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# Chapter 7

## Global progress on adaptation and outlook

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This chapter builds on the framework laid out in [chapter 2](#) to synthesize the overarching findings of [chapters 3–6](#) and provide a more comprehensive and multifaceted understanding of adaptation progress at the global level. It does this by focusing on the progress being made across the planning, finance and implementation dimensions of adaptation at the national level and in terms of multilateral and bilateral cooperation ([chapters 3–5](#)), as well as considering the lessons learned from the deployment of nature-based solutions ([chapter 6](#)). The chapter discusses the overarching conclusions that this Adaptation Gap Report (AGR) can draw regarding global progress on adaptation and emerging perspectives to improve global tracking of adaptation actions and results through the lens of the categories introduced in [chapter 2](#), for example, evidence of adaptation progress; identification of gaps; and elements that constrain the interpretation of findings. The chapter concludes with a short summary of the key messages and an outlook.

## 7.1 Cross-chapter synthesis

The findings of the 2020 edition of the AGR allow some overarching conclusions to be made about global progress on climate change adaptation, as well as gaps and uncertainties that persist in this process. These overall conclusions are illustrated in [figure 7.1](#). While panel A is identical to panel A of [figure 2.1](#) in [chapter 2](#), panel B supplements this with headline-level information that is both drawn from the substantive chapters 3–6 and related to the three above-mentioned categories (progress, gaps, and constraints on the interpretation of findings).

### 7.1.1 Progress

**There is robust evidence that progress has been made in enhancing national-level adaptation worldwide over the last decade**, as illustrated by the solid downward grey arrows in [figure 7.1](#). This conclusion is supported by various types of findings, as described below.

#### **Recognition of the importance of adaptation policy to galvanize action at the international and national levels:**

Data show that climate adaptation is now fully part of climate policy action across the world, concurrently

with greenhouse gas mitigation efforts (United Nations Environment Programme [UNEP] 2020). The adoption of national-level adaptation planning instruments (for example, plans, strategies, frameworks and laws) has been found to be widespread, with eight out of 10 countries having at least one instrument either already implemented or in development and over 60 per cent of countries including NbS in the adaptation component of their nationally determined contributions (NDCs) ([see box 7.1](#) for a snapshot of the main findings for NbS).

#### **Maturity in the way adaptation is considered in policies and strategies:**

Often dependent on national circumstances and risk profiles, approaches to adaptation at the national level demonstrate varying degrees of maturity, with some countries presently building on previous adaptation plans while others are engaging in this area for the first time. Moreover, policy instruments can be adaptation-centred or incorporate the adaptation component into a broader perspective. The latter is particularly relevant for initiatives related to NbS, which are typically embedded in broader development interventions, providing a wide range of additional benefits besides addressing exposure or vulnerability to climate hazards. Various degrees of maturity are also apparent when analysing cross-sectoral approaches to adaptation, as well as within the development of more sector-specific adaptation policy instruments.

