



**Synthesis report for the technical assessment component of
the first global stocktake**

**Synthesis report on the overall effect of Parties' NDCs and overall
progress made by Parties towards the implementation of their NDCs,
including the information referred to in Article 13, paragraph 7(b), of
the Paris Agreement**

**Prepared by the secretariat under the guidance of the co-facilitators of the technical
dialogue of the first global stocktake**

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Abbreviations and acronyms

2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BTR	biennial transparency report
CDM	clean development mechanism
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LT-LEDS	long-term low-emission development strategy(ies)
LULUCF	land use, land-use change and forestry
NAP	national adaptation plan
NDC	nationally determined contribution
PaMs	policies and measures
RCP	representative concentration pathway
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
SR1.5	Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5 °C
SSP	Shared Socioeconomic Pathway

I. Introduction

A. Mandate

1. By decision 19/CMA.1, paragraph 23(c), the CMA requested the secretariat, under the guidance of the co-facilitators, to prepare for the technical assessment of the global stocktake a synthesis report on the overall effect of the NDCs communicated by Parties summarizing the most recent information on the overall effect of NDCs and progress made by Parties towards the implementation of their NDCs, including the information referred to in Article 13, paragraph 7(b), of the Paris Agreement.
2. This synthesis report is aimed at presenting at a collective level the information referred to above and will serve as one of the inputs for the global stocktake, pursuant to paragraph 36(b) of the same decision.
3. Under Article 4, paragraph 2, of the Paris Agreement, each Party is to prepare, communicate and maintain successive NDCs that it intends to achieve. In accordance with Article 4, paragraph 12, NDCs communicated by Parties shall be recorded in a public registry maintained by the secretariat.
4. Under Article 13, paragraph 7(b), of the Paris Agreement, each Party shall regularly provide information necessary to track progress made in implementing and achieving its NDC under Article 4.

B. Scope

5. This report synthesizes information from the 166 latest available NDCs, representing all 193 Parties to the Paris Agreement,¹ recorded in the interim NDC registry² as at 31 December 2021.
6. The 166 NDCs comprise 131 new or updated NDCs³ from 158 Parties and 35 NDCs from Parties that have not yet communicated new or updated NDCs in response to paragraphs 23–24 of decision 1/CP.21.
7. The information necessary to track progress made by Parties towards the implementation of their NDCs shall be reported in the BTRs. At the time of preparation of this synthesis report, Parties had not yet submitted their first BTRs under the Paris Agreement, which are due, at the latest, by 31 December 2024 in accordance with decision 18/CMA.1. Therefore, such information will be included in the synthesis report to be prepared for the subsequent global stocktake.

C. Approach

8. The guidance on the information necessary for clarity, transparency and understanding of NDCs was used as a framework for synthesizing the relevant information contained in the communicated NDCs,⁴ which was supplemented by a synthesis of other information included in the NDCs but not covered by the guidance, on topics such as

¹ The European Union and its 27 member States communicated a joint NDC in accordance with Article 4, paras. 16–18, of the Paris Agreement, which for this report has been counted as one NDC representing 28 Parties.

² <https://www4.unfccc.int/sites/NDCStaging/Pages/Home.aspx>.

³ See the annex to this document for the list of Parties.

⁴ As per decision 1/CP.21, para. 25.

adaptation, means of implementation necessary for NDCs, domestic mitigation measures,⁵ and economic diversification plans and response measures.

9. The approach and methods for estimating projected emission levels resulting from the implementation of the NDCs are consistent with the approach and methods set out in document FCCC/PA/CMA/2021/8/Add.3.⁶

II. Key information

10. This synthesis considers the information provided in the 166 latest available NDCs, representing all 193 Parties to the Paris Agreement, covering 94.9 per cent of total global GHG emissions in 2019, which are estimated at 52.5 Gt CO₂ eq without LULUCF⁷ and at around 56.1 Gt CO₂ eq with LULUCF.⁸

11. Total global GHG emissions⁹ taking into account the implementation of all the latest NDCs are projected to be 54.1 (52.3–55.9) Gt CO₂ eq in 2025 and 53.7 (50.7–56.7) Gt CO₂ eq in 2030. The ranges provided indicate low and high emission estimates. The lower ranges assume or imply full implementation of NDCs, including those targets whose implementation is dependent on access to enhanced financial resources, technology transfer and technical cooperation, and capacity-building support; availability of market-based mechanisms; and absorptive capacity of forests and other ecosystems (hereinafter referred to as ‘conditional elements’). The upper range considers only the implementation of the NDCs presented, excluding conditional elements.

12. Taking into account the full implementation of NDCs, total GHG emission levels are projected to be 53.2 (52.3–54.2) Gt CO₂ eq in 2025 and 52.0 (50.7–53.3) Gt CO₂ eq in 2030. This 2030 level is still 10.0 (7.2–12.8) per cent higher than the 2010 level, however, they represent a 0.9 per cent decrease compared with the 2019 level (ranging from 3.4 per cent lower to 1.7 per cent higher). This means that global GHG emissions could peak before 2030.

13. Ninety-four per cent of Parties provided the information necessary for clarity, transparency and understanding of their NDCs in accordance with Article 4, paragraph 8, of the Paris Agreement and decision 1/CP.21, paragraph 27. Of the Parties that submitted new or updated NDCs, almost all provided such elements of information.

14. Ninety-six per cent of Parties outlined domestic mitigation measures as key instruments for achieving the mitigation targets of their NDCs and/or targets for sectors or areas, such as energy supply, transport, buildings, industry, agriculture, LULUCF and waste. Domestic mitigation measures for renewable energy generation continued to be most frequently mentioned by Parties (87 per cent), followed by improvement in the energy efficiency of buildings (68 per cent) and afforestation, reforestation and revegetation (52 per cent).

⁵ In this report, the term (domestic) mitigation measures refers to specific policies and actions that contribute to achieving mitigation objectives identified in NDCs under Article 4, para. 2, of the Paris Agreement, including adaptation actions and economic diversification plans with mitigation co-benefits under Article 4, para. 7, of the Paris Agreement.

⁶ Available at <https://unfccc.int/documents/306872>.

⁷ Including emissions from countries that are not Parties to the Paris Agreement, a harmonization factor to ensure comparability with SSP scenarios assessed by the IPCC, and emissions from international aviation and maritime transport, which accounted for approximately 1.2 and 1.5 per cent, respectively, of total global GHG emissions in 2019.

⁸ In line with anthropogenic land-use emissions and removals in the scenarios assessed by the IPCC, although actual directly induced net emissions from LULUCF could be higher.

⁹ Unless otherwise noted, in this report global GHG emission totals exclude emissions from forestry and land use or LULUCF but include emissions from international maritime transport and international aviation. The emission levels are expressed as average values and minimum–maximum ranges owing to the uncertainties underlying the aggregation and the ranges and conditions expressed in the NDCs.

15. Eighty-one per cent of Parties provided information on voluntary cooperation under Article 6 of the Paris Agreement. Almost all of them, or 76 per cent of Parties, stated that they plan to or will possibly use at least one type of voluntary cooperation. At the same time, 31 per cent of Parties have set qualitative limits on their use of voluntary cooperation for achieving their mitigation targets, such as using units that adhere to standards to ensure additionality and permanence of emission reductions.

16. Eighty per cent of Parties provided information on adaptation, with 10 per cent of those Parties identifying the adaptation component of their NDC as their adaptation communication. Parties provided adaptation-related information in their NDCs, including on research; vulnerabilities; adaptation measures, such as NAPs and sectoral actions; contingency measures; synergies with mitigation and other global frameworks; and monitoring and evaluation. In terms of adaptation priorities, Parties continue to focus on food security and production; terrestrial and wetland ecosystems; human health; freshwater resources; key economic sectors and services; disaster risk management and early warning systems; human habitats and urban areas; coastal areas and sea level rise; ocean ecosystems; and livelihoods and poverty.

17. All Parties provided information in their NDCs on mitigation targets or mitigation co-benefits resulting from adaptation actions and/or economic diversification plans, which range from economy-wide absolute emission reduction targets to strategies, plans and actions for low-emission development, to be implemented within a specified time frame or implementation period. Ninety-three per cent of Parties indicated that they will implement their NDCs by 2030, while 5 per cent indicated that they will implement theirs by 2025. In their NDCs:

(a) Thirty-six per cent of Parties, including all developed country Parties, reported absolute emission reduction targets expressed as a reduction from the level in a specified base year, ranging from 7.2 to 88.0 per cent. A few Parties (5 per cent) specified a year or time frame in which their emissions are expected to peak or reach a maximum level of absolute emissions (e.g. by 2030), while 2 per cent of Parties expressed their target as a carbon budget in addition to providing an absolute target, imposing an overall limit on the GHGs to be emitted over a specified period of time (e.g. between 2021 and 2030);

(b) Forty-five per cent of Parties included relative targets for reducing emissions below the 'business as usual' level by a specified target year, either for the whole economy or for specific sectors, ranging from 5 to 103.5 per cent, and thus aim to achieve carbon neutrality or emission intensity targets for reducing specific GHG emissions per GDP unit relative to a base-year level (e.g. 1990).

18. Most Parties' NDCs (83 per cent) could be understood to exclude conditional elements, at least in part, while 68 per cent of Parties chose to include more ambitious conditional elements. The implementation of most conditional elements depends on factors such as access to enhanced financial resources, technology transfer and technical cooperation, and capacity-building support; availability of market-based mechanisms; and absorptive capacity of forests and other ecosystems. The extent of provision and mobilization of support by developed countries is summarized in the synthesis report on the information identified in decision 19/CMA.1, paragraph 36(d) being prepared for the global stocktake.

19. All Parties provided information on the scope and coverage of their NDCs, including sectors and gases covered. Eighty-one per cent of Parties are striving to include all categories of anthropogenic emissions and removals in their NDCs over time. Sixty per cent of Parties stated that they already have economy-wide NDCs including all sectors and GHGs, while other Parties (38 per cent) explained why certain sectors and/or gases were excluded, for example, owing to the negligibility or insignificance of categories, the unavailability or inaccuracy of data or a lack of technical capacity.

20. In addition to communicating information on mitigation targets or plans for the near to medium term, many Parties (51 per cent) provided information on long-term mitigation visions, strategies or targets for up to and beyond 2050 that either have already been formulated or are being prepared. About 77 per cent of those Parties referred to climate

neutrality, carbon neutrality, GHG neutrality or net zero emissions by 2030, 2040, 2050, 2060 or mid-century.¹⁰ More detailed information is included in the synthesis report on the state of GHG emissions by sources and removals by sinks and mitigation efforts undertaken by Parties being prepared for the global stocktake.

21. About 36 per cent of Parties considered mitigation co-benefits of economic diversification plans and/or adaptation actions in their NDCs, among which 52 per cent of Parties explained how social and economic consequences of response measures were considered in preparing their NDCs. In addition, 26 per cent of Parties considered social and economic consequences of response measures but did not link such actions to mitigation co-benefits.

22. Many Parties (about 70 per cent) provided information related to gender in their NDCs, and some (31 per cent) stated that they will take gender into account in implementing their NDCs. Of the Parties that provided gender-related information, 72 per cent referred to relevant policies and legislation or affirmed a general commitment to gender equality, while 30 per cent included information on how gender has been mainstreamed in NDC implementation or on plans to do so.

