

Submission of the United States on the Elements for the Consideration of Outputs Component of the First Global Stocktake

September 2023

- The United States welcomes the opportunity to provide views on the elements for the consideration of outputs component of the global stocktake (GST).
- In this regard, the United States would like to highlight several key issues for the GST outcome:
 - First, as this is the first GST, **Parties need to demonstrate that they are up to the task** of assessing progress and taking additional action where needed. In other words, the outcome must be sufficiently robust and detailed to demonstrate Parties' seriousness in tackling the climate crisis.
 - Second, the **decision must strike the appropriate balance between concern and hope**. We need to be honest with respect to both how far the world has come since the Paris Agreement, but also with respect to the remaining gaps.
 - Third, the GST **outcome should also strike a balance between backward-looking elements on collective progress to date and forward-looking "recommended responses."**
 - Fourth, there are **various types of forward-looking responses**:
 - Those that are negotiated as part of the GST decision, e.g., on mitigation;
 - Those that are negotiated elsewhere but referenced in the GST decision, e.g., the decisions on the global goal on adaptation framework and loss and damage funding arrangements; and
 - Non-negotiated responses that may or may not be referenced in the GST decision, e.g., side initiatives. It's important that the non-negotiated responses not be used as a replacement for – or take the pressure away from – the negotiated responses.
 - Fifth, **in no event should the outcome purport to change the Paris Agreement paradigm**.
 - Some have expressed concern that the GST decision might alter the nationally determined, bottom-up nature of NDCs. We agree that it should not.
 - At the same time, we are concerned about comments that it is up to developed country Parties alone to fill gaps in implementing the Paris Agreement.
 - We are similarly concerned about efforts to downplay or mischaracterize Article 2.1(c), one of the long-term goals of the Paris Agreement. These efforts are inconsistent with Article 14 of the Paris Agreement, which establishes a GST to take stock of progress towards achieving all the long-term goals of the Paris Agreement.
 - The GST cannot be used as a backdoor attempt to undermine the Paris Agreement paradigm.

- Sixth, we'd like to underline the **critical role of science**, in particular the reports of the Intergovernmental Panel on Climate Change (IPCC), in informing both our understanding of gaps and responses. Our scientific understanding of the climate crisis has grown since the adoption of the Paris Agreement, in particular the critical importance of limiting warming to 1.5°C.
- Seventh, **equity** is already reflected throughout the articles of the Paris Agreement and is germane to the entire GST.
 - In particular, urgent efforts to keep 1.5°C within reach are essential for minimizing adverse impacts – especially in relation to poor and vulnerable populations – which is core to equity.
 - In this regard, it is desirable that all Parties, particularly those whose emissions are most consequential with respect to keeping 1.5 within reach, have NDCs that genuinely reflect efforts to limit global average temperature to 1.5°C.
 - Such Parties that have not substantially strengthened their NDCs since 2015 to take advantage of the considerable real-world evolution in cost and availability of zero emissions technologies should do so achieve an outcome that is both ambitious and equitable.
 - In addition, some Parties have taken on Paris-aligned, stretch targets in their NDCs, while others have taken on targets they expect to significantly overachieve and that do not reflect the level of ambition expected in the Paris Agreement. This creates an inequitable, unfair outcome.
 - And the most capable Parties, including the United States and other Parties with considerable capability, should help advance the overall global effort through various actions, including support for developing countries. The number of Parties that are capable of such support has expanded considerably since 2015, and the GST should reflect their responsibility in the 2020s and beyond.
- Finally, on **just transitions**, all countries should make efforts to promote just transitions that support their respective workers and communities, including through inclusive social dialogue, social protection policies, and reskilling and training activities. We see a just transition as an inherent part of each Party's domestic efforts to accelerate the transition to net-zero emissions.
 - In this regard, we disagree that the concept of a just transition validates longer timelines to net zero, continued or new expansion of fossil fuels, or that it implies a need for distinct, new international finance. We also see just transition as applying within a domestic context rather than between countries.

