8 WHAT WE MUST DO

I have an idea to talk with some of my friends that live around me. Maybe I can encourage us to make a decision to plant a tree each month to build the lungs of our neighbourhood and to also feed the soil. We could start with our gardens, learning to care for and water the trees so they grow into beautiful oxygen machines.

My friend Rosa in my class has a Dad who does this as a job, so maybe Oliver could guide us. Then we could move onto parks and open land near where we live. And then maybe that would teach others too.

From 'Listen Up, People' by Leila Mcleod, aged 13, South Africa.[1]

In Sudan, Nisreen Elsaim argues that climate finance is failing to reach the people who need it most. International climate conferences talk a lot about a 'just transition', she says. 'I keep asking them, what are we transitioning from? Because in Sudan, even before the war, only 30% of people had access to electricity. And it's not reliable, it's not continuous access to electricity. Sudan is not even at a stage where we should talk about a "just transition" because we don't have anything to transition from.' Instead, for the poorest, most vulnerable countries such as Sudan, 'the slogan regarding energy should be "access",' she says. 'How to make this access sustainable, how to make it renewable, how to make it affordable. These are the questions. It's actually even easier to start afresh – when there is no access in the first place, and you make that access sustainable.' Access to renewable energy is the 'number one' climate adaptation priority, says Nisreen, 'because when you have energy, then a lot of other infrastructure and services will follow. When there is no electricity, there is no

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energy, there is no response.' Globally, 775 million people still live without electricity, and close to 1 billion people depend on healthcare facilities without reliable energy.[2]

Perhaps we should talk more of a 'just adaptation' rather than a 'just transition'. To provide access to adaptation finance, as we have seen throughout this book, requires an overhaul of the global financial system. In nearby South Sudan, 'the extreme flooding that has affected our country during the past three years has resulted in food insecurity because it sharply disrupted the crop cycle,' says Dier Tong Ngor, Minister of Finance, South Sudan. 'But let me say, access to new and sustained sources of climate financing will play a crucial role in achieving the goals of the Paris Agreement and implementing the NDC mitigation and adaptation activities in South Sudan. It is estimated that South Sudan would require a total of $10 billion for the implementation of all the NDC interventions and strategies over the next 10 years. And we have made an explicit call that our country be provided with opportunities to access technical and financial support.'

The climate change agenda in the Philippines, for example, explicitly prioritises adaptation. The National Framework Strategy on Climate Change 2010–2022 was described as 'aggressively' highlighting the critical aspect of adaptation, 'meant to be translated to all levels of governance alongside coordinating national efforts towards integrated ecosystem-based management which shall ultimately render sectors climate-resilient' with a vision 'to build the adaptive capacity of communities and increase the resilience of natural ecosystems to climate change, and optimize mitigation opportunities towards sustainable development.' In particular, the People's Survival Fund and the Disaster Risk Reduction and Management Act (2010) represented a paradigm shift in the way disaster risks are managed, away from disaster response and toward prevention and climate adaptation.[3]

By 2030, the UN Environment Programme (UNEP) estimates that the cost of adaptation will reach $140–300 billion

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per year, and $280–500 billion by 2050. The Nationally Determined Contributions (NDCs) of just 50 developing countries have already identified more than $50 billion per year in adaptation needs for 2020–2030. In addition, an estimated $57–95 trillion worth of infrastructure is expected to be built by 2030, and it needs to be made climate-resilient. According to a World Bank report, coastal protection (such as building sea walls or relocating low-lying settlements) has the greatest adaptation finance gap, with an annual shortfall of around $26 billion.[4]

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The year 2024 marked the 80th anniversary of the Bretton Woods agreement, which resulted in the birth of the IMF and the World Bank. This anniversary could be used as a 'catalyst to review the entire international financial architecture,' Steve Waygood, chief responsible investment officer at Aviva Investors, told the *Pioneers Post*. The Bretton Woods Conference saw the world agree to greater political and economic stability, learning the economic lessons that arose from World War I and led to World War II. Given that climate change is today's 'existential crisis for civilization,' suggested Waygood, 'we now need to revisit the same institutions ... and we have an opportunity to do that.'[5]

In September 2024, Mia Mottley became Chair of the Climate Vulnerable Forum and its V20 Finance Ministers (CVF-V20). Two years previously, as the Prime Minister of Barbados, she had launched the Bridgetown Initiative. It proposed a transformative plan of action that could, if adopted, become the Bretton Woods for the twenty-first century with early successes including the Climate Resilient Debt Clauses for small island developing states (SIDS).

The Bridgetown Initiative represents the type of comprehensive, integrated, and ambitious approach needed today – a revised (and relevant) Bretton Woods for the climate change age. Ryan Straughn, Minister in the Ministry of

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Finance, Barbados, CVF-V20 Presidency explains how the current situation hinders, rather than helps, adaptation and climate defence: 'one of the loans Barbados received to provide critical relief and budget support to offset the significant economic fallout due to the COVID-19 pandemic increased sharply from 1.09% in March 2022 to 5.48% in March 2023.' It was, he says, 'unprecedented and is clearly not consistent with the spirit in which these loans were accessed. Therefore, the work to review these interest rates is critical.'

A COP28 meeting in December 2023 on taking forward the Bridgetown Initiative saw Prime Minister Mottley and German Minister for Economic Cooperation Svenja Schulze, World Bank Governors both, argue that every $1 invested in sustainability and resilience today yields '$4–7 in savings down the line … Many reforms and investments can have positive cross-border spillovers. But we will need new and stronger incentives – both analytical and financial – to promote national investment in global public goods, and to support countries with their conservation efforts.' According to the World Bank's Lifelines report, 'The net benefit on average of investing in more resilient infrastructure in low- and middle-income countries would be $4.2 trillion with $4 in benefit for each $1 invested, according to a new report from the World Bank and the Global Facility for Disaster Reduction and Recovery'.[6] The Lifelines report focuses on moving forward in building resilient infrastructure, including resilience in regulations and incentives, improving leadership and decision making, and providing financing. On the latter point, the World Bank authors provide the example: 'the Global Infrastructure Facility – a partnership of governments, multilateral development banks, private sector investors, and financiers – supports the preparation, structuring, and implementation of complex infrastructure projects. In particular, it supports preliminary work to prioritize investments and test a project concept through "prefeasibility" analysis … to enable the successful development or participation of

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long-term private capital in the financial structure of a project.' It also suggests a way to ensure that financing is directed to more resilient infrastructure projects: ensure that investors are informed about the risks attached to projects. 'They may, then, prefer the more resilient ones. Such an approach requires transparency on every project's exposure and vulnerability to various hazards in a way that is currently not available . . . Examples include the Task Force for Climate-Related Financial Disclosure (TCFD), which recommends that businesses (and the financial actors that invest in them) report physical risks and how they are managed.'