III. Synthesis of information contained in NDCs

A. Overall effect of NDCs

1. Information to facilitate clarity, transparency and understanding under decision 4/CMA.1

(a) Scope and coverage

23. Eighty-one per cent of Parties have economy-wide NDCs, with 60 per cent covering all sectors defined in the 2006 IPCC Guidelines. All NDCs cover the energy sector, more than 80 per cent cover the agriculture, LULUCF and waste sectors, and 74 per cent cover industrial processes and product use. About 27 per cent of Parties provided information on the coverage of specific sectors of national importance, which are often a subset of one or more IPCC sectors, such as shipping and aviation, cooling, food production, transport, mining or buildings, while others mentioned specific carbon pools, oceans or blue carbon.

24. Almost all NDCs (99 per cent) cover CO₂ emissions, 90 per cent cover methane emissions and 88 per cent cover nitrous oxide emissions. Of all the Parties, 52 per cent covered hydrofluorocarbon emissions and 36 per cent covered perfluorocarbon and sulfur hexafluoride emissions, whereas 26 per cent covered nitrogen trifluoride emissions. Nine per cent of Parties included additional gases or emissions, including short-lived climate pollutants, such as black carbon, sulfur dioxide and non-methane volatile organic compounds.

(b) Time frames and/or periods of implementation

25. All Parties communicated in their NDC the time frame and/or period of implementation, which refers to a time in the future by or during which an objective is to be achieved.

26. In total, 93 per cent of Parties communicated a time frame and/or period of implementation of until 2030, while 7 per cent specified periods of until 2025, 2035, 2040 or 2050. Fifty-six per cent of Parties indicated 1 January 2021 as their starting date for NDC implementation; 31 per cent started implementing their NDCs in or before 2020; and 2 per cent will start doing so from 2022. In accordance with decision 6/CMA.3, Parties are encouraged to communicate an NDC in 2025 with an end date of 2035, in 2030 with an end date of 2040, and so forth every five years thereafter.

¹⁰ As at 31 December 2021, 50 Parties had communicated LT-LEDS, 49 of which had communicated a new or updated NDC; see <https://unfccc.int/process/the-paris-agreement/long-term-strategies>.

27. All Parties communicated a target year, stating a single-year target, a multi-year target (i.e. for a period of consecutive years) or multiple target years (i.e. several non-consecutive target years), depending on the target. In total, 86 per cent of Parties communicated a single-year target for 2030, while 6 per cent specified a single-year target for 2025, 2035 or 2040. Eight per cent of Parties communicated multiple target years, including when target years were associated with the implementation of different PaMs.

(c) Quantifiable information on the reference point (including, as appropriate, a base year)

28. In total, 92 per cent of Parties provided quantified mitigation targets, expressed as clear numerical targets, while the remaining 8 per cent included strategies, plans and actions, as referred to in Article 4, paragraph 6, of the Paris Agreement, or PaMs as components of their NDCs for which there is no quantifiable information.

29. Ninety-one per cent of Parties also provided information on the reference year, base year, reference period or other starting point for measuring progress towards the target, with 26 per cent of them selecting 1990 and 65 per cent selecting a year between 2000 and 2020. Of the Parties that provided information on the starting point for measuring progress, 76 per cent are measuring the achievement of their targets against a base-year level, 17 per cent chose to measure progress in terms of a deviation from a level in the target year, with most selecting 2030, and 7 per cent provided a reference period.

30. Ninety-two per cent of Parties further provided information on the reference indicator used to express their targets. Of these Parties, 77 per cent chose absolute GHG emissions as the reference indicator, 14 per cent chose the ‘business as usual’ GHG emission level and about 6 per cent chose the GHG emission budget or emission intensity per GDP unit or sectoral ‘business as usual’ levels. Seventy-one per cent provided a quantified value for their reference indicator for the base year, the target year or both, as appropriate.

31. Eighty-two per cent of Parties provided information on the sources of the emission data used for quantifying the reference point, including national inventory reports, biennial reports, biennial update reports and/or national communications. Other sources of information identified were national documents and statistics, such as sector activity reports; national development plans and/or strategies; economic development projections; national climate change plans; energy master plans; national statistics on economy, energy and/or trade; waste management strategies; national resource plans; energy road maps; national forest reports; and socioeconomic forecasts.

32. Seventy per cent of Parties presented information on the reasons they might update the values of their reference indicators, such as circumstances involving significant changes in specific financial, economic, technological and/or political conditions, or impacts of extreme natural disasters; the scale of access to support and other means of implementation, expected improvements or modifications to activity data, variables or methodologies used in estimating national emissions, baselines or projections, or the results of the ongoing negotiations on common metrics; or to reflect the actual situation during the implementation period.

(d) Assumptions and methodological approaches, including for estimating and accounting for anthropogenic GHG emissions and, as appropriate, removals

33. Sixty-five per cent of Parties provided information on the metrics they used for estimating emissions and removals. All of these Parties used GWP values over a 100-year time-horizon (GWP₁₀₀), with 46 per cent using GWP₁₀₀ values from the AR5, 27 per cent using values from the AR2 and 26 per cent using those from the AR4. Other Parties used GWP values as well as global temperature potential values from the AR5 for estimating their mitigation targets.

34. About 80 per cent of Parties communicated information on the assumptions and methodological approaches to be used for accounting for anthropogenic GHG emissions and, as appropriate, removals corresponding to their NDCs. Of these Parties, 84 per cent referred

to the 2006 IPCC Guidelines, while 12 per cent referred to the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. Some also mentioned the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* and/or the *IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry*.

35. In addition, 16 per cent of these Parties referred to the standard methods and procedures contained in the *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol* and the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*.

36. In terms of assumptions, 47 per cent of Parties expressed mitigation targets as a deviation from a ‘business as usual’ level, with 80 per cent of these Parties presenting quantitative baselines and mitigation scenarios, such as baselines and projections based on historical data and trends in emissions and economic parameters. Seventy-nine per cent of these Parties referred to key parameters and variables such as GDP and population and growth thereof, and cost–benefit analysis. They also provided sector-specific parameters, including energy consumption, energy demand and production, electricity grid capacity, urbanization rate, transportation network changes and vehicle numbers, forest growth rate, livestock trends, per capita waste generation, and energy and waste statistics per tourist.

(e) Planning and implementation processes

37. Ninety-five per cent of Parties provided information on their NDC planning processes and most also referred to their implementation plans, communicating information on their institutional arrangements, stakeholder engagement processes and policy instruments, including legislation, strategies, plans and policies.

38. Eighty-six per cent of Parties indicated that domestic institutional arrangements are a key element of coordinating, planning and implementing climate change policy and action at the national and international level and fostering public participation.

39. In total, 70 per cent of Parties provided information related to gender in their NDCs and 31 per cent stated that they will take gender into account in implementing their NDCs. Some Parties (about 16 per cent) described the role of indigenous peoples and local communities in the context of their NDCs, including the situation and consideration of the rights of indigenous peoples at the national level, such as legal and consultative arrangements for protecting their rights. In addition, 94 per cent of Parties provided information on using one or more action for climate empowerment elements to promote the implementation of mitigation and adaptation activities.

40. Furthermore, 61 per cent of Parties communicated best practices for NDC preparation, such as institutionalizing climate policy development within joint planning frameworks; strengthening stakeholder capacity to participate more substantively in NDC preparation and implementation; designing planning and reporting systems for transparency and public scrutiny; incorporating experience and lessons learned from preparation of intended nationally determined contributions prior to 2015 and implementation efforts; conducting extensive stakeholder consultation and peer review to enhance understanding of the NDC; conducting a preliminary assessment of pre-2020 efforts to identify gaps and needs and develop an NDC road map; mainstreaming NDC goals in existing strategies, plans and policies to obtain political support and benefit from existing arrangements; partnering with regional and international organizations to develop a robust NDC; and establishing a scientific and quantitative system for analysing and assessing progress of implementation.

(f) Mitigation co-benefits resulting from adaptation action and/or economic diversification plans

41. About 36 per cent of Parties considered mitigation co-benefits resulting from their adaptation action and/or economic diversification plans and 3 per cent of Parties mentioned that such co-benefits have been taken into account in their mitigation efforts. Of those Parties whose mitigation co-benefits resulting from their adaptation action and/or economic

diversification plans were considered, 19 per cent reflected social and economic consequences of response measures and included an economic diversification plan and/or a just transition or social pillar for designing climate policies that foster a just and equitable transition and for managing changes in relevant sectors arising from the implementation of climate policies. Other Parties (26 per cent) considered positive and/or negative economic and social consequences of response measures without linking them to the mitigation co-benefits of their adaptation action and/or economic diversification plans. Three per cent of Parties presented their sectoral mitigation and adaptation plans in the agriculture, energy, forestry, tourism and transport sectors as transition or diversification plans.

(g) Contribution towards achieving the objective of the Convention as set out in its Article 2, and towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement

42. About 96 per cent of Parties communicated information on the contribution of their NDCs towards achieving the objective of the Convention as set out in its Article 2, and towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement.

43. Fifty-four per cent of Parties indicated that their future level of emissions following the implementation of their NDC is a fair contribution to global efforts that is consistent with the goal of keeping the global average temperature increase to well below 2 or 1.5 °C. Section III.A.7 below provides further details on how countries consider their NDCs to be fair and ambitious.

44. In this context, these Parties highlighted their national mitigation and/or adaptation efforts; NDC targets; LT-LEDS; development pathways for decoupling emissions from economic growth; efforts related to equity, sustainable development and poverty eradication; and mobilization of domestic and international support.

2. Projected total global GHG emissions in 2025 and 2030 taking into account implementation of NDCs

45. Total global GHG emission levels taking into account the implementation of the latest NDCs of all Parties to the Paris Agreement are projected to be around 54.1 (52.3–55.9) Gt CO₂ eq in 2025 and 53.7 (50.7–56.7) Gt CO₂ eq in 2030. The ranges provided indicate low and high emission estimates. The lower ranges assume or imply full implementation of NDCs, including those targets whose implementation is dependent on access to enhanced financial resources, technology transfer and technical cooperation, and capacity-building support; availability of market-based mechanisms; and absorptive capacity of forests and other ecosystems. The upper range considers only implementation of the NDCs presented, excluding conditional elements.

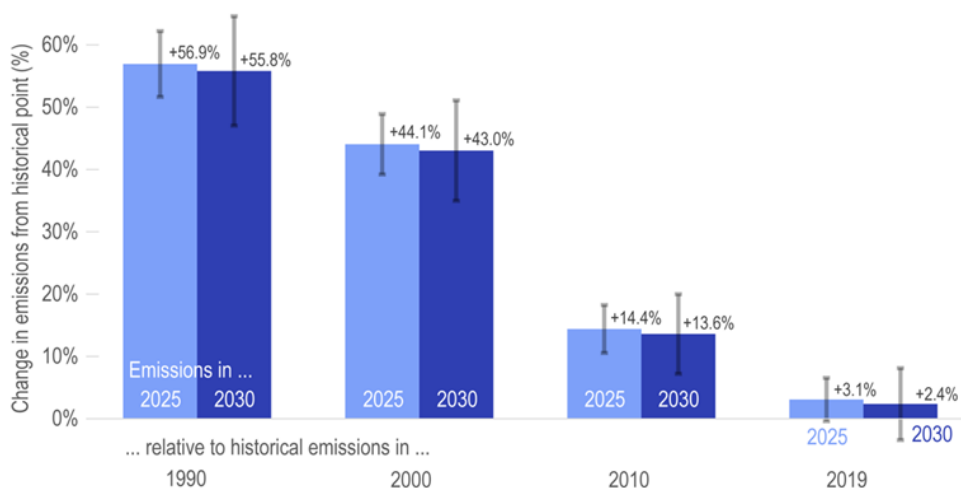
46. The projected global GHG emission level in 2025 taking into account the implementation of all the latest NDCs of all Parties to the Paris Agreement is:

- (a) 56.9 (51.6–62.2) per cent higher than the 1990 level (34.5 Gt CO₂ eq);
- (b) 44.1 (39.2–48.9) per cent higher than the 2000 level (37.6 Gt CO₂ eq);
- (c) 14.4 (10.6–18.3) per cent higher than the 2010 level (47.3 Gt CO₂ eq);
- (d) 3.1 per cent higher (ranging from 0.4 per cent lower to 6.6 per cent higher) than the 2019 level (52.5 Gt CO₂ eq).