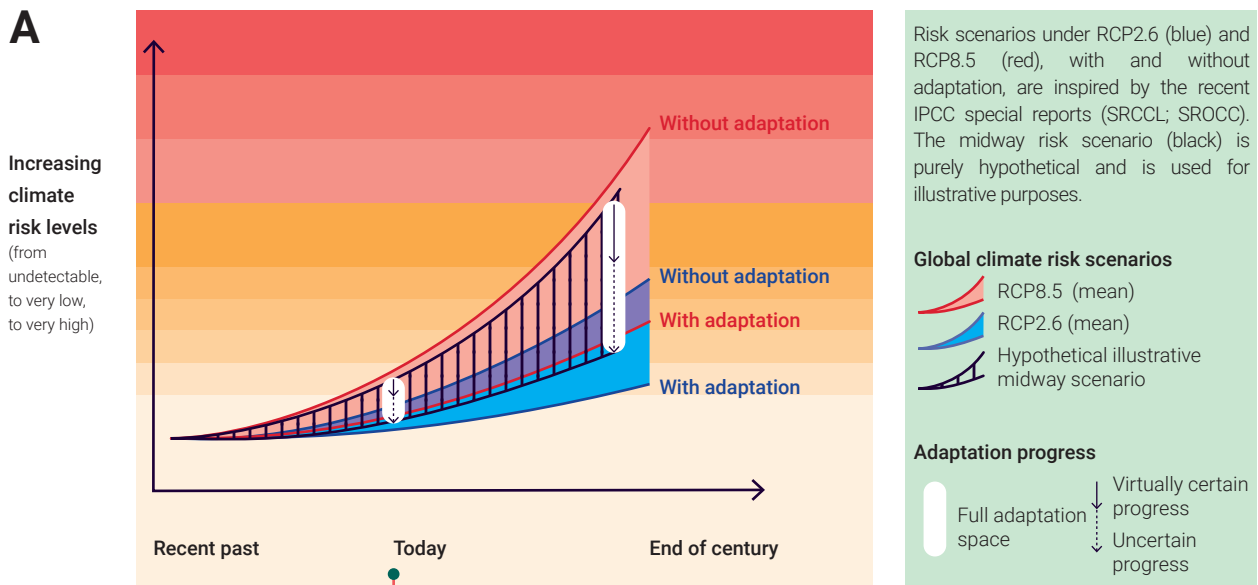
#### **Actionable policies providing guidance on how to operationalize adaptation:**

The increasing recognition of topical approaches to adaptation – such as NbS and other cross-sectoral themes (for example, health; UNEP 2018) – within policy documents indicates that there is some movement towards more actionable policies. This is also the case for the increasing levels of adaptation finance reported by multilateral and bilateral aid agencies, with, for example, hundreds of projects in developing countries being supported by multilateral climate funds since the mid-2010s, although overall levels of support are still considered to be too low. Financing modalities are also considered to be evolving quickly, with a broader range of instruments, approaches and funding sources emerging to meet adaptation needs for different sectors, regions and actors.

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*Note for figure 7.1:* This figure is based on the framework figure provided in [chapter 2](#) ([figure 2.1](#)). In **panel A**, the colour of the background illustrates the increase in climate risks under various warming scenarios (RCP2.6 and RCP8.5) and adaptation scenarios (with/without) (Oppenheimer *et al.* 2019; Hurlbert *et al.* 2019). The blue and light red curves represent risk scenarios under RCP2.6 and RCP8.5, respectively, while the central black drawing represents a hypothetical risk scenario under a speculative, midway warming scenario. This figure is purely illustrative and does not rely on any quantitative data. The white vertical boxes show, for today (left) and by the end of this century (right), the level of risk reduction to be expected from very limited adaptation efforts (top of white boxes) to high adaptation efforts (bottom of white boxes), i.e. the ‘adaptation space’. The downward black arrows within these white boxes provide a theoretical interpretation of observed progress and uncertainty. While the solid arrows illustrate the progress that can be assessed and reported based on evidence – for example, in the AGRs–, the dotted arrows reflect knowledge gaps and therefore potential adaptation gaps. Together, the two arrows within the same box help us understand the balance between what we know has been achieved, and what we are uncertain about because of a lack of information, thus helping balance progress and potential gaps. **Panel B** applies the general framework used in this report (progress, gaps, contextual elements that constrain the interpretation of the results) to the findings of the main [chapters \(3–6\)](#).

Figure 7.1. Progress in adaptation at the national level against different climate risk scenarios, as discussed in this report



**Early signs suggesting more progress in the near-to-long-term future:** Evidence of more climate-resilient and sustainable financial systems and investments is emerging in the form of measures addressing the climate risks posed to certain cornerstones of the financial system (for example, industries, corporations, enterprises and consumers) that would lead to longer-term and transformational reductions in climate vulnerability. Continuing developments within financial systems and investments will be important to progressively minimize and counteract cascading risks throughout societies. There is also growing recognition of the effectiveness and cost efficiency of NbS at reducing climate risks next to providing critical ecosystem services, biodiversity, and opportunities for additional income and livelihoods.