Building on the success of Mia Mottley's Bridgetown Initiative, the V20's Accra-to-Marrakech Agenda (A2M) increases the volume on calls for system-wide climate finance reforms. The A2M is focused on 'ensuring liquidity and fiscal headroom' to support the transition of climate vulnerable countries from vulnerability towards prosperity – a just transition, or a just adaptation, that CVF-V20 countries can identify with. Debt instability and lack of government budget are major obstacles to climate investment acceleration and implementation in CVF-V20 member states. A2M specifically addresses these challenges through four pillars:

(1) Making debt work for climate.
(2) Reform of the International development financial system to ensure an informed shift in financial flows and an increase in green and resilient investments that ensure climate prosperity for vulnerable countries.
(3) A new global deal on carbon financing through upscaled carbon exchanges as part of efforts to safeguard 1.5 °C.
(4) Revolutionising risk management for our climate-insecure world economy by fully integrating climate risks into macroeconomic planning processes and tools for development finance institutions (DFIs) to prioritise climate action and establish prearranged and trigger-based funds that vulnerable nations have long called for.

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Financing adaptation, says Jevanic Henry in Saint Lucia, 'needs to come from a variety of sources. Generally, within the negotiation space, we talk about financing coming from developed to developing countries, which is certainly fine, but there's also a need to leverage greater private sector financing into climate action.' He supports the Bridgetown Initiative's call for innovative financing instruments. 'For example, some may look at Blue Bonds and debt swaps. The focus going forward has to be on where the innovative tools can meet specific country needs ... Will this help the fishermen and farmers I speak to? How do we ensure that resources are available to them, not only for when the hurricanes hit, but for slow-onset events like sea-level rise? We need to further explore innovative financial instruments that fit specific country and regional needs.' Currently, he says, there's 'an adaptation funding gap.'

Changing this requires a mindset shift amongst developed nations, and the likes of the G7 and G20, away from development aid-only approach and towards one of economic investment and partnership. 'That mindset shift is necessary,' agrees Henry. 'It's important that development aid remains consistent, but we're not just asking for charity ... we're seeing a shift towards investing in infrastructure initiatives that build resilience and open up new economic opportunities. For example, the UK's grant-based infrastructure programme in the Caribbean, including Saint Lucia, is revamping infrastructure on the western coast, creating new economic opportunities. Investment in strategic infrastructure initiatives not only builds resilience but also generates revenue, contributing to socio-economic resiliency.'

As we see in Figure 8.1, investing in climate adaptation delivers high returns. Spending $800 million on early warning systems alone in developing countries could cut climate disaster losses by $3–16 billion annually.[7] And yet, Figure 8.2 reveals a missed opportunity, with adaptation funding falling short. Annual adaptation cost are expected to rise to $140–300 billion

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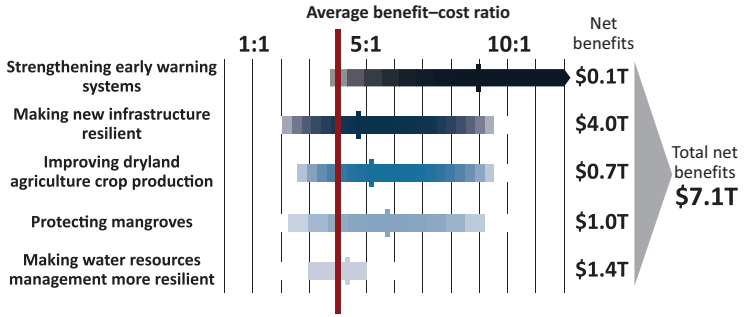

Figure 8.1 Investing in climate adaption delivers high returns. (Tall et al. *Enabling Private Investment in Climate Adaptation and Resilience: Current Status, Barriers to Investment and Blueprint for Action*. 2021. License: CC BY 3.0 IGO)[8]

by 2030; 3 to 6 times more than the $50 billion yearly funding outlined by the NDCs of 50 developing countries.

The Africa Adaptation Gap Report found costs of adaptation for the continent of between $7 billion and $15 billion per year in 2020, and increasing to as high as $35 billion to $70 billion annually by 2040. The Africa Adaptation Initiative (AAI), launched at COP21 in Paris by the African Union, offers an example of how to close these gaps. Indeed 'facilitating the closing of the action and finance gap for adaptation and to address loss and damage' is one of its founding principles.[9] Following the AAI-led Pan-African Forum on Climate Financing meeting and the General Shareholders Meeting of Africa50 in Lome, Togo, in 2023, the issue took centre stage. African Development Bank (AfDB) president Akinwumi Adesina described climate adaptation finance as 'failing the world' and 'not able to mobilise the capital that the world needs to meet all of its development needs.' Instead, he challenged global financial architecture to scale up its level of ambition, saying 'government [budgets] alone is not enough. By 2026 you're going to have roughly $1.5 trillion of assets under management globally . . . we need to do more to leverage the private sector.' That, he said, is 'where the money is'.