47. Global GHG emissions in 2030 are projected to be:

- (a) 55.8 (47.0–64.6) per cent higher than in 1990;
- (b) 43.0 (35.0–51.1) per cent higher than in 2000;
- (c) 13.6 (7.2–20.0) per cent higher than in 2010;
- (d) 2.4 per cent higher (ranging from 3.4 per cent lower to 8.1 per cent higher) than in 2019.

Figure 1
2025 and 2030 emissions under NDCs compared with the 1990, 2000, 2010 and 2019 levels



Note: Emissions in 2025 (light blue) and 2030 (dark blue) relative to historical global GHG emission levels, namely in 1990, 2000, 2010 and 2019. Shown here are global GHG emissions (without LULUCF) in 2025 and 2030, with the vertical black bar indicating the range of GHG emissions from the lower quantification (lower ranges, full implementation, including all conditional elements) to the higher quantification (higher emission end of NDCs, if a range is provided or if the NDC quantification is uncertain, excluding conditional elements). The percentages provided are the average values.

48. When taking into account the full implementation of NDCs, total GHG emission levels are projected to be 53.2 (52.3–54.2) Gt CO₂ eq in 2025 and 52.0 (50.7–53.3) Gt CO₂ eq in 2030. The total GHG emission level in 2030 is projected to be 0.9 per cent lower than in 2019 (ranging from 3.4 per cent lower to 1.7 per cent higher). This means that global GHG emissions could peak before 2030.

3. Long-term low-emission development strategies

49. A total of 78 Parties (around 40 per cent of Parties) provided quantifiable information on their long-term mitigation visions, strategies and targets for up to and beyond 2050, which either have already been formulated, are being prepared or have been communicated through an LT-LEDS. Most of the long-term goals refer to net zero GHG emissions or net zero CO₂ emissions, using a variety of terms such as net zero emissions, GHG neutrality, climate neutrality, carbon neutrality, net zero carbon emissions and CO₂ neutrality, by 2050, 2060 or mid-century.¹¹

50. The GHG emissions of these Parties in 2010 and 2019 are estimated at 31.8 and 33.6 Gt CO₂ eq, respectively. For 2030, their emissions are projected to be 30.1 (29.3–30.9) Gt CO₂ eq, 5 (3–8) per cent lower than in 2010 and 10 (8–13) per cent lower than in 2019.

51. On the basis of the information provided on long-term mitigation visions, strategies and targets in the NDCs, the total emissions in 2050 of the Parties with long-term targets are projected to be 7.2–10.5 Gt CO₂ eq. Bearing in mind the inherent uncertainties regarding such long-term estimates, this represents a GHG emission reduction of about 69–78 per cent below the 2019 level by 2050.

¹¹ Detailed information on the scope and content of submitted LT-LEDS is contained in the synthesis report on the state of GHG emissions by sources and removals by sinks and mitigation efforts undertaken by Parties being prepared for the global stocktake.

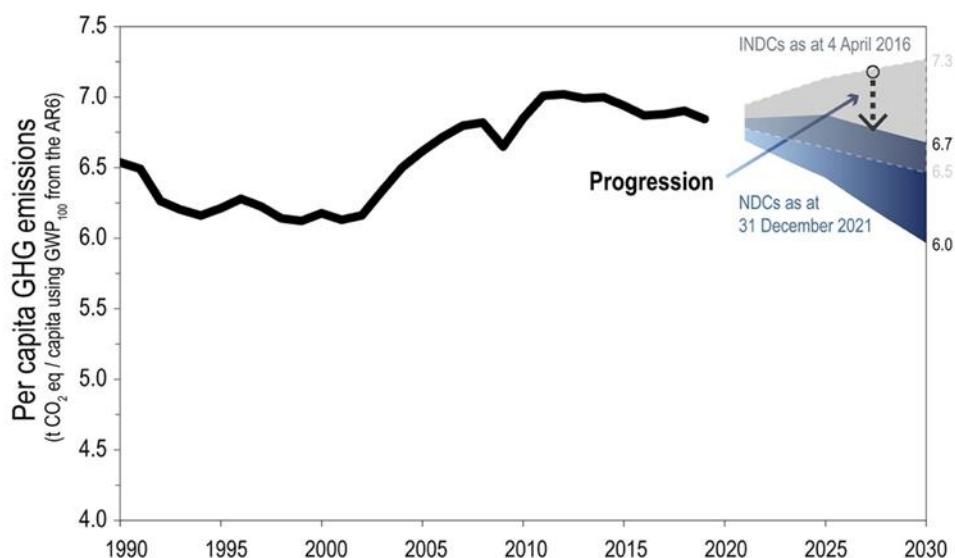
4. Per capita emissions

52. Global average per capita GHG emissions slightly increased in 2000–2010 and have remained near constant since, estimated at 6.5, 6.2 and 6.6 t CO₂ eq in 1990, 2000 and 2005, respectively, and at 6.8 t CO₂ eq in 2010, 6.9 t CO₂ eq in 2015 and 6.8 t CO₂ eq in 2019.¹²

53. On the basis of the latest NDCs, per capita emissions are projected to be 6.7 (6.4–6.9) t CO₂ eq in 2025 and slightly lower at 6.3 (6.0–6.7) t CO₂ eq in 2030, meaning that, on average, emissions are projected to be 2.8 per cent lower in 2025 and 7.6 per cent lower in 2030 than in 2019 (see figure 2).

Figure 2

Historical and projected per capita emissions, 1990–2030



5. Carbon budgets

54. In the contribution of Working Group I to the AR6,¹³ the remaining carbon budgets consistent with keeping warming below 1.5 and 2 °C are assessed. Global cumulative CO₂ emissions for 1850–2019 are estimated at 2,390±240 Gt CO₂. There is a near-linear relationship between cumulative CO₂ and temperature increase, and the carbon budget already spent has led to observed warming of 1.07 °C (likely range of 0.8–1.3 °C). For a 50 per cent likelihood of limiting further warming to 0.43 °C (1.07 °C historical + 0.43 °C = 1.5 °C) relative to the 1850–1900 level, there is an estimated remaining carbon budget of 500 Gt CO₂, and 400 Gt CO₂ for a two-thirds chance (67 per cent probability). As long as cumulative CO₂ emissions from the start of 2020 stay below those levels, the IPCC estimates that the long-term average warming can be kept at or below 1.5 °C (with either 50 or 67 per cent probabilities, respectively). If cumulative CO₂ emissions were to exceed 500 Gt CO₂ either before 2030 or thereafter, net negative emissions in the second half of the century would be necessary to bring the global mean temperature rise below 1.5 °C. The remaining carbon budget consistent with a likely chance (67 per cent) of keeping warming below 2 °C is assessed by the IPCC to be 1,150 Gt CO₂ from the beginning of 2020.

¹² Unless otherwise noted, in this report per capita emission levels are without LULUCF and calculated on the basis of the *2019 Revision of World Population Prospects* of the Population Division of the Department of Economic and Social Affairs of the United Nations (available at <https://population.un.org/wpp>) and its medium-variant projection.

¹³ IPCC. 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. V Masson-Delmotte, P Zhai, A Pirani, et al. (eds.). Cambridge: Cambridge University Press. Available at www.ipcc.ch/report/ar6/wg1.

Figure 3

Estimates of historical CO₂ emissions and remaining carbon budgets

Global warming between 1850–1900 and 2010–2019 (°C)		Historical cumulative CO ₂ emissions from 1850 to 2019 (GtCO ₂)					
1.07 (0.8–1.3; <i>likely</i> range)		2390 (± 240; <i>likely</i> range)					
Approximate global warming relative to 1850–1900 until temperature limit (°C)*(1)	Additional global warming relative to 2010–2019 until temperature limit (°C)	Estimated remaining carbon budgets from the beginning of 2020 (GtCO ₂)					Variations in reductions in non-CO ₂ emissions*(3)
		<i>Likelihood of limiting global warming to temperature limit*(2)</i>					
		17%	33%	50%	67%	83%	
1.5	0.43	900	650	500	400	300	Higher or lower reductions in accompanying non-CO ₂ emissions can increase or decrease the values on the left by 220 GtCO ₂ or more
1.7	0.63	1450	1050	850	700	550	
2.0	0.93	2300	1700	1350	1150	900	

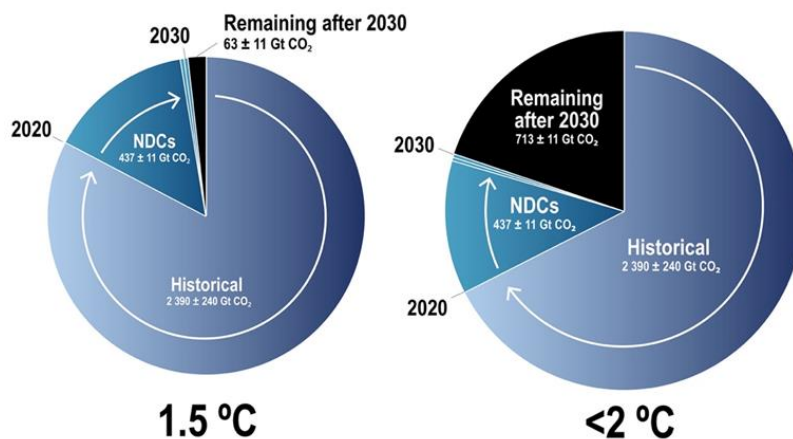
Note: This table is reproduced from the Summary for Policy Makers of the Working Group I contribution to the AR6 of the IPCC. Estimated remaining carbon budgets are calculated from the beginning of 2020 and extend until global net zero CO₂ emissions are reached. They refer to CO₂ emissions while accounting for the global warming effect of non-CO₂ emissions. Global warming in this table refers to human-induced global surface temperature increase, which excludes the impact of natural variability on global temperatures in individual years. For references and footnotes to this table, see: www.ipcc.ch/report/ar6/wg1.

55. On the basis of projected emissions presented in the latest NDCs, cumulative CO₂ emissions for 2020–2030 are projected to be around 437 (426–448) Gt.

56. In the context of the carbon budget consistent with a 50 per cent likelihood of limiting further warming to 0.43 °C (1.07 °C historical + 0.43 °C = 1.5 °C), cumulative CO₂ emissions for 2020–2030 based on the latest NDCs would likely use 87 per cent of the remaining carbon budget, leaving a post-2030 carbon budget of around 63 Gt CO₂, which is equivalent to an average year of CO₂ emissions in 2020–2030 (see figure 4 below). Similarly, in the context of the carbon budget consistent with a likely (67 per cent) chance of keeping warming below 2 °C, cumulative CO₂ emissions based on the latest NDCs would likely use around 38 per cent of the remaining carbon budget in 2020–2030.