### 7.1.2 Gaps

Despite encouraging trends, **adaptation progress made to date at the national level does not appear to be on the required scale**, as illustrated by the dotted downward grey arrows in [figure 7.1](#). This section examines five aspects that support this conclusion.

**Adaptation finance:** In a context of accelerating climate change, there is some indication that adaptation costs are increasing at a higher rate than adaptation-oriented financial flows. This suggests that the adaptation finance gap seems to be widening, despite the increasing levels of funding to support adaptation planning and implementation.

**Monitoring and evaluation:** It is widely recognized that monitoring and evaluation (M&E) is key to adequate and effective adaptation planning and implementation, as it enables actors to adjust objectives, strategies and resources over time. However, this report finds that there continues to be a need to further develop M&E systems, which are currently operational in 33 per cent of countries, while a further 11 per cent of countries are either planning for or currently developing adaptation M&E frameworks.

**Knock-on effects:** There is limited evidence in the material considered in this report that national-level adaptation planning is substantially stimulating the development of subnational and sectoral adaptation strategies and plans. On the other hand, NbS projects often provide clear signs of creating the enabling environment, business models and governance structures, as well as raising awareness and building capacity for scaling up pilot initiatives to subnational, national or regional levels.

**Effectiveness of climate risk reduction:** National-level data provide very few indications of future trends in adaptation (planning, financing, implementation) and associated levels of risk reduction, while recent Intergovernmental Panel on Climate Change (IPCC) reports indicate increasing levels of risk even under emission scenarios curtailing end-of-century global warming to 1.5 or 2°C (compared with pre-industrial warming) (Intergovernmental Panel on Climate Change [IPCC] 2018; IPCC 2019; Nerille *et al.* 2019). This is particularly true of unique and sensitive ecosystems, such as warm-water coral reefs or arctic and alpine regions, some of which might lose their effectiveness in addressing climate risks in the context of NbS. This finding confirms the need for future AGRs to dive deeper into capturing the observed and expected outcomes of adaptation in order to determine whether we are actually succeeding in reducing current and future climate risks, and therefore on an effective adaptation trajectory.

**Gender issues:** While there are notable exceptions – not least in the context of NbS, where gender issues and broader questions of equity and justice are explicitly mentioned in several initiatives – these aspects are generally not clearly detailed. As noted in [chapter 3](#), for example, several countries highlight the importance of considering gender in adaptation planning. However, the extent to which gender dimensions are prioritized in national adaptation plans and policies is unclear.

#### Box 7.1 Main findings on the topical focus of this report: Nature-based solutions

Increasing ambition is essential for nature-based solutions (NbS) because they play a vital role in creating multiple co-benefits for disaster risk reduction, gender equality and sustainable livelihoods, as well as for building climate resilience. NbS support ecosystem services and complement decarbonization. However, biodiversity is impacted by a changing climate and effective adaptation needs to consider these aspects of vulnerability and how this in turn, affects social vulnerability.

NbS need to play a stronger role in planning, especially in NDCs and national adaptation plans (NAPs). The NbS

finance base needs to be amplified, strengthened and diversified by deploying innovative mechanisms which combine different funding sources. The strengthening of financial systems and incentives is required to enable public and private investments in NbS. In addition, successful implementation of NbS requires effective governance and institutions to manage public goods, frequently related to secure land tenure and access rights. Traditional and common knowledge play a significant role in the development of NbS and their implementation, with youth, women, indigenous peoples and local communities being key stakeholders. The potential of NbS for adaptation can best be fully realized by limiting the risks of dangerous levels of warming and by scaling up ambition and action on protecting, conserving and restoring nature.

### 7.1.3 Elements constraining the interpretation of findings

A more detailed assessment of observed and expected adaptation outcomes is often complicated by a **diversity of conceptual, technical and scientific limitations and uncertainties**, three of which are briefly described in this section.