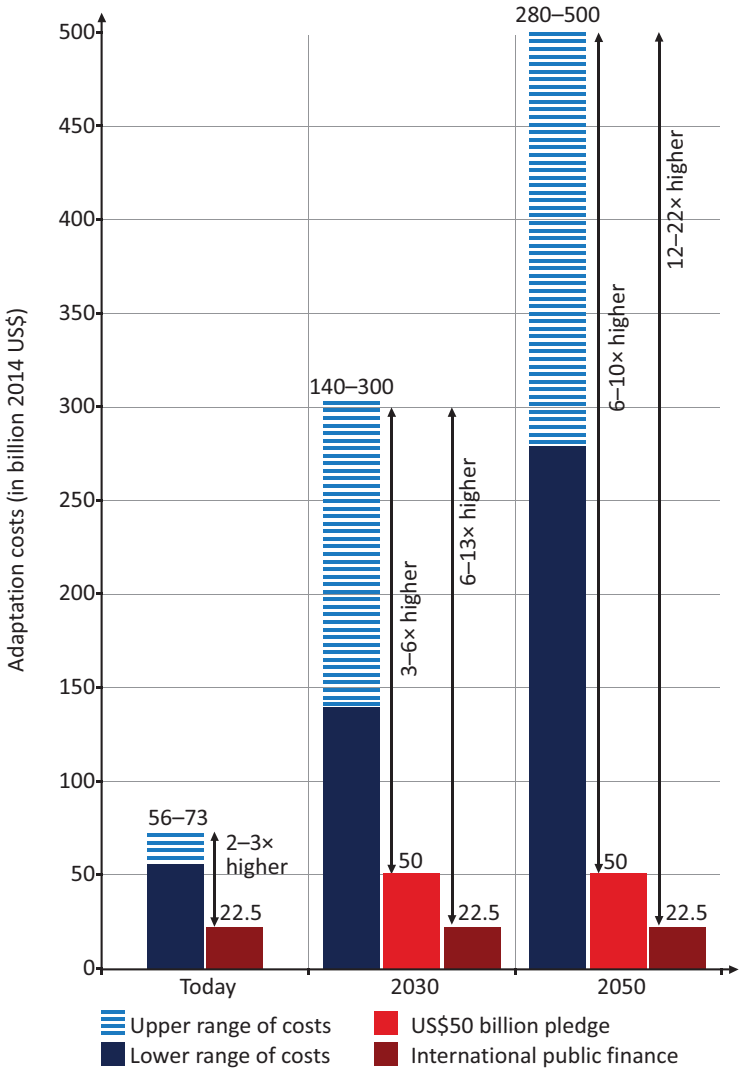

Figure 8.2 The adaptation finance gap. (Tall et al. *Enabling Private Investment*)[10]

Adesina later reiterated his message at the recent Summit for a New Global Financing Pact, in Paris, calling on the IMF to help unlock more resources to accelerate development, tackle

climate change, address debt challenges, and close infrastructure financing gaps, including the use of Special Drawing Rights (SDRs) to unlock global financing. Adesina told delegates that the AfDB 'can leverage the SDRs by three to four times. This would mean a lot more financing to also support all the regional development banks in Africa, as well as Africa50. A $250 billion re-channelling of SDRs to multilateral development banks will deliver up to $1 trillion of new financing for development globally.' The Alliance for Green Infrastructure in Africa, launched in 2023 and co-developed by the AfDB, Africa50, and the African Union, will mobilise $100 million for project preparation; $400 million for project development; and $10 billion in financing for green infrastructure projects. This will include projects for green hydrogen, green urban transport systems, electric vehicles and battery charging infrastructure, renewable energy, water, and sanitation.[11] Adesina told the press conference, 'sweating [the] balance sheet is not enough, you need new capital; you have to recapitalise for the global financial architecture to be able to [meet] the kind of needs that we are talking about.'[12]

Across the Indian Ocean, the Maldives has shifted its focus towards a 'Blue Economy,' emphasising the sustainable use of ocean resources. This includes modernising the fishing industry, a significant economic sector accounting for 90% of the country's exports. Steps have been taken to refine fishing products, ban harmful fishing nets, and expand marine protection areas, now encompassing 543 square kilometres. The Maldives has also banned all single-use plastics from 2023. These measures not only bolster the tourist industry (and thus the economy) but also safeguard coastal ecosystems, providing natural defences against storms and tidal surges. But as we saw in the previous chapter, all this comes at a cost – and the Maldives debt burden is already unsustainable. At the Finance Ministry, Fathimath Mohamed Didi plainly states the action that would make the biggest difference for her country: 'From my perspective, the top priority would be gaining access to

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financing and grants.' Such increased concessional financing for adaptation projects would, she suggests, have the potential for net positive returns on investment and enhanced economic resilience: 'A lot of our budget is currently allocated to mitigation projects. When I talk about access to climate financing, I mean securing sufficient funds to meet the country's extensive needs ... there's a significant need for shore protection and other adaptation projects, especially for the outer islands.' This approach includes putting in place water resource management systems on four main islands, including rainwater harvesting and desalination plants – all infrastructure projects that could attract global funders.

The Maldives, like the African nations under The Africa Adaptation Initiative, aims to attract both public and private investments not only to address immediate environmental and climatic challenges but also to contribute to long-term economic benefits. In both cases, the focus is on building infrastructure and systems that are both sustainable and economically beneficial, aligning economic growth with environmental stewardship. Such initiatives highlight a growing recognition worldwide that economic development and environmental sustainability are not mutually exclusive but complementary. This is perhaps most evident in the Climate Prosperity Plans (CPPs) of the CVF-V20. Florent Baarsch, Lead Economics editor of *The Monitor*, states that approximately 75% of current climate finance goes to mitigation, not adaptation: 'But even if all 100 billion dollars [annual green finance pledge] went towards adaptation, it's still not sufficient ... we lack prioritisation. Many countries have NDCs, low carbon strategies, and climate policies, but the challenge is knowing where to invest, why, and how'. This, he says, is where the CPPs come in. They are an 'exciting development,' he enthuses. 'We need projects that deliver tangible results and improve people's lives.' CPPs have the potential to do just that.

The CPPs focus on boosting local economies through climate-resilience projects, renewable energy infrastructure, and

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nature-based solutions. They are first and foremost practical documents for investors and donors. But ideologically they are important, too. Renato Redentor Constantino in the Philippines describes CPPs as 'a game changer – this is the pathway that ensures there is truly no, or very little, trade-off between climate stability and sustainable development outcomes.' CPPs can move countries away from climate vulnerability towards climate prosperity. The CVF-V20 has been mindful to avoid the 'victim narrative': the idea that developing countries want charity, or that COP negotiations are simply a chance to hand around global begging bowls. CPPs run counter to that mindset. They demonstrate that developed countries have much to learn from developing nations ('developing', after all, is an active verb – vulnerable countries have been busy developing their climate-resilience response, while 'developed' countries have rested on their laurels. See again the UK's lack of action as evidenced in Chapter 7). Major donors have also traditionally been wary of the danger of climate finance 'getting misallocated without proper plans in place,' suggests Constantino. For Constantino, CPPs are those 'proper plans' because they are 'investment-ready, fully costed business plans.'