Figure 4

Remaining carbon budget consistent with keeping warming at 1.5 °C or having a likely chance of keeping it below 2 °C



6. Comparison with scenarios considered by the IPCC

57. Compared with some high-emission scenarios that do not assume additional climate policies and that were assessed by the IPCC for its AR5 (such as RCP6 and RCP8.5) and AR6 (such as SSP3-7.0 and SSP5-8.5),¹⁴ projected 2030 emission levels consistent with NDCs are lower. However, current global GHG emissions in line with NDCs are similar to or lower than the emission levels reflected in IPCC scenario SSP2-4.5 (see figure 5 below).

58. According to the SR1.5,¹⁵ net anthropogenic CO₂ emissions need to decline by about 45 per cent from the 2010 level by 2030 (40–60 per cent interquartile range), reaching net zero around 2050 (2045–2055 interquartile range), in order to be consistent with global emission pathways that feature no or limited temporary overshoot of the 1.5 °C warming level. The contribution of Working Group I to the AR6 conveyed a similar message in that the ‘very low GHG emissions’ scenario considered is the only scenario in which warming is limited to around 1.5 °C and features net zero global CO₂ emissions around 2050. For limiting global warming to below 2 °C, CO₂ emissions need to decline by about 25 per cent from the 2010 level by 2030 on most pathways (10–30 per cent interquartile range) and reach net zero around 2070 (2065–2080 interquartile range). Substantial reductions in non-CO₂ emissions are also required in both 2 °C and 1.5 °C scenarios.¹⁶

59. In figure 5 below, the total GHG emission levels taking into account implementation of all the latest NDCs are compared with emission levels for three of the scenario groups in the SR1.5 database:¹⁷ a group of scenarios in which global mean temperature rise is kept at all times below 1.5 °C relative to the 1850–1900 level (‘below 1.5 °C’);¹⁸ a group of scenarios in which warming is kept at around 1.5 °C with a potential limited overshoot and then the global mean temperature rise decreases to below 1.5 °C by the end of the century (‘1.5 °C with limited overshoot’);¹⁹ and a third group that implies warming above 1.7 °C but with a likely chance of being well below 2 °C (‘lower 2 °C’). The third group features scenarios with strong emission reductions in the 2020s or only after 2030.

¹⁴ RCP6 and RCP8.5, and SSP3-7.0 and SSP5-8.5, respectively, are among the core scenarios investigated in the Working Group I contributions to the AR5 and AR6. They are high-emissions scenarios. The contribution of Working Group I to the AR6 of the IPCC assessed a total of five core scenarios, with a medium scenario SSP2-4.5, a medium-low scenario SSP1-2.6 and a very low scenario SSP1-1.9. In the scenario labels RCPy and SSPx-y, where ‘x’ and ‘y’ represent the numbers used, ‘y’ stands for the approximate human-induced radiative forcing by 2100 in W/m² and ‘x’ stands for the socioeconomic family SSPy, ranging from 1 to 5, with 1 representing a focus on sustainability and 5 representing high fossil fuel development.

¹⁵ IPCC. 2018. *IPCC Special Report on the Impacts of Global Warming of 1.5 °C above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*. V Masson-Delmotte, P Zhai, H-O Pörtner, et al. (eds.). Geneva: World Meteorological Organization. Available at www.ipcc.ch/sr15.

¹⁶ Further information on all IPCC scenarios is available at <https://data.ene.iiasa.ac.at/iamc-1.5c-explorer>.

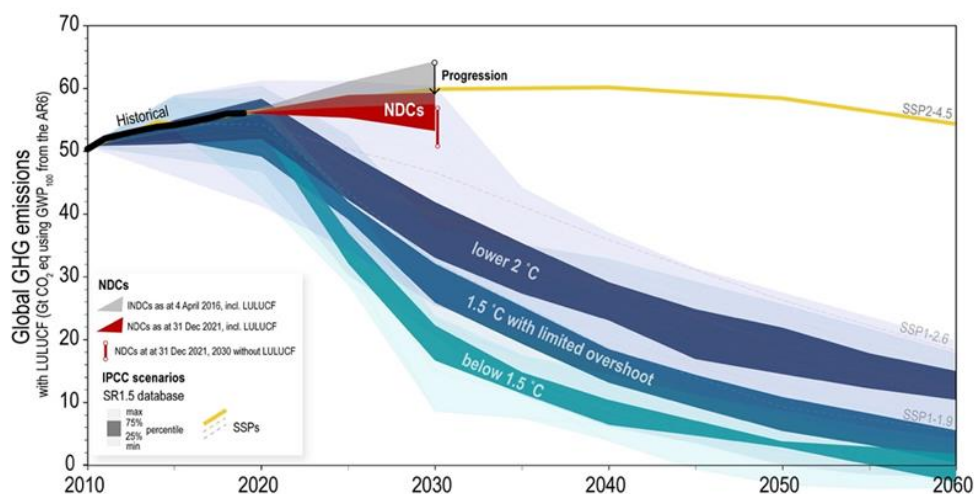
¹⁷ See Huppmann D, Rogelj J, Kriegler E, et al. 2018. A new scenario resource for integrated 1.5 °C research. *Nature Climate Change*. 8(12): pp.1027–1030. Available at www.nature.com/articles/s41558-018-0317-4. New scenarios are available as part of the publication of the Working Group III contribution to the AR6 of the IPCC, and future analysis will update this comparison in the light of the most recent IPCC-assessed scenarios.

¹⁸ This refers to the SR1.5 scenarios that imply keeping the global mean temperature rise below 1.5 °C at all times relative to the 1850–1900 level, with at least a 50 per cent chance.

¹⁹ This refers to the SR1.5 scenarios that imply keeping warming to around 1.5 °C with a potential limited overshoot and then decreasing the global mean temperature rise to below 1.5 °C, with at least a 50 per cent chance, by the end of the century relative to the 1850–1900 level.

Figure 5

Comparison of global emissions under scenarios assessed in the IPCC Special Report on Global Warming of 1.5 °C with total emissions according to NDCs



60. The total GHG emission level in 2030 taking into account implementation of all the latest NDCs is projected to exceed the emission level in the lower 2 °C scenarios by 18.1 (13.7–24.0) Gt CO₂ eq. If full implementation of the NDCs is assumed, the amount by which the emission level taking into account the latest NDCs exceeds that in the lower 2 °C scenarios is reduced to 15.9 (12.5–21.8) Gt CO₂ eq. Without implementation of any conditional elements of the NDCs, this so-called ‘emission gap’ increases to 19.3 (15.9–25.2) Gt CO₂ eq.

61. The total GHG emission level in 2030 taking into account implementation of all the latest NDCs is projected to be 26.7 (23.8–30.3) Gt CO₂ eq higher than the emission level in the 1.5 °C with limited overshoot scenarios and 36.2 (33.5–40.1) Gt CO₂ eq higher than the emission level in the below 1.5 °C scenarios (see figure 5 above). In the case of full implementation of the NDCs, emissions by 2030 are projected to be 24.6 (22.3–28.5) Gt CO₂ eq higher than in the 1.5 °C with limited overshoot scenarios, and 33.5 (32.0–38.4) Gt CO₂ eq higher than in the below 1.5 °C scenarios.²⁰

62. The total global GHG emission level in 2030 taking into account the implementation of all the latest NDCs is projected to be 13.6 (7.2–20.0) per cent above the 2010 level. According to the SR1.5, to be consistent with global emission pathways with no or limited overshoot of the 1.5 °C goal, global net anthropogenic CO₂ emissions need to decline by about 45 per cent from the 2010 level by 2030, reaching net zero around 2050. For limiting global warming to below 2 °C, CO₂ emissions need to decrease by about 25 per cent from the 2010 level by 2030 and reach net zero around 2070.

63. There are large and persistent emission and implementation gaps, which exacerbate the adaptation gap, as well as gaps in the required investment and finance for mitigation and adaptation.²¹ Paragraphs 64–66 below provide an indication of the emission gaps.

64. The difference between projected 2030 emissions in line with the NDCs and cost-optimal scenarios that limit warming to 1.5 °C or below 2 °C is substantial. This difference is understood as the ‘emission gap’. By 2030, it is projected that total GHG emissions (including LULUCF) in line with NDCs excluding conditional elements will be 26–32 Gt

²⁰ The differences between scenarios from the IPCC database and the global aggregate emissions under implementation of the NDCs are derived from total global emissions including emissions from LULUCF and international aviation and international maritime transport. Differences are provided as medians and interquartile ranges.

²¹ For further information, refer to the synthesis reports on the state of adaptation efforts, experiences and priorities and on the information identified in decision 19/CMA.1, para. 36(d) being prepared for the global stocktake.

CO₂eq higher than pathways that reach warming below 1.5 °C with a limited overshoot. This emission gap is slightly lowered if the full implementation of NDCs is assumed, in which case estimated 2030 emission levels are projected to be 22–29 Gt CO₂ eq higher than those pathways that reach warming below 1.5 °C with limited overshoot.²²

65. The new and updated NDCs lower the projected 2030 emission levels by between approximately 4.3 Gt CO₂ eq (implementation of NDCs excluding conditional elements) and 4.9 Gt CO₂ eq (full implementation of NDCs), closing the emission gap by about one fifth to 2 °C or about one sixth to 1.5 °C, compared with the intended nationally determined contributions as at 4 April 2016.

66. The information in figure 5 and paragraphs 60–62 above implies an urgent need for either a significant increase in the level of ambition of NDCs between now and 2030 or a significant overachievement of the latest NDCs, or a combination of both, in order to attain the cost-optimal emission levels suggested in many of the scenarios considered in the contribution of Working Group I to the AR6. If emissions are not reduced by 2030, they will need to be substantially reduced thereafter to compensate for the slow start on the path to net zero emissions. The SR1.5 identifies net zero CO₂ emissions as a prerequisite for halting warming at any level. Non-CO₂ emissions are also substantially reduced in the emissions scenarios assessed by the IPCC, although remainder emissions, particularly from the agricultural sectors, remain even in 1.5° C scenarios involving significant mitigation. Unlike for CO₂, the warming induced by non-CO₂ emissions with a shorter lifetime, such as methane, can be reversed to some degree when emissions of these gases drop (contribution of Working Group I to the AR6 of the IPCC, chap. 6).

7. Fairness and ambition in the light of national circumstances

67. Ninety-eight per cent of Parties explained how they consider their NDCs to be fair and ambitious in the light of their national circumstances. Since there is no definition of a common framework for assessing fairness and ambition under the Paris Agreement, these Parties used different metrics such as capabilities; historic and current responsibility; climate justice; share in global emissions; level of per capita emissions; vulnerability to the adverse impacts of climate change; development and/or technological capacity; mitigation potential; cost of mitigation actions; degree of progression or progression beyond the current level of effort; and links to objectives of the Paris Agreement and its long-term global goals.

68. These Parties included qualitative and/or quantitative information on how their NDCs represent progression and the highest possible ambition, for example by increasing the estimated level of emission reductions; bringing forward the projected date of peaking of emissions; enhancing mitigation efforts; increasing unconditional elements; including long-term targets; introducing and/or enhancing policies; elaborating on adaptation action; integrating climate goals into national policy instruments; enhancing linkages with the Sustainable Development Goals; using more accurate data and moving to higher-tier estimation; establishing arrangements for monitoring and/or tracking progress of implementation; enhancing the stakeholder consultation process; developing sector-based action plans for implementation; and presenting additional information to facilitate clarity, transparency and understanding.

69. Fifty-four per cent of these Parties framed their fairness consideration within their past, current and future share in global and/or per capita emissions compared with global averages, or in relation to the trends in one or several metrics indicated in paragraph 67 above. Fourteen per cent indicated that, despite the coronavirus disease 2019 and its impacts on their economies, they are committed to implementing their NDCs to address climate change.