**Lack of clarity in adaptation goals:** It is unclear what the global goal on adaptation concretely means in terms of climate risk reduction now and in the future. The current definition under article 7 of the Paris Agreement, which refers to “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development”, was not designed to provide precise targets and therefore remains too general to guide the analysis of adaptation progress (Magnan and Ribera 2016). This results in the lack of a more precise ‘vision’ for what we want to achieve from global adaptation efforts and makes some conclusions difficult to interpret. However, with growing experience in adaptation, there is an expectation that reporting under the United Nations Framework Convention on Climate Change (UNFCCC) will continually become more informative and converge towards more clearly defined goals.

**Limited comprehensive information available:** A second set of limitations and uncertainties are related to technical and more substantive knowledge gaps. On the ‘technical’ side, for example, it remains challenging to get a sense of the scale of private finance dedicated to adaptation because databases are most often scattered and/or difficult to access. There is also a lack of comprehensive databases gathering information on adaptation planning and implementation in high-income countries because adaptation is frequently mainstreamed at subnational and sectoral levels (UNEP 2018). On the ‘more substantive’ side, scientific challenges also come into play. In particular, there are knowledge gaps in understanding the effectiveness of a wide range of climate adaptation measures and processes (for example, empowerment of indigenous peoples and women via NbS) in terms of reducing current and projected climate risks. This, in turn, limits our understanding of the contribution of national-level adaptation plans, strategies, frameworks or laws to societal resilience and climate risk reduction across sectors, territories and population groups. Another knowledge gap exists in the assessment of risk levels at national scales and under different warming scenarios, all over the world, so that comparing adaptation outputs observed today with current and future risk-reduction outcomes remains highly complex.

**Uncertainty surrounding the enabling conditions for adaptation:** The lack of comprehensive information is further complicated by external factors that are not climate-related but can still influence climate risks and vulnerabilities. This is equally as applicable to changes in the political economy of nations as it is to geopolitical shifts or global shocks. While drawing on historical evidence can sometimes provide clues, the extent to which these external

factors will affect both the adaptation efforts themselves and their expected benefits (through the consequences they have on societies’ vulnerability to climate change), remains unknown. A perfect example and illustration of this is the COVID-19 pandemic, which has several profound implications for future adaptation efforts and results which are far from being well understood (box 7.2).

## 7.2 Way forward: how to improve the assessment of global adaptation progress

The AGR chapters and synthesizing sections above highlight several overarching challenges related to better assessing adaptation through **framing** and **measuring** adaptation progress, as introduced in chapter 2. The final section of this report reflects on how to improve the assessment of adaptation progress in view of these challenges and briefly discusses next steps.

### Improving the framing of progress in adaptation

Section 2.3 raises the importance of moving towards a comprehensive understanding of adaptation progress, to understand not only what is currently being done (i.e. adaptation outputs), but also future risk levels and adaptation outcomes now and in the future (figure 2.3). This, in turn, calls for further work in at least three areas:

- i. **Assessing and monitoring a set of key climate risks of global importance** – i.e. risks that transcend regional and national context specificities and provide an overview of the range of critical climate change-related threats to global society, across all latitudes, levels of development and types of climate hazards.
- ii. **Contrasting risk levels under various global warming and socioeconomic scenarios** to highlight potential global-level risk reduction targets and further advance the understanding of adaptation goals. This is critical if we are to assess progress made in adaptation (*progress against what?*).
- iii. **Advancing scientific knowledge on how to measure the actual and future benefits** to be expected from ambitious adaptation in terms of risk reduction over this century. This requires a better understanding of the potential effectiveness of a wide range of adaptation-related actions, policies and measures, for example, the degree to which policies and measures fulfil specific goals relating to risk reduction now (‘observed outcomes’) and in the future (‘expected outcomes’).

### Improving the measurement of adaptation progress

Connected to improving the framing of adaptation progress is the question of how to actually measure it. This raises multiple methodological issues, four of which are described below.