As the V20 described in a Ministerial Communiqué in April 2024, 'Our CPPs recognise the need to mobilise investment and create incentives for structural transformation toward more socially inclusive, low-carbon, and climate-resilient growth paths. This will take a mix of policy incentives such as regulations and taxes, as well as mobilization of fiscal revenues and investment through national development banks and building domestic capital markets – only when the structure of economic growth changes will we break the cycle'.[13]

During 2023–24, up to 30 CVF-V20 members expressed an interest in developing their own CPP, building on the examples of Bangladesh and Sri Lanka's pioneering CPPs, with Ghana adding their own in 2023.[14] To help them achieve this, and to fast-track the implementation of CPPs, the CVF-

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V20 launched the V20 Climate Prosperity Fellowship Program, in collaboration with Boston University's Global Development Policy Center, as part of the broader fellowship programme of the CVF and its major bodies – V20 Finance Ministers and Global Parliamentary Group. The inaugural batch is composed of 15 mid- to senior-level finance and planning ministry officials from 13 V20 member countries.[a] Following the success of the inaugural cohort, a second cohort of the V20 Climate Prosperity Fellowship Program is currently in progress from 2024 to 2025. The V20 stated that 'The way forward to build critical adaptation and resilience means the delivery of development-positive climate action and any lasting solution on climate will require significant reform to the international financial architecture including debt reform, shifting of financial flows to serve climate goals, and mainstream surveillance of climate risks to drive new investment.'[15]

No Caribbean Island state had yet, at the time of writing, put a CPP together. Geneva Oliverie, Deputy Director for International Finance and Trade at the CVF-V20 Secretariat, says that Blue Bonds and debt-for-nature swaps are attracting increasing interest, with Belize, Dominica, and Barbados having 'already signed on to these types of arrangements. And there is strong support for these things in the region.' However, she admits that there is an issue with a lack of bankable projects. CPPs offer precisely that investor-ready approach. Oliverie suggests that in Barbados, dealing with coastline erosion could be one such project, whereby a portion of the cost could be offset by debt. Preservation of forested areas and establishing reservoirs are other examples. Blue bonds could support the fisheries sector, promoting climate-smart activities. She describes them as obvious 'growth areas'. But, she says, 'it's essential to have clear

[a] Namely: Bangladesh, Bhutan, Eswatini, Fiji, the Gambia, Ghana, Haiti, Honduras, Kenya, Maldives, Philippines, Rwanda, and Tonga.

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project goals beforehand.' Again, a CPP would be the ideal way to clarify and frame such goals for investors.

An obvious pushback is that, given that all CVF-V20 countries must also draw up five-yearly NDC climate action plans as signatories to the Paris Agreement, why do they also need a CPP? 'Current NDCs are almost aspirational without a clear path to action,' explains Constantino, whereas the CPP focus is on 'resilient infrastructure, decentralized energy, and public transport systems that cater to the majority's needs, reduce money spent to import fuel and thus help raise resources for other social needs and as an outcome contribute hugely to global decarbonisation ... It's time to move the frame of response away from the victim narrative, highlighting the proactive measures of vulnerable countries to chart their own pathways to the future.'

It's also in the self-interest of developed nations to fund CPPs as a testing ground for effective climate adaptation measures. They offer both climate-resilience R&D and attractive investment opportunities. 'Currently, interest rates in Europe and the US are low,' points out Sara Ahmed. 'While some of the capital may be concessional, private sector involvement in CPPs can yield the over 6% returns needed for pension funds. China's future growth story is closely linked to the V20 nations ... This is especially relevant for adaptation projects with long-term horizons. We need to bring the cash flows upfront, which can be achieved through financial engineering. It's not impossible; it just requires focused stakeholder collaboration, including governments.'

Perhaps most important to both climate resilience and economic prosperity, as highlighted by Nisreen Elsaim at the start of this chapter, is reliable renewable energy. Sri Lanka's CPP includes very ambitious renewable energy infrastructure upgrades, with 5 GW (billion watts) in offshore wind mega-projects – more than the country's total electricity generation capacity at the time of writing – to be up and running

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by 2030. This requires $16 billion in investment over an eight-year implementation, plus an Indo-Sri Lanka undersea power cable line (Madurai–Anuradhapura) installed to link the national grids of India and Sri Lanka, scaled up to 10+ GW capacity by 2040.[16] Investors were already circling with bids at the time we talked with Sandith Samarasinghe, who worked on the CPP, in early 2024: 'There are many investors interested in the offshore wind projects, because they are big – investors like it big. Talking about 5 gigawatts, it's huge. There's an abundance of wind in Sri Lanka, in the north and the south. So, there are potential investors that will come and invest ... and there will be job transition from fossil fuel run power stations to renewable energy jobs. There will be a big economic impact.'

Colombia is also in the process of transitioning to wind and solar, with the Petro Administration committing to increase non-conventional renewable energy capacity from 1% to over 12% by 2030 (hydro power already accounts for 68% of the total capacity, which would mean the country – one of South America's largest – will have 80% clean energy). This initiative is part of Colombia's broader strategy to reduce greenhouse gas emissions by 51% from business-as-usual projections by 2030 and achieve carbon neutrality by 2050, which the government has branded 'the Just Energy Transition Plan'. Gas and coal-fired plants currently contribute 31%, which will be scaled back as wind and solar come online. Colombia's Mining and Energy Planning Unit (UPME) has already conducted three renewable energy auctions, awarding numerous large-scale wind and solar projects cumulatively valued at around US$3.1 billion.[17] Colombia added 224 megawatts (MW) of new non-conventional renewable energy capacity in 2023, reaching the 1 GW mark by May 2024 and on target for 1.55 GW of renewable capacity by the end of 2024.[18]

The Maldives too is making significant strides in renewable energy. In December 2022, the country inaugurated its first 5 MW solar facility, part of a broader plan to develop 50 MW of

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solar and battery capacity. The Maldives' World Bank-financed ASPIRE (Accelerating Sustainable Private Investments in Renewable Energy) and ARISE (Accelerating Renewable Energy Integration and Sustainable Energy) projects also introduce innovative approaches to financing that could serve as a model for other SIDS. ASPIRE uses a blended finance model, combining grants, concessional loans, and private investments, paired with competitive bidding processes to encourage efficiency and lower costs in renewable energy projects.[19] By the end of the project, it is expected to install over 53.5 MW of solar capacity and 50 megawatt hours of battery storage, thus making a significant impact on the country's energy infrastructure and its economic sustainability, reducing the country's annual energy import bill by about $30 million, with a project lifetime saving of $756 million over 25 years.[20] In 2022, 63 investors expressed interest in an 11 MW solar project. The projects also collaborate closely with the South Asia Gender and Energy (SAGE) and Women Practitioners' Network in the Energy Sector (WePOWER) to ensure female participation in energy projects. Over 170 women will work in technical roles across the utilities through the two projects.[21]

While such plans point to a way forward, Dina Zayed of the Climate Emergency Collaboration Group argues that there is 'no one-size-fits-all solution'. She stresses that finance gaps 'are not just about climate but also about capacity and governance. Overemphasising numbers can overlook the need for shifts in how we design, govern, and engage communities. All adaptation decisions are about power trade-offs, and going down a financialisation path does not reckon with questions of power from a political economy lens. While supporting the development of prosperity plans is necessary, it should not push the analysis and engagement with questions of power down the priority ladder.' There remains, she says, a big problem with money being 'concentrated with international consultants, who for the most part, produce the research and the data but do not look and do not meaningfully engage

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communities in shaping the[ir] understanding of the[ir] own vulnerability in order to adequately respond to it.'