70. In total, 59 per cent of Parties provided information on ambition by linking their NDCs to their commitment to transition to a sustainable and/or low-carbon and resilient economy; 31 per cent stated that they have incorporated their NDC goals and policies into national legislative, regulatory and planning processes as a means of ensuring implementation; and 11 per cent addressed ambition in the context of the inclusive design of their NDCs,

²² The emission gap ranges provided in this paragraph and para. 65 are 25–75 per cent ranges.

considering various cross-cutting aspects, such as investment plans, gender responsiveness, education and just transition.

71. Fifty-two per cent of Parties stated that their NDCs are in line with the long-term goals of the Paris Agreement or the mitigation pathways for limiting global warming to well below 2 or 1.5 °C above pre-industrial levels. Of the Parties that communicated new or updated NDCs, 72 per cent highlighted that they have enhanced their mitigation and/or adaptation contributions.

B. Overall progress made by Parties towards the implementation of their NDCs

72. This section provides information on the overall progress made by Parties towards the implementation of their NDCs. Information referred to in Article 13, paragraph 7(b), of the Paris Agreement will be synthesized as provided in BTRs for the subsequent global stocktake.

1. National circumstances and institutional arrangements

73. On the basis of their national circumstances and development pathways, 57 per cent of Parties highlighted contextual aspirations and priority areas in their NDCs, such as maximizing synergies between short- and long-term climate commitments and the Sustainable Development Goals; adaptation and climate-resilient development; collaboration with and support from developed country Parties and international organizations; deploying low-emission technologies to drive emission reduction, safeguarding food security and eradicating poverty; involving youth, local governments and communities and/or indigenous groups in a gender-responsive manner; just transition of the workforce; social and climate justice; circular economy; integrated resource management; oceans or blue carbon; disaster risk reduction; human health; energy production from renewable sources and/or energy efficiency; and reducing risks caused by loss and damage.

74. Eighty-six per cent of Parties indicated that domestic institutional arrangements are a key element of coordinating, planning and implementing climate change policy and action at the national and international level and fostering public participation. About 80 per cent of Parties referred to specific arrangements for NDC preparation that are already in place or currently under development, such as inter-institutional commissions, councils and committees, led by a designated entity with a coordination role and including members from public entities, the private sector, non-governmental organizations and/or academia.

75. Seventy-eight per cent of Parties referred to formal arrangements in place for consulting various stakeholders, including the general public, local communities, indigenous peoples, private entities, business and trade associations, civil society organizations, youth associations, women's associations, regional development partners, academia and research communities. Almost all of these Parties (94 per cent) indicated that they conducted such consultation and engagement processes in an inclusive and participatory manner. Twenty-two per cent of these Parties specifically referenced gender-sensitive consultations, referring to specific guidelines for ensuring gender sensitivity, such as during public consultations, and highlighting the inclusion in the process of national gender machineries, gender and women's groups, or non-governmental organizations.

2. Information necessary to track progress

76. In accordance with decision 18/CMA.1, annex, paragraph 65, Parties shall identify and report in their BTR information on the indicator(s) that they selected to track progress towards the implementation and achievement of their NDCs under Article 4 of the Paris Agreement. Such information will be synthesized and presented in future reports, which are due from 2024. As Parties have yet to submit their BTRs, the information in the following paragraphs is based on the information reported by Parties in their latest NDCs.

77. In total, 55 per cent of Parties mentioned specific policy instruments in place for facilitating NDC implementation, in addition to institutional arrangements, and 26 per cent

mentioned instruments that were under development. Such policy instruments include energy and/or climate strategies, low-emission development strategies, NDC implementation road maps, NDC action plans, laws and regulations on climate change, national sectoral mitigation and adaptation plans and NDC investment plans.

78. In total, 13 per cent of Parties included information on their existing domestic measurement, reporting and verification systems, while 53 per cent indicated that such systems are under development. These Parties acknowledged the important role of such systems in continuously monitoring and tracking the status and progress of their NDCs and mitigation efforts and stated that the results will be reflected in national inventory reports and/or BTRs, ensuring national and international transparency. About 1 per cent of Parties also noted that the feedback from such systems will be used to guide the preparation of their subsequent NDCs.

3. Mitigation policies, actions and plans

(a) Domestic mitigation measures

79. Information on international support that is necessary for implementing domestic mitigation measures is described in section III.D below. Future reports may include information on PaMs reported by Parties in their BTRs.

80. Ninety-six per cent of Parties outlined in their NDCs domestic mitigation measures as key instruments for achieving mitigation targets of their NDCs and/or specific priority areas of national importance, which are often a subset of one or more IPCC sectors, including energy supply, transport, buildings, industry,²³ agriculture, LULUCF and waste. In total, 91 per cent of Parties communicated measures in the priority area of energy supply and 74–82 per cent identified measures in transport, LULUCF, buildings, agriculture and waste (see figure 6 below). However, only 46 per cent of Parties indicated measures in industry, although most Parties (74 per cent) included industrial processes and product use as one of the sectors in their NDCs.

81. In total, 53 per cent of Parties communicated domestic mitigation measures for achieving conditional elements of their NDCs,²⁴ 51 per cent included measures for achieving their NDCs excluding conditional elements and 23 per cent for achieving NDCs with both conditional elements and parts excluding conditional elements. In the priority areas of industry, energy supply and waste, Parties identified measures for achieving conditional elements of their NDCs more frequently than measures for achieving their NDCs excluding conditional elements.

82. Domestic mitigation measures for renewable energy generation were most frequently mentioned by Parties, followed by measures for improving the energy efficiency of buildings (see figure 6 below). In total, 22 per cent of Parties communicated quantitative targets for the share of renewables in electricity generation by 2030 (ranging from 15 to 100 per cent); and 13 per cent of Parties, accounting for 1.8 per cent of total global electricity generation in 2019²⁵ and 2.2 per cent of global GHG emissions in 2019, communicated target shares exceeding or falling within the IPCC range of 47–65 (median 54) per cent consistent with 1.5 °C pathways.²⁶

²³ Covers measures targeting emissions from fuel use in industry, industrial process emissions and emissions from product use. For the scopes of the other priority areas, including cross-cutting or other, see document FCCC/PA/CMA/2021/8/Add.2. Available at https://unfccc.int/sites/default/files/resource/cma2021_08a02.pdf

²⁴ Measures for achieving conditional elements of NDCs refer to both: those contributing to NDCs with conditional elements only; and those contributing to NDCs with conditional elements and parts excluding conditional elements.

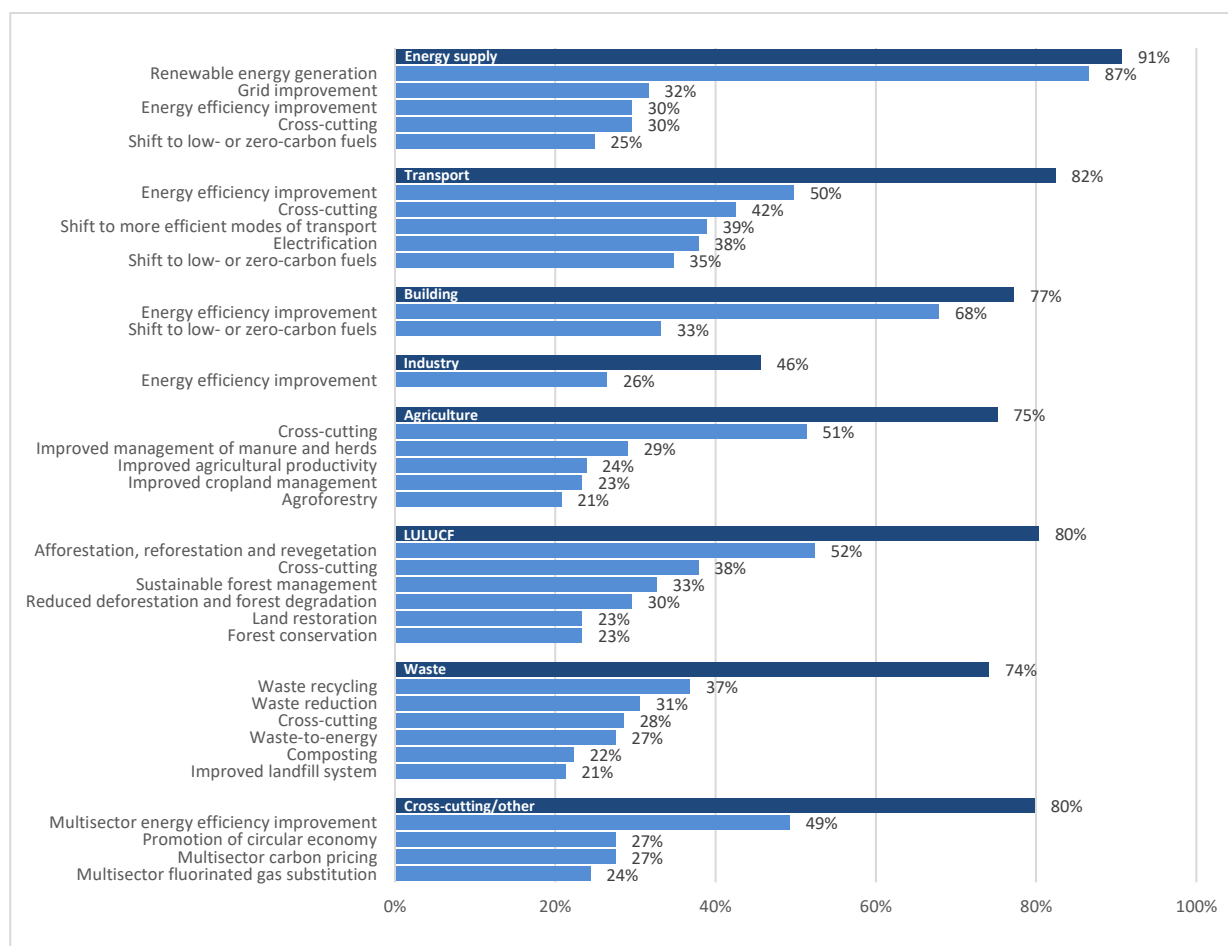
²⁵ Estimated on the basis of data from IEA. 2021. *World Energy Balances*. Paris: IEA. All rights reserved; as modified by the UNFCCC secretariat. IEA data used in this report are subject to IEA terms and conditions, available at www.iea.org/terms.

²⁶ The interquartile range of the global renewable share in electricity generation by 2030 consistent with the emission pathways to 1.5 °C with no or limited overshoot in the SR1.5.

83. For the Parties that communicated new or updated NDCs, as in the previous NDCs, renewable energy generation was the most frequently indicated mitigation option²⁷ and the focus of quantitative mitigation targets, with the share of Parties indicating this option and target sharply increasing from 57 to 89 per cent and from 35 to 56 per cent, respectively, since the previous NDCs.

Figure 6

Share of Parties referring to specific priority areas for domestic mitigation measures and frequently indicated mitigation options under the priority areas in NDCs



Note: If a Party communicated more than one measure for a specific priority area or one of the frequently indicated mitigation options, it was counted as one Party communicating measures for that area or option.