### Box 7.2. The implications of the COVID-19 pandemic on global adaptation processes

This report was produced during the COVID-19 pandemic. Beyond the direct health impacts of the pandemic, the implementation of national lockdowns has led to severe socioeconomic shocks in most countries. As with climate change, early signs clearly indicate that the socioeconomic and health impacts of the COVID-19 pandemic are disproportionately affecting the most vulnerable countries and population groups (UNEP 2020; International Labour Organization, Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development and World Health Organization 2020; United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States 2020; Kebede *et al.* 2020).

Initial evidence indicates that the pandemic and the stringent measures implemented to manage it will have significant implications for adaptation processes at all levels and will continue to do so long after the pandemic has passed. However, at the time of writing, developing a comprehensive and robust picture of how global adaptation processes will be affected by the pandemic is not possible as the available evidence is fragmented and largely anecdotal with robust data and analysis generally lacking. Nevertheless, drawing upon available evidence, this box outlines how the COVID-19 pandemic is affecting the different dimensions of the global adaptation processes discussed in this report in the short term, and how it is likely to alter the outlook for these processes in the longer term.

#### Short-term implications

In the short term, the acute need to manage the direct public health impacts of the virus and its subsequent economic fallout has seen adaptation and related topics (for example, climate mitigation and environmental sustainability) fall down the political agenda at all levels of governance (Hammill 2020). Concurrently, ongoing and scheduled adaptation planning and implementation processes at the global, national and local levels have seen large proportions of the human and financial resources (including bilateral and multilateral support) previously earmarked for them being reallocated towards efforts to manage the impacts of the virus (Adaptation Fund 2020; Johnson, Vera and Zühr 2020; Global Environment Facility [GEF] 2020a and 2020b; Hammer and Hallegatte 2020).

Meanwhile, on the ground, the logistical implications of strict restrictions on movement and physical distancing

have presented challenges for adaptation planning and implementation processes, some instances of which are severe. The most high-profile example of this is arguably the postponement of COP26 from November 2020 to November 2021. However, on national and subnational levels, COVID-19 restrictions and the reallocation of resources are reported to be impeding important adaptation planning meetings and stakeholder consultations (Hammill 2020; National Adaptation Plan Global Support Programme [NAP-GSP] 2020), as well as requiring implementers and funders to adopt new modes of operating to deal with rapidly changing priorities and operational realities (Adaptation Fund 2020; GEF 2020b).

#### Longer-term implications

In the longer term, the socioeconomic consequences of the pandemic can be expected to have lasting implications for global adaptation processes well after the pandemic has passed.

Most prominently, the severe negative impacts of the pandemic on the global economy are likely to reduce the availability of adaptation finance in the long term (Quevedo, Peters and Cao 2020). Pandemic-induced pressure on public finances is expected to be disproportionately felt in developing countries, where governments are likely to face being simultaneously hit by reductions in domestic tax revenues and external finance (Organisation for Economic Co-operation and Development [OECD], 2020a)<sup>1</sup>.

Meanwhile, the high levels of uncertainty surrounding the global economic outlook has cast doubt on the viability of many countries' long-term adaptation plans, as many of the assumptions upon which these plans and strategies are based (for example, the availability of domestic budget resources, borrowing headroom, access to international climate finance, and economic growth) are no longer sound (Hammer, Hallegatte and Banaji 2020; NDC Partnership 2020).

At the same time, changes in national and donor priorities as a result of the likely side-effects of a global recession, for example, widespread business failure and high unemployment, could see budgets allocated for implementing climate actions and plans come under threat, or redirected towards adaptation actions that are considered more likely to achieve outcomes associated with stimulating economic growth, for example, job creation (Johnson, Vera and Zühr 2020; Hammill 2020). ▶

<sup>1</sup> Sources of external finance expected to decrease in developing countries due to the COVID-19 pandemic include foreign direct investment, remittances and domestic direct investment (OECD, 2020a).