For example, in Kabale, Uganda, Evelyne Ninsiima of the Green Environment Promotion (GEP) explains that 'very few local people benefit from carbon financing. Because very few people have enough land for agriculture and tree planting . . . it's still challenging to identify organisations that provide carbon credits, and local communities rarely access them without a liaison. Farmers who plant trees might benefit if they form small groups or associations. Often, carbon credit organisations have specific terms.' The current system is top-down, she says, 'and the person at the grassroots level doesn't benefit. There's a lack of ambassadors doing practical work on the ground to help these people. The UN and climate change champions should find the right people who are practically addressing climate change at the local level. A bottom-up approach is needed for people to benefit from this. In Uganda, women are the primary users of fuel wood, so they should be central in climate change efforts. Partnering with organizations that work directly with local people is crucial. For example, GEP has been in rural communities for over 15 years and understands the challenges and gaps that affect local people. Partnering with such organizations will have a better long-term impact on the environment and climate.' That said, she sees a role for climate financialisation. 'I think it does have a benefit. For the rural communities, especially the illiterate, to understand the concept of conserving the environment, they need to see a monetary value.' Her message to international funders is that 'funding should reach the local people. A bottom-up approach is more effective for climate change benefits. Women, who are key in climate change efforts, need to be involved.'

Zayed agrees that 'the question of grassroots involvement needs specific attention – considering who and what we're referring to and in which spaces their presence is most necessary. The transitional committee proposal for loss and damage, as it stands, does not offer a modality for indigenous

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groups, sub-national governments, or grassroots communities to access it, benefiting mainly national governments.' The challenge ahead is to ensure 'funding reaches the right groups'.

Again, there are examples and precedents to follow. The Philippine Climate Change Act of 2009, for example, initiated the People's Survival Fund (PSF), a $24.5 million fund established to assist communities in developing local action plans for climate adaptation.[22] Designed to support local governments and community organisations in regions that are highly vulnerable to climate impacts, the funds are directed towards areas with the highest need for climate change adaptation and disaster risk resilience efforts. Each PSF adaptation project involves local stakeholders in the planning and implementation, ensuring that the projects are well suited to the specific needs of the communities and also build local capacity.[23] One specific example is the 'Climate Field School for Farmers' in the Mountain Province. Receiving a grant worth PHP 271.15 million ($5 million), the Climate Field School, designed with the help of community stakeholders, now helps local farmers adapt to climate change by providing education on sustainable agriculture and aquaculture practices and the effects of climate variability on farming. An external analysis of the PSF found that public engagement of all actors in all stages of the project, even during the post-project stage, and keeping stakeholders in the loop about the project, was vital: 'farmers in their municipality are deeply interested in the project as they feel the need to address the impact of climate change in their agricultural activities. With adequate and accurate explanation about the rationale of the project and the benefits that farmers can derive out of the project, the stakeholders express strong approval and support.'[24]

In Vietnam, a local NGO, the Center for Social Research and Development (CSRD), led an initiative called 'Strong Roots, Strong Women' which saw a community-run mangrove

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nursery established in the Tam Giang lagoon, near Huế City. The nursery is managed by community members who receive ongoing training in nursery setup and management. The community has since planted approximately 28,000 mangrove seedlings across several hectares. 'We were learning by doing,' says Nguyen Thi Nhật, formerly of CSRD. 'If we are only talking about climate change and impact of climate change, it's really difficult for local people because their education background is not so high. But when we create something which is practical for local people, which adds to their livelihood, it is much easier for them to understand.' The mangrove nursery now sells its sapling trees to other NGOs and carbon credit schemes. The support group, made up of local women, 'take care of the mangrove forest during and after a storm or flood. They will inform us of any issues. I think the most important thing is the way we talk with them. It means that we all have a deep connection with nature and can give them a sustainable livelihood at the same time as protecting nature.' Early evaluations show strong community support for the nursery, and a sense of ownership, which promotes ongoing resilience and stewardship.

In the Colombian Ministry of Finance, Daniela Saade Ortega suggests that the priority climate adaptation response for communities in her country is 'housing and construction – that's very important for adaptation because of the extreme weather we are going through. If we are able to build buildings and houses that can endure, for example, extreme rains and floods, that will be really important, especially for the most vulnerable.' At the time of writing, Colombia has 11 projects funded through the UN's Green Climate Fund, totalling $292.9 million.[25] 'These multilateral funds created in the framework of the UN Convention for Climate Change are really important for us in Colombia,' continues Ortega. 'Our President has been very vocal about increasing the access to concessional funding. And this will continue to be a very important funding source for all countries. But there are

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adaptation investments that do not necessarily have a financial model that investors are used to, or the banks are used to . . . So the conversation needs to be really around how can we innovate.' Countries vulnerable to extreme weather events, she says, currently 'don't have the fiscal capacity to adapt and to invest in what's needed, [they] are left with very little options.' Funding such projects, says Ortega, requires 'other types of investors, other types of creditors, that are willing to take on more risk and have the financial capacity and the governance to take that risk, so that we can get to those kinds of projects that the banking sector will not finance.' Colombia has issued Green Bonds and Blue Bonds, but she says that is not enough to fill the void. 'The main problem we face, which overlaps with other financial instruments, is the lack of a project portfolio . . . the talk about finance needs to be linked with the talk about project structuring and having ready-to-finance projects.'

Again, this points to the need for – and the strength of – Climate Prosperity Plans. Ghana's CPP, for example, lists the following 'keystone' projects, all finance-ready:

- A portfolio of offshore/floating wind, tidal energy, solar energy, storage, and grid modernisation; achieving 3 GW of new capacity additions before 2030 with a lifespan of eight years and an estimated level of investment of $16 billion.
- Increase access to safe drinking water and improve sanitation and basic hygiene services of 1,700 communities and 150 schools with an investment of $198 million for a six-year period.
- Integrate MSME (micro, small, and medium enterprise) insurance as core offering on Ghana's wholesale buyer/seller associations, achieving a total sum assured of $1 billion in contingent savings by 2030 for businesses with fewer than 20 employees, helping unlock investments in climate adaptation equipment and business

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practices of an equal value. The project represents an investment of $5 million from 2023 to 2028.
- Resilience to floods through the implementation of strategically located green spaces and other nature-based interventions to regulate drainage. The project will be piloted in Accra, and therefore the outcome for 2030 is to have 25% of roofs in major urban centres cultivated as green roofs, which requires an investment of $415 million.

Each one is then broken down into sub-category targets, such as:

- 50% of all processable waste is converted to energy through waste-to-energy facilities by 2035.
- In 2035, 100% of major urban centres in Ghana benefit from an extended public transportation network running on electric vehicles.
- 90–100% of national food and beverage consumption is domestically produced by 2035.