Elements for the consideration of outputs component of the GST

- Elements corresponding to the long-term goals of the Paris Agreement are divided between **collective progress** towards achieving the relevant goal of the Paris Agreement

and **recommended responses**. In this way, they are roughly divided between “backward looking” and “forward looking” elements, respectively.

- The headings used in this submission reflect the “indicative draft structure” from the intersessional in Bonn. In relation to Article 2.1(c) and means of implementation and support, we have used Alt. 4, which is the option that is most consistent with the Paris Agreement.

A. Preamble

- The preamble should recall the Paris Agreement; its long-term goals as contained in Article 2.1 and Article 7.1; Article 14; and decision 19/CMA.1.
- In addition, the preamble should express appreciation to the co-facilitators of the technical dialogue, the subsidiary body chairs, the high-level committee, and participants in the technical dialogue, including non-Party stakeholders.

B. Context and cross-cutting considerations

- This section should welcome the summary reports and factual synthesis report of the technical dialogue.
- As decided in 19/CMA.1, **equity and the best available science** will be considered in a Party-driven and cross-cutting manner throughout the GST.
 - On **equity**, the United States’ views on the appropriate elements are reflected in the introduction to this submission.
 - Utilizing the **best available climate change science**, as reflected in the Sixth Assessment Report of the IPCC, is essential to improve our collective understanding of the pathways to achieve the Paris Agreement temperature goal, impacts of climate inaction, and the opportunities available for both mitigation and adaptation.
 - The best available science has improved since the adoption of the Paris Agreement, including on underscoring that the impacts of climate change will be much lower at 1.5°C than 2°C, and demonstrates that urgent action is needed to keep 1.5°C within reach and to secure a livable future for all.
 - Indeed, the IPCC found that risks and projected adverse impacts and related losses and damages from climate change will escalate with every increment of global warming; that reaching 1.5°C of warming in the near-term would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans; and that near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human

systems and ecosystems, compared to higher warming levels, but cannot eliminate them all.¹

- In addition, the IPCC found that Parties must make efforts to broaden the availability, accessibility, and useability of climate information to equip decision makers with the skills and knowledge to understand, anticipate, and prepare for climate impacts. This information is critical to ensure that Parties' mitigation and adaptation actions reflect needs indicated by the latest climate change science, including the importance of limiting global warming to less than 1.5°C.
- There are important topics where further research is needed, including tipping points and risks of temperature overshoot, understanding ecosystem thresholds, and the potential for nature-based solutions.
- This section should also recall Article 13 of the Paris Agreement and decisions 18/CMA.1 and 4/CMA.4 and recognize the importance of the **enhanced transparency framework** to promoting effective implementation of the Paris Agreement, including with respect to the GST, and reiterate that Parties shall submit their first biennial transparency report by 31 December 2024 at the latest. These reports will be critical to understanding how the NDCs that Parties have communicated are being implemented.

C. Collective progress towards achieving the purpose and long-term goals of the Paris Agreement, including under Article 2, paragraph 1 (a-c), in the light of equity and the best available science, and informing Parties in updating and enhancing, in a nationally determined manner, action and support

C.1 Mitigation:

Collective progress towards achieving Article 2.1(a):

- **Article 2.1(a) has had an enormous impact on global mitigation action.**
 - The Paris Agreement goal of holding the increase in the global average temperature to well below 2°C and pursuing efforts to limit it to 1.5°C has driven mitigation action by Parties and non-Party stakeholders alike.
 - Not only have Parties developed and implemented NDCs, long-term strategies, sectoral initiatives, and other efforts in a “Paris-aligned manner,” but the Paris temperature goal has become the North Star of a wide range of actors, including, e.g., sub-national actors, companies, and financial institutions.

¹ IPCC AR6 SYR SPM, B.2.2; IPCC AR6 WG2 SPM, B.3.