84. In the priority areas related to supply and end use of energy (such as energy supply, transport, buildings and industry), renewable energy generation and shifting to low- or zero-carbon fuels were frequently or widely indicated as key mitigation options relevant to reducing the carbon intensity of electricity and solid, liquid and gaseous fuels (see figure 6 above); electrification was mentioned in relation to increasing the share of electricity in final energy supplied and switching fuel use from fossil fuels to electricity in end-use sectors such as transport and buildings, with the sectors benefiting from electricity with reduced carbon intensity for further decarbonization; and improving energy efficiency and shifting to more efficient modes of transport were often referenced in relation to reducing energy demand. Among measures for shifting to low- or zero-carbon fuels and/or improving energy efficiency, 8 per cent of Parties, accounting for 55 per cent of total global electricity generation from

²⁷ Refers in this report to expected key mitigation effects or categories of domestic mitigation measures, which were identified by analysing the trend in the measures set out in the new or updated NDCs and by referring to those identified in the previous NDC synthesis reports and relevant IPCC reports, including the SR1.5.

coal in 2019,²⁸ indicated phasing down unabated coal power generation, and 3 per cent, accounting for 3.4 per cent of total global fossil fuel subsidies in 2020,²⁹ identified phasing out inefficient fossil fuel subsidies or reforming fossil fuel subsidies.

85. More broadly across all priority areas, Parties frequently indicated waste reduction, waste to energy, improved management of manure and herds, and fluorinated gas substitution as key mitigation options relevant to reducing non-CO₂ emissions (see figure 6 above). In addition, Parties often communicated mitigation options related to the circular economy, including reducing and recycling waste and promoting the circular economy. Measures related to multisector carbon pricing were frequently identified as efficient ways of incentivizing low-carbon behaviours and technologies by putting a price on GHG emissions.

86. Eighty per cent of Parties included mitigation measures in the area of LULUCF in their NDCs. In terms of key mitigation options relevant to enhancing carbon sequestration in soil or vegetation, Parties most frequently indicated afforestation, reforestation and revegetation; sustainable forest management; and reduced deforestation and forest degradation (see figure 6 above). In this context, almost half of developing country Parties referred to reducing deforestation as a priority with high mitigation potential, including through efforts to implement REDD+ activities. Parties also highlighted the importance of socioeconomic and environmental non-carbon benefits resulting from these mitigation activities, including for adaptation.

87. The SR1.5 identified mitigation options considered relevant to aligning global emissions trajectories with 1.5 °C pathways, including:

(a) Halting investment in unabated coal by 2030. In total, 3 per cent of Parties, accounting for 0.7 per cent of total global electricity generation from coal in 2019³⁰ and 2.6 per cent of global GHG emissions in 2019, communicated corresponding measures, such as phasing out use of unabated coal to produce electricity by 2025. Of those Parties, 60 per cent mentioned the need for a just transition for communities and workers dependent on coal;³¹

(b) Phasing out sales of fossil fuel passenger vehicles by 2035–2050. In total, 3 per cent of Parties, accounting for 3.8 per cent of total global sales of fossil fuel passenger vehicles in 2020³² and 2.6 per cent of global GHG emissions in 2019, communicated corresponding measures, including banning new registrations of diesel and gasoline vehicles after 2030;

(c) Requiring newly constructed buildings to be near zero energy by 2020. In total, 15 per cent of Parties, accounting for 3 per cent of total global building floorspace of new buildings in 2016³³ and 7.4 per cent of global GHG emissions in 2019, communicated

²⁸ As footnote 25 above.

²⁹ Estimated on the basis of data from the IEA fossil fuel subsidies database, available at www.iea.org/data-and-statistics/data-product/fossil-fuel-subsidies-database, all rights reserved (accessed 28 January 2022), and the Organisation for Economic Co-operation and Development fossil fuel support data and country notes, available at www.oecd.org/fossil-fuels/countrydata (accessed 28 January 2022); as modified by the UNFCCC secretariat. “Total global fossil fuels subsidies” refers to those of 81 economies, representing 93 per cent of total global energy supply from fossil fuels and 90 per cent of global total final consumption of fossil fuels in 2019 (estimated on the basis of data from IEA. 2021. *World Energy Balances*. Paris: IEA. All rights reserved; as modified by the UNFCCC secretariat).

³⁰ As footnote 25 above.

³¹ For more information on just transition, see section III.B.3(b).

³² Estimated on the basis of data from the sales statistics of the International Organization of Motor Vehicle Manufacturers, available at www.oica.net/category/sales-statistics (accessed 7 December 2021), and the IEA Global EV Data Explorer, available at www.iea.org/articles/global-ev-data-explorer, all rights reserved (accessed 7 December 2021); as modified by the UNFCCC secretariat.

³³ Estimated on the basis of data from IEA Tracking Buildings 2021, available at www.iea.org/reports/tracking-buildings-2021, all rights reserved (accessed 8 December 2021), and the European Union Buildings Database, available at https://ec.europa.eu/energy/eu-buildings-database_en, all rights reserved (accessed 8 December 2021); as modified by the UNFCCC secretariat.

corresponding measures, such as requiring new buildings constructed after 1 January 2020 to consume almost zero energy;

(d) Expanding forest cover by 2030. In total, 10 per cent of Parties, accounting for 6.9 per cent of total global forest cover in 2020,³⁴ communicated quantitative targets for increasing national forest cover by 2030, such as increasing forest cover to 60 per cent of the national territory by 2030 without competing for land with the agriculture sector;

(e) Reducing food waste and loss. In total, 3 per cent of Parties, accounting for 1.3 per cent of total global food waste in 2019³⁵ and 3.1 per cent of global GHG emissions in 2019, communicated measures for reducing food waste as part of waste reduction, such as taking action through voluntary agreements with the food industry and expanding food waste collection to achieve zero food waste to landfill by 2030.

88. Sixty per cent of Parties highlighted policy coherence and synergies between their mitigation measures and development priorities. 32 per cent of Parties identified domestic mitigation measures in the context of the longer-term measures and targets set out in their LT-LEDS and/or other relevant national long-term low-emission development strategies or laws, including by identifying domestic mitigation measures for the NDC on the basis of programmes of action or mitigation options set out in the national LT-LEDS; by requiring Governments to report, review and calibrate measures in their NDCs at least once every five years to ensure progress towards the 2050 or net zero targets; and by establishing an independent statutory body that advises the Government on setting mitigation targets and measures for the NDC in the context of the legally binding net zero target.

(b) Mitigation co-benefits resulting from adaptation actions and economic diversification plans

89. In accordance with decision 18/CMA.1, paragraph 84, for Parties with an NDC that consists of mitigation co-benefits resulting from adaptation actions and/or economic diversification plans, information to be reported includes relevant information on PaMs contributing to mitigation co-benefits resulting from adaptation actions and/or economic diversification plans.

90. About 36 per cent of Parties considered mitigation co-benefits resulting from their adaptation actions and/or economic diversification plans in their NDCs and 52 per cent of these Parties explained how social and economic consequences of response measures were considered in preparing the NDC. In addition, 26 per cent of Parties considered positive and/or negative economic and social consequences of response measures without linking them to mitigation co-benefits.

91. Of the Parties that considered mitigation co-benefits or considered economic diversification without linking it to mitigation co-benefits, about 23 per cent mentioned that economic diversification is considered part of their national development plans and climate policies for boosting national resilience to climate change and the impacts of response measures. Three per cent of these Parties linked such plans to an existing poorly diversified economy and the impact of response measures on sectors of high economic importance, such as extraction of fossil fuels. These Parties specifically mentioned economic diversification plans or actions focused on high-emitting sectors and sectors of economic importance. Such plans include enhancing education; increasing the share of energy generation using renewable sources; improving energy efficiency through regulatory measures, pricing signals and technology deployment in the fisheries, industry and buildings sectors; CO₂ capture and storage in the oil and gas industry; implementing fuel switch and fuel price reforms in the transport sector; moving to a circular economy for better waste management; and adopting sustainable tourism practices to build the tourism sector.

³⁴ FAO. 2020. *Global Forest Resources Assessment 2020*. Rome: FAO. Available at www.fao.org/documents/card/en/c/ca9825en; as modified by the UNFCCC secretariat.

³⁵ United Nations Environment Programme. 2021. *Food Waste Index Report 2021*. Nairobi: United Nations Environment Programme. Available at www.unep.org/resources/report/unep-food-waste-index-report-2021; as modified by the UNFCCC secretariat.

92. In their NDCs, the Parties highlighted unequal impacts on different groups in society or the workforce as a consequence of response measures, with impacts on the workforce³⁶ the most frequently mentioned. Twenty-nine per cent of Parties plan to address such impacts by including the concept of just transition in their overall NDC implementation, including through a just transition mechanism and just transition funds; laws and strategies for protecting workers; a social mechanism for job creation, skills development and employment policies; and a consultation process for social protection. Three per cent of Parties paid particular attention to addressing the impacts of response measures on vulnerable groups and communities in relation to poverty, job opportunities and inequality during the transition.

93. Some Parties described in their NDCs how their adaptation action contributes to emission reduction, including their intention to consider mitigation co-benefits in NAP formulation. In terms of sectors, some described the potential co-benefits of various agricultural adaptation measures, including climate-smart agriculture, reducing food waste and vertical farming. Adaptation of coastal ecosystems was highlighted as another source of co-benefits, in particular planting mangroves and seagrass beds. Other sectors with potential co-benefits mentioned were forestry, natural resources and the environment, energy and waste.

94. Many Parties identified agriculture as a high priority for adaptation, either explicitly or as part of cross-sectoral adaptation efforts, and most aim to use mitigation opportunities in the sector. Many Parties highlighted the need to focus on activities that have positive effects on mitigation and adaptation while ensuring food security.

4. Information on the possible contribution of the LULUCF sector to the achievement of NDCs

95. Information on the possible contribution of the LULUCF sector to the achievement of NDCs will be reported by Parties in their BTRs. Such information will be synthesized and presented in future reports. As Parties have yet to submit their BTRs, the information in paragraphs 96 to 98 below is based on the information reported by Parties in their latest NDCs.

96. About 30 per cent of Parties reported that they are considering addressing emissions and subsequent removals due to natural disturbances on managed land if such events occur. Almost all of these Parties mentioned that they may use a statistical approach to identify natural disturbances following relevant IPCC guidance.

97. About 30 per cent of Parties stated that emissions and removals from harvested wood products will be accounted for as part of their NDCs, and almost all of these Parties indicated that they will use the production approach.

98. About 30 per cent of Parties mentioned that the effects of age-class structure in forests will be taken into account when estimating the mitigation contribution of forests by using a projected forward-looking forest reference level taking into account current management practices.

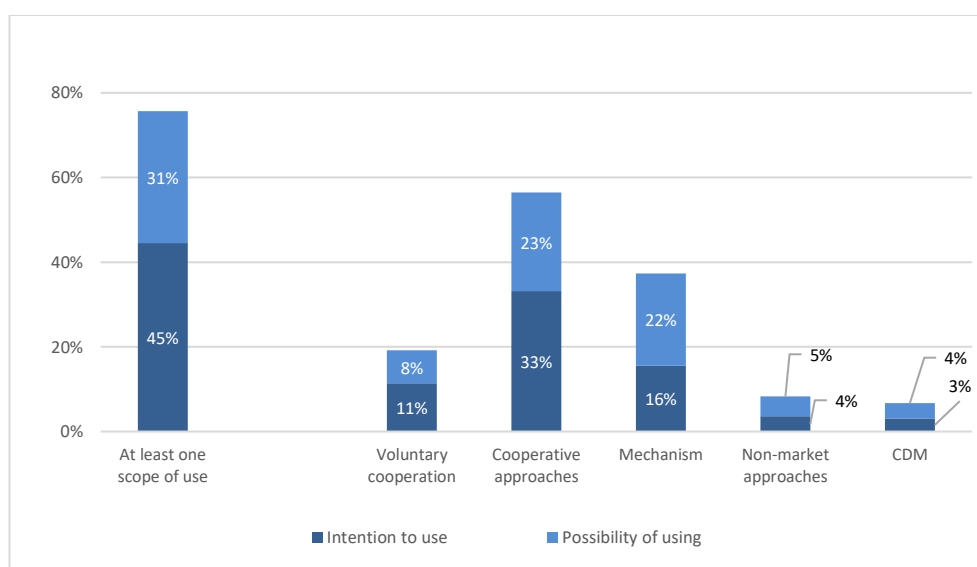
5. Information on participation in voluntary cooperation under Article 6 of the Paris Agreement in implementing NDCs

99. Information on participation in cooperative approaches under Article 6 that involve the use of internationally transferred mitigation outcomes towards NDCs will be reported by Parties in their BTRs, as applicable. Parties have not yet submitted their BTRs. The information on the intention to use voluntary cooperation under Article 6 in the following paragraphs 100 to 103 is based on the information reported by Parties in their latest NDCs, almost none of which contained quantitative information on the projected total use of mitigation outcomes, including internationally transferred mitigation outcomes. Therefore, the present report does not quantify the projected total use of mitigation outcomes towards NDCs through voluntary cooperation.

