

1 Introduction

Lead authors:

Anne Olhoff (CONCITO – Denmark’s green think tank), John Christensen (CONCITO – Denmark’s green think tank)

1.1 Context and framing of the Emissions Gap Report 2022

Since 2010, the United Nations Environment Programme (UNEP) has provided annual science-based assessments of the gap between commitments made by governments to reduce greenhouse gas (GHG) emissions and those needed to achieve global temperature targets under the United Nations Framework Convention on Climate Change (UNFCCC).

This thirteenth edition of the Emissions Gap Report is a testimony to inaction on the global climate crisis. In just eight years, global GHG emissions must be reduced by 30 to 45 per cent compared to where they are headed under policies currently in place to get on track to limiting global warming to well below 2.0°C and 1.5°C respectively. Commitments by countries as expressed in their latest unconditional and conditional nationally determined contributions (NDCs) for 2030 will only reduce global emissions by 5 to 10 per cent, assuming that they are fully implemented.

Earlier this year, the Intergovernmental Panel on Climate Change (IPCC) published two reports as part of its Sixth Assessment cycle, on *Impacts, Adaptation and Vulnerability* (IPCC 2022a) and *Mitigation of Climate Change* (IPCC 2022b). The reports record the vast impacts of climate change that we are already experiencing, and how the climate risks of the future are of a much greater order of magnitude. Once again, these reports document that the scale and rate of climate change and associated risks depend strongly on near-term mitigation and adaptation actions, finding that projected adverse impacts and related losses and damages escalate with every increment of global warming. This year, as has repeatedly been the case in recent years, many countries have experienced an unprecedented number of climate events, with extreme weather leading to flooding, drought and wildfires, and causing food shortages, health problems, and major damage to ecosystems and human habitats, leading to internal displacement and migration around the world.

In line with the Emissions Gap Report, the IPCC reports send a reverberating message that the window of opportunity to limit global warming to well below 2°C, preferably 1.5°C, thereby avoiding some unmanageable climate risks, is closing rapidly. Every fraction of a degree matters.

Consistent with previous Emissions Gap Reports, the IPCC *Mitigation of Climate Change* report finds that “projected global emissions from NDCs announced prior to COP26 would make it likely that warming will exceed 1.5°C and also make it harder after 2030 to limit warming to below 2°C” (IPCC 2022b). Specifically, the report finds that GHG emissions levels by 2030 associated with the implementation of NDCs, imply that mitigation after 2030 can no longer establish a pathway that limits global warming to 1.5°C during the twenty-first century without significant overshoot, and that returning to below 1.5°C in 2100 is infeasible for some scenarios (IPCC 2022b).

Unprecedented scaling up of mitigation ambitions and implementation is a prerequisite to bridging the emissions gap, and is expected to be one of the focus areas of the twenty-seventh United Nations Climate Change Conference of the Parties (COP 27). Following up on the decisions made at COP 26, it was decided to establish a work programme for urgently scaling up mitigation ambition and implementation, the details of which are expected to be agreed upon at COP 27 (UNFCCC 2022a; UNFCCC 2022b). Recognizing the significant emissions gap, countries were furthermore encouraged to revisit and strengthen their 2030 mitigation pledges in 2022, and it was decided to establish annual high-level ministerial roundtables on pre-2030 ambition also starting in 2022. Consequently, a key question for COP 27 and for this year’s Emissions Gap Report is, what progress has been made since COP 26, and how can the transformation necessary to bridge the emissions gap be initiated and accelerated?

The report looks at transformations required in electricity supply, industry, transport, buildings, food systems and the financial system. It is important to acknowledge that for transformations to be successful they need to be just and socially balanced. There is no universal model, and transformations will likely be very different between developed and developing countries.

In parallel with the climate crisis and other planetary crises, the world faces compounding energy, food and cost of living crises. These crises are exacerbated by the war in Ukraine, which is causing immense human suffering and undermines the recovery of the global economy following the COVID-19 pandemic. The crises are a wake-up call to the global community for more, rather than less, climate action. As previous editions of the Emissions Gap Report have documented, the unprecedentedly large fiscal rescue and recovery packages in response to the COVID-19 crisis were to a large extent missed as an opening to accelerate the green transition. While the current crises are fundamentally different, governments around the world face largely similar choices: (1) to use them as an opening to accelerate the transition away from fossil fuels and the expansion of renewable energy, while boosting energy conservation and energy efficiency, or (2) to allow them to divert attention from climate change action and continue investment in fossil fuels, causing lock-in and jeopardizing the Paris Agreement temperature goal. The global implications of these crises for climate action and GHG emissions are still unclear, and they are likely to differ in the short term and the long term, but they could be significant, depending on how governments respond to them.

1.2 Approach and structure of the report

The Emissions Gap Report is an assessment report. It provides an evaluation of credible scientific and technical knowledge on emissions trends, progress, gaps and opportunities, based on a synthesis of the latest scientific literature, models, and data analysis and interpretation, and models, including that published in the context of the Intergovernmental Panel on Climate Change (IPCC). As in previous years, this Emissions Gap Report has been prepared by an international team. This year, UNEP convened 77 leading scientists from 41 expert institutions across 23 countries. The assessment process has been overseen by a respected international steering committee and has been transparent and participatory, while also taking into account geographical diversity and gender concerns. All chapters have undergone external review, and the assessment methodology and preliminary findings

were made available to the governments of the countries specifically mentioned in the report, to provide them with the opportunity to comment on the findings.

This year, several methodological updates were made to improve the estimates and ensure consistency across the chapters of the report. Two working groups were established to address recurrent issues in the Emissions Gap Reports, related to (1) land use, land-use change and forestry data sources, notably reconciliation of differences between global model estimates and national reporting of forest CO₂ sinks (also see chapter 2), and (2) harmonization of global emissions data based on historical emissions and global models (see chapters 3 and 4). Furthermore, the report scenarios have been updated based on IPCC's *Sixth Assessment Report*, and the most recent values of global warming potential over 100 years are used. It is important to note that these improvements also imply that the estimates presented are not directly comparable to those of previous reports. Full details can be found in chapters 2 to 4 and related appendices.

The report is organized into seven chapters, including this introduction. Chapter 2 assesses the trends in global GHG emissions, including the effects of COVID-19, and considers consumption-based emissions and their distribution between and within countries. Chapter 3 provides an updated global landscape of NDCs and long-term net-zero emissions pledges, and assesses the progress of G20 members towards achieving their NDCs and net-zero emissions pledges. Chapter 4 updates the assessment of the emissions gap by 2030 based on the latest NDCs, and considers the implications of the emissions gap on the feasibility of achieving the long-term temperature goal of the Paris Agreement. Chapter 5 provides the status of the transformation towards zero GHG emissions in the sectors of electricity supply, industry, transportation and buildings, and identifies actor-based actions that could accelerate the transformation. Chapter 6 provides an assessment of the food systems transformations needed, whether there are signs that they are happening, and how they could be accelerated. Finally, chapter 7 considers the transformations of the finance system needed to enable the achievement of the Paris Agreement.