- Parties and non-Party stakeholders have widely adopted the “net-zero” concept derived from Article 4.1 of the Paris Agreement.
- **Efforts from Parties** include:
 - 169 Parties have communicated new or updated NDCs since the adoption of the Paris Agreement, whereas 24 Parties have not communicated new or updated NDCs;²
 - 67 Parties have submitted long-term low greenhouse gas emission development strategies,³ with 51 such strategies including a goal to achieve net-zero CO₂ emissions by or around mid-century;⁴
 - Parties and non-Parties have advanced many ambitious sectoral initiatives, including the Global Methane Pledge, Just Energy Transition Partnerships, the Agriculture Innovation Mission for Climate, First Movers Coalition, Green Shipping Challenge, Glasgow Leaders’ Declaration on Forests and Land Use, the Forest and Climate Leaders’ Partnership, and the Breakthrough Agenda.
- **International organizations** have also embraced Paris-aligned goals.
 - The International Civil Aviation Organization, for example, adopted a Paris-aligned net-zero goal last year.
 - The International Maritime Organization recently adopted a goal of reaching net-zero emissions by or around, i.e., close to 2050, consistent with the long-term temperature goal of the Paris Agreement.
 - The Kigali Amendment to the Montreal Protocol, assuming full implementation, should avoid as much as 0.5°C warming by the end of the century.
 - In addition, the Paris Agreement has spurred significant action at the intersection of the ocean and climate change, including in the context of the United Nations Ocean Conference and announcements through the Our Ocean Conferences.
- **Non-Party stakeholders** have taken significant Paris-aligned efforts:
 - 32,323 non-Party actors have registered climate change actions in the Global Climate Action Portal.
 - Under the guidance of the UN Climate Change High-Level Champions, more than 11,000 companies, subnational governments, educational institutions, and other non-State actors have joined the Race to Zero, pledging to achieve net-zero GHG emissions by 2050 at the latest.

² NDC Synthesis Report, October 26, 2022.

³ Long-term Strategies Portal, available at <https://unfccc.int/process/the-paris-agreement/long-term-strategies>.

⁴ Climate Watch, Explore Long-Term Strategies, available at <https://climatewatchdata.org/its-explore>.

- The Net Zero Tracker reports that 257 cities, 157 regions, and 967 of the 2,000 largest publicly traded companies in the world have set net-zero targets.
 - The Science-Based Targets Initiative (SBTi) reports that, as of 2022, 2,079 companies globally had established science-based emission reduction targets validated by SBTi, and an additional 2,151 had committed to set such targets. More companies set targets in 2022 than in the previous seven years combined.
 - More than 430 companies in 38 countries have joined the Climate Pledge, committing to achieve net-zero carbon emissions by 2040.
- **The International Energy Agency’s (IEA) estimates reflect the significance of the Paris Agreement and its implementation.** While its pre-Paris business-as-usual scenario indicated warming of 3.5°C by 2100, it has estimated that progress since Paris has reduced expected business-as-usual warming by 2100 to 2.5°C based on current policies, and that various pledges to date would, if fully implemented, limit warming to 1.7°C by 2100.⁵
- However, as these numbers demonstrate, **collective progress is still not yet on track.**
 - There remains a **significant ambition gap**, i.e., existing commitments, goals, and pledges are not yet sufficient to limit warming to 1.5°C.
 - There is also a **significant implementation gap**, i.e., there is currently inadequate implementation of existing commitments, goals, and pledges.
 - Even where Parties have taken on Paris-aligned efforts -- and some have not even done that -- they have not consistently reflected such efforts in their NDCs. Thus, there is also a **significant practice gap**, in that some Parties are taking on Paris-aligned, stretch NDCs in line with their respective national circumstances, while others are not.

Recommended responses:

- **Urgent efforts are required by all actors, particularly from those Parties whose emissions are most consequential with respect to keeping 1.5 within reach**, to bridge the ambition, implementation, and practice gaps.
- **Urgent, collective action in this critical decade is needed to peak global GHG emissions as soon as possible and by no later than 2025**, to reduce global GHG emissions by 43 percent by 2030 relative to the 2019 level and 60 percent by 2035 relative to the 2019 level, and to achieve net-zero CO₂ emissions by or around mid-century.
- There are **significant, immediately available, cost-effective opportunities in all sectors and across all GHGs** to place the world on a 1.5°C trajectory.

⁵ International Energy Agency, 2022. “World Energy Outlook 2022,” available at <https://www.iea.org/reports/world-energy-outlook-2022>.