³⁶ Such as low income groups, women, youth, indigenous people and people with disabilities.

100. Eighty-one per cent of Parties provided information relating to voluntary cooperation. Almost all of them, or 76 per cent of Parties, communicated that they plan to or will possibly use at least one of the scopes of voluntary cooperation in implementing their NDCs (see figure 7 below) by directly or indirectly referring to the scopes in their NDCs: general use of voluntary cooperation under Article 6; use of cooperative approaches under Article 6, paragraph 2; use of the mechanism under Article 6, paragraph 4; use of non-market approaches under Article 6, paragraph 8; and use of the CDM.³⁷ In the new or updated NDCs, 83 per cent of Parties indicated that they plan to or will possibly use at least one of the scopes of voluntary cooperation, compared with 46 per cent in the previous NDCs.

Figure 7
Share of Parties indicating in NDCs the intention to use or the possibility of using specific scopes of voluntary cooperation



101. Planned and possible use of cooperative approaches was the scope of voluntary cooperation most frequently communicated by Parties (56 per cent) (see figure 7 above), followed by planned and possible use of the mechanism (38 per cent).

102. Twelve per cent of Parties communicated the use of voluntary cooperation as a condition for achieving their mitigation targets.

103. However, 35 per cent of Parties have set limits on their use of voluntary cooperation: 4 per cent stated that they will use voluntary cooperation only as a means of achieving conditional elements of their mitigation targets; 5 per cent have set quantitative limits on their use of voluntary cooperation for achieving their mitigation targets, such as achieving targets primarily through domestic efforts but partially through voluntary cooperation; and 31 per cent have set qualitative limits on their use of voluntary cooperation for achieving their mitigation targets, such as using units that adhere to standards and guidelines to ensure additionality, permanence or avoidance of double counting of emission reductions. The share of Parties that have set qualitative limits on their use of voluntary cooperation increased from 18 in the previous NDCs to 34 per cent in the new or updated NDCs.

6. Assessment of the achievement of Parties' NDCs under Article 4 of the Paris Agreement

104. The assessment of the achievement of the Parties' NDCs under Article 4 of the Paris Agreement will be reported by Parties in their BTRs. The assessment will include, for each selected indicator, information on the reference point(s), level(s), baseline(s), base year(s) or starting point(s), as well as final information on the target year/period, including the

³⁷ Only direct references to use of the CDM were considered; indirect references to the CDM such as 'international market-based mechanisms' was not considered a reference to the CDM.

application of the necessary corresponding adjustments. Such information will be synthesized and presented in future reports.

C. Adaptation

105. Eighty per cent of Parties included adaptation-related information in their NDCs. Such information was provided by 53 African States, 51 Asia-Pacific States, 32 Latin American and Caribbean States, 12 Eastern European States and six Western European and other States. The adaptation information in the NDCs encompasses, in particular, adaptation-related research; vulnerabilities; adaptation measures across sectors; adaptation strategies and policies, such as NAPs; contingency measures; synergies with mitigation and other global frameworks; and monitoring and evaluation of adaptation. Ten per cent of the Parties that included adaptation information also identified the adaptation component of their NDCs as their adaptation communication.³⁸

106. The NDCs illustrate how Parties have advanced adaptation since 2015. For example:

- (a) An increasing proportion of Parties (from 72 per cent in 2015 to 80 per cent in 2021) provided adaptation information;
- (b) Of those Parties submitting adaptation information, a higher proportion (from 42 per cent in 2015 to 60 per cent in 2021) described the status of their process to formulate and implement NAPs, illustrating the role of NAPs as the main national adaptation instrument and a key source of information for the NDCs;
- (c) The information indicates that, in general, Parties have developed more integrated and comprehensive national frameworks for adaptation;
- (d) Across the NDCs, Parties communicated a higher number of quantitative time-bound targets and provided more details about their indicator frameworks for monitoring adaptation progress;³⁹
- (e) Information on synergies between adaptation, mitigation and sustainable development is more comprehensive and detailed.

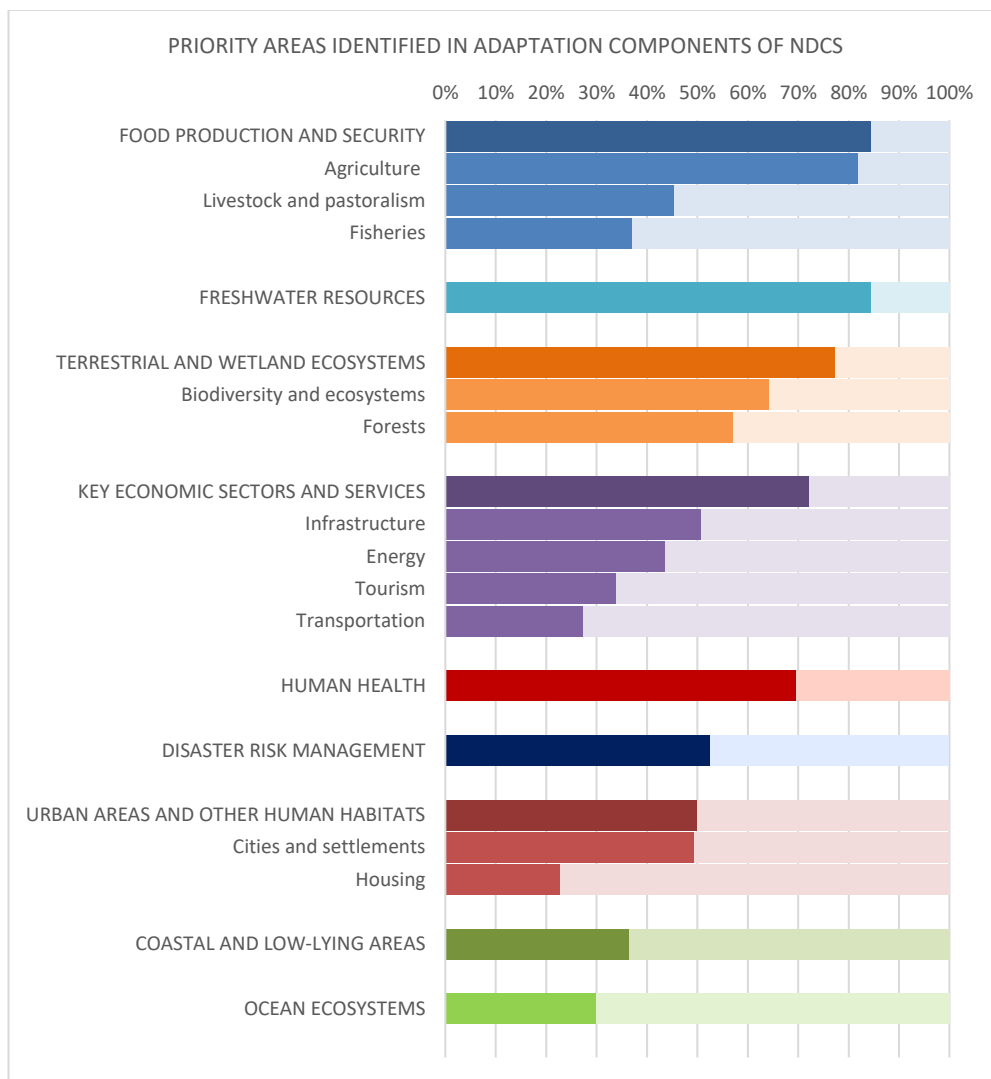
107. Ninety-seven per cent of the Parties that included an adaptation component considered ways to enhance adaptation-related research, data, information and monitoring and ensure that adaptation efforts are informed by science. This included efforts to enhance research through data collection, national censuses, monitoring systems, observation networks, research centres, strengthened weather services, climate and risk modelling, and international cooperation. Options identified to ensure that adaptation is guided by robust science and projections include, for example, integrated climate information systems, open-source data, data pooling and sharing platforms for accessing information, and forecasting tools and scenarios.

108. In terms of adaptation priorities (see figure 8 below), Parties continued to focus on food production and security, freshwater resources, terrestrial and wetland ecosystems, key economic sectors and services, human health, disaster risk management, urban areas and habitats, coastal and low-lying areas, and ocean ecosystems (see document FCCC/PA/CMA/2021/8/Add.1, table 1, for examples of specific actions in priority sectors).

³⁸ As of 11 February 2022, 38 adaptation communications had been submitted to the secretariat. They are currently available on the provisional web page at <https://unfccc.int/topics/adaptation-and-resilience/workstreams/adaptation-communications>.

³⁹ More information about quantitative targets for adaptation is contained in document FCCC/PA/CMA/2021/8/Add.1 (*Nationally determined contributions under the Paris Agreement. Synthesis report by the secretariat. Addendum. Additional information from adaptation components of nationally determined contributions*) available at <https://unfccc.int/documents/306870>.

Figure 8
Share of adaptation components of NDCs referring to specific adaptation priority areas and sectors



109. Eighty-seven per cent of the adaptation components described key climatic changes, referring to temperature increase, extreme temperatures, precipitation changes and sea level rise. These were identified as triggering various climate change hazards, in particular extreme events such as flooding, drought, desertification, heatwaves and tropical cyclones; as well as other changes such as saltwater intrusion, erosion, ocean acidification, thawing ice and permafrost, landslides and fires. Parties also described how impacts affect vulnerable sectors and identified vulnerable demographic groups and geographic areas.

110. Sixty per cent of the Parties that provided an adaptation component described the process to formulate and implement NAPs. This included information on NAPs that have already been developed, and information on the intention to do so, including a timeline for completion, update or implementation. Information was also provided on the links between NAPs and NDCs, including how the NAP provides the basis for the adaptation component; how both build on the same vulnerability assessment; and how NAPs and NDCs can be aligned. The scope of the NAP was also described, including in relation to enabling risk and vulnerability analysis; integrating adaptation into development planning and/or other frameworks and sectors; strengthening adaptive, institutional, policy and technical capacities; outlining and prioritizing adaptation needs, objectives, milestones and cost of adaptation; providing a framework for planning, implementation and coordination; enhancing financing, engagement and gender responsiveness; strengthening monitoring and evaluation (including

by defining quantifiable indicators); and enabling consideration of co-benefits between mitigation and adaptation.

111. Ninety-two per cent of Parties that provided adaptation information also described other policy frameworks relevant to adaptation, including how such frameworks provide a basis for adaptation efforts and how adaptation is integrated into and strengthened under other frameworks, such as national development frameworks, sectoral plans relevant to adaptation, disaster risk management policies and other UNFCCC frameworks (e.g. national adaptation programmes of action, technology needs assessments and economic diversification initiatives).