► Recognizing that climate change poses a threat to humankind that is far greater than that posed by COVID-19, key intergovernmental organizations such as the United Nations (2020a; 2020b), the International Monetary Fund (2020) and the OECD (2020b), have called upon national governments to harness their COVID-19 recovery packages to create more sustainable, resilient and inclusive societies. Such calls highlight the idea that the unprecedented recovery packages being mobilized by national governments represent a unique opportunity to enhance climate resilience, restore ecosystems and reduce greenhouse gas emissions through, among other means, investing in NbS. These calls also warn against the inclusion of investments in, or support for, industries that increase climate vulnerability and undermine adaptation efforts within these recovery packages.

If implemented well, COVID-19 related recovery packages could facilitate economic recovery, provide jobs for the most vulnerable, reduce gender and

wealth inequalities within and among countries, and improve health systems, on top of building enhanced climate resilience and reducing emissions (Hepburn *et al.* 2020; UNEP 2020). Analysis of economic stimulus packages announced to date, however, suggest that governments are largely forgoing this opportunity, with support particularly neglecting efforts to restore and conserve nature (UNEP 2020; Vivid Economics 2020).

While this suggests that stimulus packages thus far have largely targeted economic recovery and job retention with only limited attention paid to climate change and environmental sustainability, global recovery from COVID-19 is a long way off. To ensure that this opportunity is not missed, national governments need to make greater efforts to align future COVID-19 recovery plans with countries' pre-existing low-carbon and resilient development plans (Alcayna 2020; GCF 2020; Hammer, Hallegatte and Banaji 2020; Hammer and Hallegatte 2020; Hepburn *et al.* 2020; Norton *et al.* 2020; Quevedo, Peters and Cao 2020).

iv. **Multiple sources of information** exist that are separate pieces of a larger puzzle (for example, NDC and NAP databases, global risk information, Sendai monitoring data on risk reduction, Sustainable Development Goal progress reports and scientific literature). While considering a broad range of information can highlight complementarities across data sources, this also often unearths overlaps and inconsistencies, for example, in the background data used and the way these data are interpreted. One more example to that effect is that most of the existing initiatives use global datasets to describe vulnerability to climate change at the country level, but these datasets are increasingly recognized to contain biases, and therefore, conclusions drawn from them need to be taken with caution. Triangulating multiple sources of analysis is a potential solution to this issue.

v. **Developing new complementary types of data** is a necessary action in order to reflect adaptation outcomes and gaps directly at the global level (UNEP 2017; Magnan and Chalastani 2019). This could be particularly relevant for closing certain knowledge gaps, as illustrated by the potential for satellite imagery analysis to help measure the distance of built assets to the sea on coasts all around the world, and therefore provide one proxy of global exposure to sea-level changes, among others.

vi. **Enhancing the accessibility of background information and data** will help to provide transparency. While the definition of specific adaptation metrics is a well-known

challenge (for examples, see UNEP 2017; Leiter and Pringle 2018; Berrang-Ford *et al.* 2019), existing and accessible data are not always easily usable.

vii. **Comprehensive information on funding sources and flows** will aid in tracking global cooperation on adaptation. Comparing funding and cost curves remains a complex undertaking, but this could provide useful/proxy information to understand progress made on addressing the adaptation challenges.

### The way forward

This report has presented salient new and updated information related to planning, finance and implementation of adaptation actions and has begun setting criteria for improving the assessment of adaptation outcomes in view of several conceptual and methodological challenges. The results are very much a work in progress and will therefore require continued efforts to further hone in on how this relates to the global goal on adaptation, which is a dynamic concept closely linked to our efforts and success in limiting global warming to well below 2°C and avoiding catastrophic climate change. While, in hindsight, there is already some evidence that the adaptation gap is widening, at least in terms of adaptation finance to tackle rising adaptation costs, the analysis is restricted to extrapolation of current trends without recognition of future scenarios and how they might affect the gap. It will, therefore, require multiple editions of AGRs to further elucidate progress on adaptation, building on, triangulating and integrating an ever-growing body of information, including from global analyses and national reporting to the UNFCCC, as well as subnational, sectoral and non-state actor assessments.