- According to the IEA, **there are four key pillars of action needed to keep 1.5°C within reach.**⁶ These key pillars include:
 - Putting the **global energy and industrial sectors (including power, transportation, energy production, buildings, and industry) on a pathway to net-zero CO₂ emissions** by mid-century, recognizing the IPCC’s finding that projected cumulative future CO₂ emissions over the lifetime of existing and currently planned fossil fuel infrastructure, without additional abatement, exceed the total cumulative net CO₂ emissions in pathways that keep 1.5°C within reach.⁷
 - **Reducing deforestation** to net-zero by 2030 and significantly reducing degradation and other GHG emissions from land use, recognizing that the annual rate of deforestation has declined over the last 30 years, but the world is still losing more than 4 million hectares annually, which is incompatible with achieving net-zero deforestation by 2030.⁸
 - **Cutting emissions of non-CO₂ GHGs**, especially methane, HFCs, nitrous oxide, and other short lived climate pollutants, recognizing that methane emissions have continued to rise, increasing from 10.2 Gt CO₂-equivalent in 2015 to 10.8 Gt in 2021.⁹ N₂O and F-gas emissions have also continued to increase.¹⁰
 - **Scaling up the innovation and deployment of carbon management technologies**, recognizing that these technologies may be needed as an option to limit warming to 1.5°C.¹¹
- **All actors will need to focus efforts** across the range of sources to limit the temperature increase to 1.5°C. In particular:
 - To put the **global energy and industrial sectors on a pathway to net-zero CO₂ emissions** by mid-century:
 - Accelerating efforts towards the **phase out of unabated fossil fuels** and to rapidly reduce their use so as to achieve net-zero CO₂ in energy systems by or around mid-century.
 - Rapidly phasing out unabated coal power this decade and **immediately ceasing to permit new unabated coal power generation**. The IPCC suggests a pathway involving a reduction of unabated coal use by 75% from 2019 levels by 2030.¹²

⁶ IEA, 2023. Credible pathways to 1.5°C, available at: <https://www.iea.org/reports/credible-pathways-to-150c>.

⁷ IPCC AR6 WG3 SPM, Section B.7.

⁸ UNFAO Forest Resource Assessment.

⁹ The EDGAR Emissions Inventory is available via the IPCC Data Distribution Center, available at <https://www.ipcc-data.org/ar6landing.html>.

¹⁰ Ibid.

¹¹ IEA, 2023. Credible pathways to 1.5°C, available at: <https://www.iea.org/reports/credible-pathways-to-150c>.

¹² IPCC AR6 WG3 SPM Section C.3.2, Chapter 3 Section 3.5.

- Accelerating the deployment of renewable and other clean energy, with a view to **tripling renewable and other clean energy capacity by 2030**, providing the foundation for a fully electrified, net-zero global energy system by 2050. The IPCC suggests a median global pathway involving over 1,000 GW of wind and solar installed per year by 2030 and a global total of around 15,000 GW of wind and solar in 2035, and that geothermal, hydro, nuclear, and other clean energy sources must also see accelerated deployment.
 - Increasing the **deployment pace for zero-emission vehicles**, aiming to reach a 50 percent or greater sales share for zero-emission vehicles in the light duty sector and a 30 percent share for zero-emission vehicles in the medium and heavy-duty vehicles sector by 2030.
 - Doubling the existing rate of improvement of energy efficiency by 2030 and **improving energy efficiency** in the buildings sector, aiming to decrease global average energy consumed per square meter in buildings by 45 percent by 2030 from 2021 levels.
 - **To reduce deforestation** to net-zero by 2030 and significantly reduce other GHG emissions from land use:
 - Addressing major drivers of deforestation and forest degradation, especially in the tropics but including other forests, including agricultural expansion and conversion of forests and other ecosystems to cropland.¹³
 - Enhancing sequestration in the AFOLU sector, including by restoring degraded ecosystems, and engaging in reforestation efforts.
 - **To cut non-CO₂ GHGs**, especially methane and other short lived climate pollutants:
 - Reducing methane at least 30 percent by 2030 and 40 percent by 2035,¹⁴ and developing associated national action plans.
 - Implementing the Kigali Amendment to the Montreal Protocol and national action plans to cut other F-gases.
 - Reducing N₂O emissions 13 percent from 2019 levels by 2030, and 17% by 2035, with further reductions by 2050.¹⁵
- **Specific guidance for NDCs:**
 - The decision should commend those Parties that revisited and strengthened the 2030 targets in their NDCs as necessary to align with the Paris Agreement