Each acts as a major signal to investors in industries from transport to agriculture, wind power to water engineering. Overall, the cost–benefit ratio of Ghana's CPP is calculated at 1:1 by 2030 and reaches 2:3 by 2050. 'The net benefit of the CPP increases with time and amounts to $47.57 billion by 2050. This is because there is more time for the benefits of the investments to accumulate (e.g., energy efficiency investments result in energy and related cost savings every year, once new and more efficient equipment is adopted). The CPP scenario, despite being more ambitious than the NDC and considering more, and higher cost investments, is also economically viable.' Through the CPPs, climate resilience and economic prosperity can truly go hand-in-hand.

The need to invest in health services as a climate-resilience measure takes centre stage in the CPPs. The CPP, if carried out in full, is projected to remove mortality related to air pollution by 2050 due to the average 78.4% decrease of the PM2.5 index (measuring fine particulate matter) over the course of

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the next 28 years, with mortality risk related to cardiovascular diseases and diabetes also reduced by 25.7% and 30.4% respectively.[26] As expressed by the Economist Impact report supported by UNOPS 'Building health system resilience in an uncertain world', 'Developing the resilience of health systems will ensure that they are able to withstand the pressures of acute shocks and longer-term, chronic threats.' Margaret Kruk, Harvard professor of health systems, calls the double benefit to health system performance 'the resilience dividend': the building blocks of a resilient system – whether a skilled healthcare workforce, strong data tracking capabilities or even a high level of public trust in health institutions – also support the equitable and effective delivery of day-to-day health services.[27]

The Lancet Countdown 2023 report also calls for a more equitable distribution of climate change action as a health intervention, and vice versa. It gives the example of Portugal's 2021 Framework Climate Law which explicitly mandates the government to prepare action plans for extreme climatic phenomena and emerging diseases due to climate change. Marina Romanello, Executive Director of the Lancet Countdown and Health Editor of *The Monitor*, argues that 'we definitely need to strengthen our health systems and our public health infrastructure ... even in a 1.5 degrees Celcius world, the growth in the health hazards would be so much that if we're not being able to cope today, we have very little chance to cope then.' Strengthening our health systems, then, is fundamental to climate adaptation. 'But it goes way beyond that,' continues Romanello. 'The systems that determine our health are not just health systems. In general, when we think about health systems, we think about hospitals and treatment of disease. But we also need to strengthen our roads to get people to hospital, to deliver healthy active travel and public transport systems that ... reduce exposure to air pollution emissions. It's about strengthening our water systems, so when a drought

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hits, we still have water to continue our crop production and have water at home; to strengthen our food systems so that we're not suffering from food insecurity in every extreme weather event, as the climate continues to worsen. So when we talk about resilience, it's about every one of the systems that determine human health and well-being.'

In Nepal, Sweta Koirala of the Nepal Development Society (NEDS) makes a similar point: 'Diarrhoeal diseases are preventable if people consume treated water. The municipality's failure to treat sewage before it enters the river is a significant contributor to the problem.' When Koirala worked with Jason Glaser and La Isla Foundation to research chronic kidney failure amongst migrant workers, she naturally approached the Government Labor and Statistics department for the figures, but was surprised to find that 'they had no idea about the number of people returning in coffins. Their focus was on the remittances sent back by these workers, as Nepal's GDP heavily depends on it.' The adaptation measures most urgently needed in Nepal, she says, are infrastructure upgrades to municipal water supply and municipal sewage treatment, and environmental protections to stop deforestation. 'We need to start from the top, like the forestry and agriculture ministries. They should focus on things like river water treatment, waste management, and reforestation. Every child should learn about respecting nature and the environment from a young age. Urban planning, forest conservation, and sustainable land use are critical. There's a lack of education and empathy at the policymaking level, which is surprising … Additionally, investing in agriculture could bring jobs back to Nepal, reducing the need for migration and allowing us to export our crops again.' It isn't a long list, or a big ask.

The issue of effective governance is far from unique to developing countries, however. In the documentary film *Trop chaud pour travailler*, Fabien Veret, a construction site work leader in France interviewed during a heatwave in

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2022 that surpassed 40 °C, says on camera, 'Yesterday we received an email from the Ministry of Labor explaining the recommendations that are necessary precisely during the hot weather, to postpone the work if possible, otherwise to adjust the schedules, to avoid working in the afternoon.' But these were not requirements, just recommendations. 'Today there is no law prohibiting working in periods of high heat or anything,' said Veret. In France, as in most European countries, there is no maximum temperature limit for outdoor labour. The company is responsible for the health of its employees, but it is free to apply whatever precautionary measures it chooses, or not. 'We don't yet have solutions that allow us to guarantee the safety and health of our staff in hot weather by working all day like this,' said Veret, bluntly, sweating under a white hard hat. 'Today, we don't have those solutions.'[28]

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The Early Warnings for All (EW4All) initiative, launched in March 2022 by UN Secretary-General António Guterres, aims to do exactly what it says: provide climate hazard early warning systems (EWS) to every person on Earth by 2027. To achieve this requires unprecedented coordination among various organisations and funding bodies. Despite a doubling in coverage since 2015, only half of the world has access to these crucial warning mechanisms at the time of writing (2024), with notable gaps in vulnerable regions. But where there has been success in CVF countries, such as the EWS of Niger or Fiji, it has been thanks to continued collaboration, strategic financing, and sustained political support.[29]

'A successful early warning system is based on four key elements,' explains Animesh Kumar of the UNDRR in Bonn and UNDRR's lead for the monitoring and evaluation of EW4All. 'Firstly, knowing what risks to monitor; secondly, having the ability to monitor those risks; thirdly, being able to communicate those risks; and fourthly, being capable to

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act once the early warning is triggered. Knowledge, monitoring, communication, and action are the four pillars, interconnected in a standard early warning system. Only by having all these covered can we call it a successful system.' His colleague Iria Touzon Calle adds that an effective early warning system must also be 'multi-hazard, people-centred, inclusive, and gender-responsive. The focus isn't just on having effective monitoring stations and accurate forecasts; it's crucial that the warnings are received and actionable by everyone. Being inclusive means ensuring everyone can receive and understand the warnings, and being gender-responsive involves enabling people to take specific actions to protect themselves and minimise impact. These qualifiers are important to ensure we have common metrics across institutions to measure success in early warning systems.'

