capacity to adapt to the impacts. This has since been built upon by a risk-based approach now adopted by the climate change community which considers socioeconomic and biophysical aspects, too. While reducing climate-related hazards by limiting warming to 1.5 °C remains the number one goal, it is ultimately people's exposure to those hazards and their vulnerability to them that needs to be reduced. The IPCC now defines vulnerability as 'the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.'[32]

If vulnerability refers to people's exposure to harm and their capacity to cope and adjust, then the solution lies in reducing that vulnerability through adaptation and resilience. And there are hierarchies of vulnerability within vulnerable countries, too. As Jens Wandel, UNOPS Acting Executive Director, writes in *Inclusive Infrastructure for Climate Action*:

> *Infrastructure can be – and often is – blind to the needs of its users, whether it is women, people with disabilities, older people, or other marginalized groups. The climate crisis further exposes the existing infrastructure inequalities, exposing already vulnerable groups further to climate risks. For example, in developing countries, women are more at risk of suffering or dying than men, due to limited access to information, lack of physical and sexual safety in public shelters, and limits to mobility. In sub-Saharan Africa, children living in rural areas are more at risk of diarrhoea, as changing weather patterns intensify the transmission of infectious diseases in areas with inadequate water and sanitation systems. This needs to change.*[33]

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To be truly inclusive, argues Wandle, the design and implementation of climate adaptation – and relocation, if needed – should take into account the diverse needs of everyone, especially the most marginalized: 'When infrastructure is inclusive, it empowers all people to have a good quality of life, fully participate in society and be more resilient to climate change impacts.'[34] Shivani Gupta, Technical Advisor for Inclusion, Christian Blind Mission (CBM), also shares her experiences in the same UNOPS report: 'I have some friends and colleagues with disabilities who were stranded during disasters such as floods, when there was no electrical supply. Since they were using electrical wheelchairs, they were completely immobile during the disaster.'[35] Marginalised demographic groups may also lack adequate information about climate change and disaster preparedness because of social exclusion and may face discrimination at emergency shelters or during relief aid distribution.[36]

Initiatives such as Cities 4 Women, a four-year project between UNOPS and the European Union, point to a way forward. It aims to develop public spaces that are more responsive to both the needs of women and a changing climate. In Sunwal, Nepal, Mayor Bimala Aryal says that she sees 'Cities 4 Women as a solution, addressing the challenge of gender-inclusive public spaces and generating a proof of concept that will increase public demand for such spaces.' Cities in Nepal – and in many vulnerable countries – are growing rapidly, with a significant portion of the population moving to urban areas in search of better opportunities. Against the backdrop of rapid urbanisation and growing climate vulnerability, public spaces and urban services can play a crucial role, opening up opportunities for women to work, socialise, and access education and essential services. 'Gender sensitivity and climate resilience will be the two lenses through which municipal plans will be reviewed and improved,' said Deependra Nath Sharma, UNOPS Programme Management

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Advisor in Nepal. The lessons learned will be mainstreamed into a national strategy 'for country-wide replication,' she says.[37] Vulnerable countries may be the most acutely affected by climate change – but they are also leading the charge in the battle against it.

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