112. Thirty-seven per cent of the NDCs with adaptation components also reported information related to costs, losses and/or damage associated with climate impacts. Twenty-three per cent of the NDCs reported incurred or projected costs, losses and/or damage across socioeconomic and natural systems, and 28 per cent referred to undertaken or planned measures for addressing such costs, losses and/or damage. Information on efforts to address loss and damage under the UNFCCC process to date will be contained in the forthcoming synthesis report for the technical assessment component of the global stocktake by the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts.

113. Thirty-one per cent of the NDCs containing adaptation information highlighted the importance of contingency measures for dealing with emergencies and impacts that occur regardless of adaptation efforts. These measures focused on increasing the resilience of priority areas and sectors beyond the limits of adaptation by developing, inter alia, emergency plans and systems (e.g. search and rescue, evacuation, emergency shelters and food reserves), humanitarian assistance and civil protection, emergency or contingency funding, insurance schemes, livelihood protection policies and support for displaced persons.

114. Forty-seven per cent of the Parties providing adaptation information described their efforts to enhance monitoring and evaluation of adaptation, such as by focusing on tracking progress, vulnerability reductions, efficiency and effectiveness of actions, NAP implementation and support. Approaches included systems for integrating climate and adaptation information, sectoral monitoring tools and a platform for integrating tools for monitoring climate risk and low-emission development. Fourteen per cent of the adaptation components also conveyed information on the intention to apply global, national or sectoral quantitative indicators for monitoring climate parameters and impacts, together with progress of adaptation measures and/or sectoral performance.

115. Twenty-six per cent of the Parties that submitted adaptation information identified quantified targets for priority sectors/areas, in particular for water, agriculture, livestock, fisheries, forestry, biodiversity, coastal areas, health, energy and transportation. The table below contains examples of quantified targets in selected sectors (see document FCCC/PA/CMA/2021/8/Add.1, table 2, for further examples of quantified targets).

Examples of quantified targets in selected sectors based on the adaptation information in the NDCs

Water	99 per cent of the population to have a basic water supply and 40 per cent to have an improved water supply by 2030
Agriculture	Crop diversification with climate change tolerant varieties to be implemented in 50 per cent of the target area by 2030
Livestock	60 per cent of the livestock sector to incorporate adaptation measures by 2030
Fisheries	Five artisanal fish landing and processing centres to be established by 2025
Forestry	30 per cent of land to be used for forestry by 2025
Biodiversity	Two marine protected areas to be established by 2030

Coastal and low-lying areas	Green-grey infrastructure measures to be implemented along 60 per cent of vulnerable coastline by 2030
Health	40 per cent of health institutions to implement adaptation actions by 2030
Energy	100 per cent of the water supply infrastructure to be powered by renewable energy sources by 2030
Transportation	Resilience of 4,500 km of road to be increased by 2030

D. Means of implementation

116. Ninety-three per cent of Parties provided information on some or all means of implementation in their NDCs, although the structure and depth of that information varied significantly given that the guidance on the information necessary for clarity, transparency and understanding of NDCs does not provide for a specific section on means of implementation. NDCs do not, therefore, represent complete information on means of implementation, which are also reported through other UNFCCC submissions, including national communications, biennial reports, biennial update reports and NAPs for example.⁴⁰ While some Parties included a dedicated section on means of implementation or separate sections on finance, technology and/or capacity-building, many mentioned or referred to aspects of means of implementation in other sections of their NDCs.

117. Some Parties provided information on specific climate finance, technology and capacity-building projects, with several including detailed information on financial and technical requirements, implementing entities and time frames.

118. Some Parties highlighted South-South, triangular or regional cooperation as support mechanisms for NDC implementation, including for specific aspects of financial assistance, capacity-building and technology development and transfer.

1. Finance

119. In total, 93 per cent of Parties provided information on finance as a means of NDC implementation, with 71 per cent characterizing finance in terms of international support needed and 22 per cent mentioning finance in relation to domestic implementation only. Two per cent of Parties mentioned finance in the context of providing financial support for other countries' NDC implementation. Forty-seven per cent of Parties provided qualitative information on how finance will be used as a means of implementation either in general or through specific actions for financing mitigation or adaptation support, such as earmarking public expenditure, establishing climate funds or supporting financial systems. Forty-six per cent also included quantitative information on financial investment or expenditure to support their NDCs, such as on financing specific technology development funds, economy-wide budgetary programmes or specific projects and needs for financial support.

120. Forty-four per cent of Parties provided quantitative estimates of needs for financial support, which were often expressed as total amounts over the time frame of the NDC. Most of these Parties (82 per cent) made efforts to differentiate quantitative estimates for conditional actions reliant on international support from those for unconditional actions that may be financed from domestic sources.

121. Thirty-eight per cent of Parties provided information on needs for financial support across mitigation and adaptation themes or sectors, and a few provided total estimates. Mitigation finance is needed across renewable energy, energy efficiency, transport and

⁴⁰ See the synthesis report on the information identified in decision 19/CMA.1, para. 36(d) being prepared for the global stocktake for an overview of the needs for means of implementation expressed across different types of reports by developing countries and of the means of implementation support provided and mobilized by developed countries.

forestry, while adaptation finance is needed for activities related to water, agriculture, coastal protection and resilience.

2. Technology development and transfer

122. Ninety-four per cent of Parties provided information on the qualitative aspects of technology development and transfer for NDC implementation, and 45 per cent provided information on both the qualitative and quantitative aspects.

123. Seventy-seven per cent of Parties referred to technology development and transfer in the context of actions that inherently address both adaptation and mitigation or focus on mitigation. Sixty-one per cent of Parties also referred to climate technology for adaptation.

124. Information provided by Parties on matters related to climate technology was mainly on specific technologies to be deployed; technology needs; policy, regulatory and legal aspects; technology innovation, research and development; and support required by Parties or support provided by Parties for technology development and transfer.

125. Among the specific technologies that Parties intend to use for achieving their adaptation and mitigation targets, those most frequently identified were cross-sectoral energy-efficient appliances and processes; enhanced use of renewable energy technologies, such as hydropower, solar, wind and biomass; clean hydrogen; low- or zero-emission vehicles; blended fuel; waste-to-energy technologies; and climate-smart agriculture.

126. Technology needs mentioned by Parties were mainly in the areas of energy, agriculture, water, waste, transport, coastal zones, climate observation and early warning. With regard to technology innovation, research and development, some Parties included information on promoting collaboration between countries and promoting institutions, mechanisms, tools and business models that foster progress in this area. Actions on policy, regulatory and legal aspects commonly referred to by Parties include developing or updating policies and strategies to promote technology innovation, including by establishing funds for this purpose, promoting use of renewable energy and accelerating adoption and transfer of climate technologies.

127. In total, 7 per cent of Parties included specific information on their intended provision of support to developing country Parties, including through South-South cooperation, while 18 per cent indicated the support needed for development and deployment of clean technologies, for example, in the areas of energy, energy efficiency and agriculture. Ten per cent of Parties referenced technology needs assessments and technology action plans in identifying priority technology needs in adaptation and mitigation.

3. Capacity-building

128. Seventy-four per cent of Parties identified capacity-building as a prerequisite for NDC implementation. Many Parties provided a specific section containing information on capacity-building needs. Capacity-building needs were identified for formulating policies, integrating mitigation and adaptation into sectoral planning processes, accessing finance and providing the necessary information for ensuring clarity, transparency and understanding of NDCs. Capacity-building needs were assessed in three ways: by thematic area, by sector and by category.

129. With regard to thematic areas, 54 per cent of Parties provided information on cross-cutting capacity-building needs, whereas 42 per cent expressed capacity-building needs for adaptation and 34 per cent for mitigation. In addition, 3 per cent of Parties indicated capacity-building needs for addressing loss and damage and 63 per cent identified their efforts or needs in relation to sectoral capacity-building. In total, 62 per cent of Parties identified capacity-building needs that were multisectoral, followed by 15 per cent that identified needs relating to other subsectors, namely buildings and infrastructure, energy and/or health.

130. With regard to capacity-building categories, 66 per cent of Parties referred to cross-cutting capacity-building needs, mainly for facilitation of training, education, peer-to-peer learning and awareness-raising. Twenty-seven per cent of Parties emphasized the importance

of capacity-building to support institutional strengthening in order to ensure the sustainability and retention of capacities at the national level.

131. Further information on capacity-building is contained in the synthesis report of the Paris Committee on Capacity-building being prepared for the global stocktake.

Annex

List of Parties with new or updated NDCs as recorded in the interim NDC registry as at 31 December 2021

- 1 Albania
- 2 Andorra
- 3 Angola
- 4 Antigua and Barbuda
- 5 Argentina
- 6 Armenia
- 7 Australia
- 8 Bahrain
- 9 Bangladesh
- 10 Barbados
- 11 Belarus
- 12 Belize
- 13 Benin
- 14 Bhutan
- 15 Bosnia and Herzegovina
- 16 Brazil
- 17 Brunei Darussalam
- 18 Burkina Faso
- 19 Burundi
- 20 Cabo Verde
- 21 Cambodia
- 22 Cameroon
- 23 Canada
- 24 Chad
- 25 Chile
- 26 China
- 27 Colombia
- 28 Comoros
- 29 Congo
- 30 Costa Rica
- 31 Cuba
- 32 Democratic People's Republic of Korea
- 33 Democratic Republic of the Congo
- 34 Dominican Republic
- 35 Ecuador
- 36 Eswatini
- 37 Ethiopia
- 38 European Union (and its 27 member States)
- 39 Fiji
- 40 Gambia
- 41 Georgia
- 42 Ghana
- 43 Grenada
- 44 Guinea

45	Guinea-Bissau
46	Honduras
47	Iceland
48	Indonesia
49	Iraq
50	Israel
51	Jamaica
52	Japan
53	Jordan
54	Kenya
55	Kuwait
56	Kyrgyzstan
57	Lao People's Democratic Republic
58	Lebanon
59	Liberia
60	Malawi
61	Malaysia
62	Maldives
63	Mali
64	Marshall Islands
65	Mauritania
66	Mauritius
67	Mexico
68	Monaco
69	Mongolia
70	Montenegro
71	Morocco
72	Mozambique
73	Myanmar
74	Namibia
75	Nauru
76	Nepal
77	New Zealand
78	Nicaragua
79	Niger
80	Nigeria
81	North Macedonia
82	Norway
83	Oman
84	Pakistan
85	Panama
86	Papua New Guinea
87	Paraguay
88	Peru
89	Philippines
90	Qatar
91	Republic of Korea
92	Republic of Moldova
93	Russian Federation
94	Rwanda

95	Saint Kitts and Nevis
96	Saint Lucia
97	Samoa
98	Sao Tome and Principe
99	Saudi Arabia
100	Senegal
101	Seychelles
102	Sierra Leone
103	Singapore
104	Solomon Islands
105	Somalia
106	South Africa
107	South Sudan
108	Sri Lanka
109	State of Palestine
110	Sudan
111	Suriname
112	Switzerland
113	Tajikistan
114	Thailand
115	Togo
116	Tonga
117	Tunisia
118	Turkey
119	Uganda
120	Ukraine
121	United Arab Emirates
122	United Kingdom of Great Britain and Northern Ireland
123	United Republic of Tanzania
124	United States of America
125	Uruguay
126	Uzbekistan
127	Vanuatu
128	Venezuela (Bolivarian Republic of)
129	Viet Nam
130	Zambia
131	Zimbabwe