True climate risk reduction, resilience, and adaptation cannot happen without gender inclusivity. To date, women are more severely affected by climate-related disasters than men. An estimated 80% of those displaced by climate change are women, and women are disproportionately represented among the 4 billion people globally who are excluded from social protection schemes. For example, only 26.3% of working-age women are covered by a pension scheme, compared with 38.7% of working-age men. Additionally, women make up 55% of the world's unbanked adults, meaning they have no access to financial services like bank accounts or insurance. Not only is this unjust, it is also an ineffective adaptation and finance strategy. The Global Shield Financing Facility (GSFF) Annual Report in 2023 finds that 'women are producers and adopters of climate change solutions on farms, in businesses, and at home, and they engage in preserving natural assets. Their leadership, innovations, and decision-making in climate and environmental action are associated with improved sustainability, resource management, and climate resilience.'[30] Action to address this includes the Women's Resilience to Disasters programme launched by Fiji and Kiribati, in partnership with UN Women,

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focusing on gender-responsive disaster prevention and recovery. Guatemala has developed and implemented a gender strategy to reduce women-specific vulnerabilities to climate change and to ensure that women benefit from community-based gender-responsive measures. These include restoring mangrove ecosystems with the full participation of women's groups; managing fisheries with the participation of women; and ensuring that at least 30% of forest area is managed by Indigenous and non-Indigenous women.[31] Meanwhile, the 'Training Manual on Gender and Climate Resilience' developed by UN Women in the Asia-Pacific region recommends 'gender-responsive climate technology solutions' – in particular, 'access to essential infrastructure and climate-smart agricultural technology'.[32]

Florent Baarsch at finres also believes that indigenous knowledge, gender inclusivity, and climate resilience for smallholder farmers, can be aided by technology. 'In just five to ten minutes, TikTok's algorithm can figure out your preferences and show you videos you'd enjoy. They've developed a strong algorithm to understand who you are and what you want. Now, when we talk about adapting a country to a changing climate, it often involves hiring a consultant from Europe . . . [and] substantial funding to various areas, some of which may not be as useful . . . I think technology can help eliminate the middlemen in this process.' Finres is looking to work with in-country banks and lenders to reduce the need for consultants and complex project structures: 'My dream is for 95% of funds to directly benefit farmers, with only 5% used for organising and implementing projects. I find it bewildering that we invest heavily in, say, improving social media algorithms while neglecting algorithms that could help address food security and adaptation to climate change.'

One smallholder farmer who decided to invest in an innovative approach was Jameson Alphonse in Saint Lucia. His farm in Bois D'Inde is located on the increasingly dry southwest of the island, he explains. 'One of my customers wanted me to grow lettuce for him. However, due to the

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scarcity of water in the dry season, I was unable to immediately accept that challenge. So, I began researching agricultural methods that use less water, which led me to aquaponics.' Aquaponics uses approximately 90% less water than traditional agriculture because it recycles water. The water circulates in a closed system, raising fish in the process, with the only water lost through transpiration or evaporation. 'Farmers need to plan ahead,' continues Alphonse. 'They need to know what they're planting, how much water it uses, and the availability of water to plan properly.' However, he says, the primary barrier to entry in aquaponics is the cost. The setup expense is prohibitive for many farmers. 'Adaptation comes with its own set of costs,' he admits. 'I know that all farmers want to adapt and mitigate, but whether we have the means, access to funds, and resources to do so is where the limitation lies. It's not about what farmers want to do; it's about what they have access to and what they're capable of doing.'

Swenja Surminski, climate risk expert, argues that the 'technical understanding and feasibility of nature-based solutions have significantly increased ... the choice between building a flood wall, which is visible and tangible, versus planting mangroves, which takes time, isn't as immediately noticeable. But we need to understand that these solutions need to be combined. Nature-based solutions are growing in importance, and we're seeing how environmental degradation is driving up risk levels. Deforestation is a classic example, becoming a significant driver of flood risk. There's a growing recognition that we can't rely solely on traditional methods like concrete flood walls but need to integrate these with more sustainable, nature-based approaches.'

Ten African countries launched the African Forest Landscape Restoration Initiative (AFR100) in 2015 to bring 100 million hectares of land to restoration by 2030. Since its launch, AFR100 has secured crucial political commitments across the continent to its defined restoration strategies, including raising

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private investment for restoration. One of hundreds of such projects underway include an effort to restore the fragile soil systems around Enyezini Secondary School in Malawi to replenish the groundwater. Farmers have been shown how to dig contour berms and natural dams that slow down and collect runoff water to prevent soil erosion, protecting newly planted saplings that live on the steeper slopes of the neighbouring hills. As the project web page describes: 'Covering bare ground with indigenous grasses also contributes to a fast change of microclimatic conditions. Through the development of agro-forestry systems with fruit-bearing trees and a variety of native species, the project is improving livelihoods and promoting a more diverse diet for local communities.'[33] It's a shining example of nature-based solutions offering climate resilience, protecting biodiversity, and boosting human health at the same time. This is ultimately, as the title of this chapter states, 'what we must do' now.

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The V20 Finance Ministers met in Washington DC on 22 October 2024, in the margins of the 2024 Annual Meetings of the World Bank and IMF, 'calling for urgent financial governance reforms and far more equitable climate finance'. The released statement reiterated that 'recent climate disasters have exacerbated the debt and climate vulnerabilities of V20 economies' and criticised the current financial system for 'diverting crucial funds from the poorest nations to the wealthiest'. The 13th V20 Ministerial Dialogue Communique pointed out that the '2023 net outflows from Emerging and Developing Countries rose by $68 billion to $200 billion through extractions from private creditors in interest and net repayments', which forced these countries to reduce spending on health, education, and infrastructure.[34] But alongside spelling out the escalating sovereign debt burdens and rising costs of capital, it provided a clear checklist for action. The time for

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hand-wringing over 'What could be done?' was over. This was a clear statement of what could – indeed, must – be done:

(1) Substantial reforms to the international financial architecture to be inclusive, equitable, and responsive to the unique challenges the member countries face.
(2) Stronger voice and greater representation within the IMF and World Bank, with formal recognition as an Intergovernmental Group by the Bretton Woods Institutions.
(3) Climate Resilient Debt Clauses must be integrated into IMF's financing framework to allow for debt pauses and provide debt relief.
(4) As highlighted in the V20's Accra-to-Marrakech Agenda, the IMF must initiate a replenishment drive for the Catastrophe Containment and Relief Trust and expand the use of pre-arranged, trigger-based liquidity mechanisms designed to address the specific shocks experienced by climate-vulnerable nations.
(5) New issuance of at least $650 billion in SDRs must be authorised by the IMF, and they need to ensure their allocation and rechannelling to multilateral development banks and instruments such as the Resilience and Sustainability Trust (RST).
(6) International Development Association (IDA) replenishment of at least $120 billion in 2024 must be prioritised by the World Bank.
(7) The World Bank must provide guidance to climate funds for streamlining access to help vulnerable countries to maximise climate financing and address the growing adaptation finance gap.
(8) The Global Challenge Programs must be effectively tested and scaled up, leveraging artificial intelligence and rapid resource mobilisation to address critical global needs.