¹³ IPCC AR6 WG3 SPM, B.5.3 {2.6.1.2, 4.1.5, 4.3.2, 4.5.3, 4.8.1.3, 4.8.3, 4.8.4}, available at <https://www.ipcc.ch/srccl/chapter/summary-for-policymakers/>.

¹⁴ These numbers represent the lower end of the range for pathways in the IPCC AR6 Scenarios Database. This data for pathways that limit warming to 1.5°C (>50%) with no or limited overshoot comes from the IPCC AR6 Scenarios database, available via the IPCC Data Distribution Center: <https://www.ipcc-data.org/ar6landing.html>.

¹⁵ This data for pathways that limit warming to 1.5°C (>50%) with no or limited overshoot comes from the IPCC AR6 Scenarios database, available via the IPCC Data Distribution Center: <https://www.ipcc-data.org/ar6landing.html>.

temperature goal and urge those Parties that have not yet done so to do so urgently and by no later than December 2024.

- In addition, **Parties, particularly those whose emissions are most consequential with respect to keeping 1.5 within reach, in designing their NDCs are encouraged to include all greenhouse gases, sectors, and categories and align their NDCs with the emissions trajectories needed to limit warming to 1.5°C.**
 - In particular, in order to have a greater than 50% chance of limiting warming to no more than 1.5°C, global net greenhouse gas emissions need to fall to 60 percent below 2019 levels by 2035.¹⁶
- The decision should also reiterate the call to Parties that have not yet done so to communicate **long-term low greenhouse gas emission development strategies referred to in Article 4, paragraph 19, of the Paris Agreement** towards just transitions to net zero CO₂ emissions by or around mid-century, taking into account different national circumstances, and stress the urgency of aligning these strategies with the emissions trajectories needed to limit warming to 1.5°C.
- **Accelerate efforts to decarbonize the aviation and maritime sectors:**
 - For the **aviation sector**, Parties and the private sector will need to substantially scale up low-carbon technologies and sustainable aviation fuels. Through 2035, global aviation fuel efficiency measured in fuel/RTK needs to improve by 1.42 to 1.60% per year.¹⁷
 - The **international shipping sector** – acting primarily, but not exclusively, through the IMO – should:
 - Reduce its total annual GHG emissions on a lifecycle basis by at least 37% by 2030 compared to a 2008 baseline and phase out GHG emissions from international shipping to zero emissions no later than 2050.¹⁸
 - Adopt ambitious mid-term measures consistent with this emissions trajectory.
 - Increase the uptake of zero or near-zero GHG emission technologies, fuels, and/or energy sources to represent at least 10 percent of the energy used by international shipping by 2030.¹⁹

¹⁶ Global net CO₂ emissions need to be reduced by 63% from 2019 levels by 2035; global methane emissions need to be reduced by 41% from 2019 levels by 2035; global N₂O emissions need to be reduced by 17% from 2019 levels by 2035; global emissions of F-gases need to be reduced by 81% from 2019 levels by 2035. Ibid

¹⁷ International Civil Aviation Organization, ICAO Committee on Aviation Environmental Protection: Report on the Feasibility of a Long-Term Aspirational Goal (LTAG) for International Civil Aviation CO₂ Emission Reductions (2022).

¹⁸ Declaration on Zero Emission Shipping by 2050. According to the Science Based Target Setting for the Maritime Transport Sector, total annual GHG emissions on a lifecycle basis should be reduced by 36% by 2030 compared to a 2020 baseline. This goal converted to a 2008 baseline turns to total annual GHG emissions reduction of at least 37% by 2030.

¹⁹ Mission Innovation, “Zero Emission Shipping,” available at <http://mission-innovation.net/missions/shipping/>.