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(9) Debt restructuring should prioritise Debt Sustainability Analyses that consider real climate and development needs, natural capital, and climate risks.
(10) Multilateral Development Banks (MDBs) should effectively catalyse private financing of $500 billion annually and mobilize it towards low-carbon transformation and adaptation.

Ultimately, the V20 Communiqué emphasised, 'resolving sovereign debt must be central to any climate finance deal.' Further, it underscores 'the crucial role of the New Collective Quantified Goal (NCQG) to correct past shortcomings of the $100 billion target'. COP29, which was held from 11 to 24 November 2024 in Baku, Azerbaijan, placed a special focus on climate finance. On the last day, all signatories finally agreed to 'triple finance to developing countries, from the previous goal of $100 billion annually to $300 billion annually by 2035'.[35] However, how this NCQG will be implemented in the future remains to be seen.

As Daniela Saade Ortega of the Colombian Finance Ministry told us for this book, 'we need leaders with political will to put these issues at the forefront and build a strong coalition of the Global South.' If the V20 achieved recognition as an advisory official group in the IMF and World Bank, like the G20 and G7, it would increase its political capital both nationally and internationally, she suggests: 'It would allow vulnerable countries to speak directly to the decision-makers.' Similarly, Le-Anne Roper, Programme Management Officer at the UNDRR, reflecting on her home country Jamaica and on her previous experience as Senior Technical Officer (Adaptation) at the Jamaican Ministry of Economic Growth and Job Creation, says that 'there is progress at the national level in treating climate change not just as an environmental issue but as a larger developmental one.' Financial policy improvements, for instance, have seen a lot of effort that more fully 'accounts for the growing climate risks across various instruments and agreements with multilateral institutions.'

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In some cases, however, achieving climate justice may require litigation. Hafijul Islam Khan, a Bangladeshi lawyer working on climate issues, says: 'I'm trying to identify the vulnerable communities in coastal zones who can file litigation, not at the national jurisdiction, but even in international jurisdictions . . . developing countries need to be very strategic and we need to be clear in terms of technically what we are going to demand and why, and how to negotiate with the developed country partners. Because this negotiation is the basis for developing further policies.'

A notable example is the UN Human Rights Committee ruling in favour of Indigenous Torres Strait Islanders against the Australian Government. It was found that Australia had failed to adequately protect indigenous Torres Islanders against adverse impacts of climate change, which violated their rights to 'enjoy their culture and be free from arbitrary interferences with their private life, family and home'. In particular, the Islanders claimed that their rights had been violated as Australia failed to adapt to climate change by upgrading seawalls on the islands or reducing greenhouse gas emissions. Despite Australia asking the Committee to dismiss the petition in 2020, the Committee ruled in the claimants' favour in 2022.[36] Yessie Mosby, a Kulkalgal man on the island of Masig and a claimant in the case, said, 'The government is accountable for the damages and losses we have been through in the Torres Strait due to climate change, and their response is disappointing for our people . . . We can't pack our bags and go – we are not connected to any other place but this beautiful island we call home. Masig holds our lineage, our loved ones, our memories, our ancestral beliefs and our way of living.' Since the ruling, claimants have entered dialogue with MPs in Canberra, and sea walls have been upgraded.[37]

The 2023 UNDP report 'Loss and Damage and Climate Litigation' states that 'The liability debate must also account for demands for justice and equity in sharing the burden of negative climate impacts', and goes on to assert: 'The current

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lack of political clarity should not obscure the proportions that climate liabilities might take in the near future for governments and companies that continue to act irresponsibly in the face of our climate crisis.'[38]

In another historic decision in May 2021, a court in The Netherlands mandated Shell plc. to curtail its global carbon emissions by 45% by the year 2030, relative to its 2019 figures. The case was seen as a seminal moment in climate change litigation, marking the first significant ruling against a corporation for its environmental impact. Shell had previously acknowledged the need to reduce its emissions following the signing of the Paris Agreement and proposed a plan to cut its carbon dioxide emissions by 30% by 2035 and 65% by 2050, using 2016 levels as a baseline. However, the plaintiffs contended that this pledge fell short of the Paris Agreement's requirements. The Hague District Court concurred, finding that Shell's existing sustainability policy lacked specificity and decisiveness. Consequently, the court's directive required Shell not only to reduce its emissions but also to account for those of its suppliers and customers. (Shell, naturally, announced its intention to appeal.)

A comprehensive approach to climate adaptation for vulnerable countries therefore means combining financial, legal, and nature-based approaches. The most extreme climate adaptation measure is to relocate – something that all countries and communities want to avoid. Perhaps most famously, in 2022 the Indonesian parliament approved the relocation of its capital city from slowly sinking Jakarta to a site 2,000 kilometres away.[b] The Fijian government has also initiated a proactive population-relocation programme, with a strong emphasis on local community consultation, ensuring that 'decisions about relocation are inclusive and considerate of

[b] The new capital city of 'Nusantara' will cover about 56,000 hectares in East Kalimantan province on the Indonesian part of Borneo, with a total of 256,000 hectares set aside for the potential future expansion of the – as yet uninhabited – city.

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all community members, including women, youth, and people with disabilities.' To date, 42 villages have been identified for relocation, with 6 having already completed the move.[39]

In the Maldives, the 2004 tsunami caused widespread internal displacement. Kandholhudhoo Island became uninhabitable, and the island's residents were moved to the then uninhabited Dhuvaafaru Island. Yet relocation can only be considered as a last resort – not a viable option for early consideration. Relocation raises concerns about the loss of cultural values, customs, language, and connections to ancestors. Even those who moved from Kandholhudhoo Island to Dhuvaafaru Island still struggle some 20 years on, says Maldivian economist Mohamed Shahudh – they regularly return by boat to their old homes. In 2023, President Mohamed Muizzu instead announced a plan to fight back against the threat of ocean flooding by building 'fortress islands', raising the height of existing islands, adding reclaimed land, and seeking $500 million international funding to do so. Hulhumale has already seen around 430 hectares reclaimed, albeit at the cost of delicate ocean ecosystems. 'If relocation becomes the accepted solution, then the need for adaptation and mitigation might seem pointless,' argues Mohamed Shahudh. 'The general consensus is to focus on adaptation and mitigation rather than relocation.' There really is no place like home. And the fight to save our homes begins with adaptation and mitigation.