C.2 Adaptation

Collective progress towards achieving Article 2.1(b) and Article 7.1

- Parties and other stakeholders have made **progress towards enhancing adaptive capacity, strengthening resilience, and reducing vulnerability since the adoption of the Paris Agreement.**
- This **progress has come through a variety of context-specific national and local-level actions to increase resilience to a changing climate.** We have seen improvements to planning processes and enhancements of adaptation action, including through the development and implementation of national adaptation plans, adaptation communications, and other strategies by many Parties.
 - For example, according to the 2022 UNEP Adaptation Gap Report, at least **84 percent of Parties have established national adaptation plans, strategies, laws and policies, while 50 percent of Parties have two or more planning instruments in place.**²⁰ This same report also identifies that countries are making good progress toward improving the implementation of adaptation policies, including by:
 - Defining clear visions, goals and objectives to guide actions and to serve as the basis for assessing achievement of outcomes;
 - Clearly articulating trends in climate changes to strengthen the climate science basis of adaptation interventions; and
 - Clearly prioritizing adaptation actions with indicative time frames; and
 - Building capacity and the partnerships needed to ensure effective implementation. The report also identified that 90 percent of adaptation laws and policies studied included gender and other disadvantaged group considerations.
 - **Parties have utilized adaptation communications, adaptation components of NDCs, and NAPs to articulate greater adaptation ambition.**²¹ This includes expanding consideration of additional sectors, integrating more stakeholders in planning processes, outlining actions that benefit from adaptation-mitigation synergies, and better aligning adaptation efforts with a national vision for climate resilience and development, as well as in the context of achieving sustainable development goals.
 - At the time of this submission, 55 countries and the European Union have prepared and submitted one adaptation communication.²² **Adaptation communications have provided useful vehicles to accelerate adaptation action.**

²⁰ The data and information cited can be found in the 2022 UN Environment Programme Adaptation Gap Report, available at <https://www.unep.org/resources/adaptation-gap-report-2022>.

²¹ 2022 GST Synthesis Report on the state of adaptation efforts, experiences, and priorities, available at <https://unfccc.int/sites/default/files/resource/Synthesis%20report%20on%20the%20state%20of%20adaptation%20efforts%2C%20experiences%20and%20priorities.pdf>.

²² This information is based on the Adaptation Communications Registry on the UNFCCC website, available at <https://unfccc.int/ACR>.

In the context of countries that have already submitted NAPs, adaptation communications have been useful to reflect on NAP implementation as well as monitoring, evaluating, and learning. In contexts where a country is still in the process of developing their NAP, adaptation communications have played a helpful role in allowing countries to still articulate their adaptation priorities in tandem with their NAP formulation process.

- By 2022, 76 developing countries had reported adaptation costs in their NDCs or NAPs, representing a significant increase from Parties' intended NDCs, when only 44 developing countries reported adaptation costs.²³ **This work has resulted in the development of good practices like inter-ministerial collaboration between ministries of finance and other line ministries as well as climate budget tagging exercises that have been shown to have positive benefits in the financing of adaptation.**
 - There has been progress made by developing countries in progressing their adaptation cost estimates further toward investment plans. These include prioritized interventions, which have programmatic modalities, institutional responsibilities, and implementation plans.²⁴ In addition, more developing country Parties are including disaster risk reduction (DRR) in their national adaptation planning processes, including by aligning their NAPs with international DRR planning. For example, as of 2020, 11 countries had integrated DRR into their NAPs while three countries in the Asia-Pacific region have completed Joint National Action Plans (JNAPs), which work to combine adaptation with DRR.²⁵
- **Political momentum on adaptation is continuing to ramp up, with a large increase in multi-stakeholder initiatives** that bring Parties and others together to address adaptation priorities and support.
 - For example, at the 2019 UN Climate Action Summit, the Risk-Informed Early Action Partnership (REAP) was launched to drive a systemic shift towards acting earlier to reduce the impacts of disasters and continues to mobilize action. Last year, the UN Secretary General announced a call to provide early warning systems worldwide in the next five years through the “Early Warnings for All” initiative, which has helped galvanize political attention and financial flows toward the challenge. At COP27, the United States announced over \$45 million in support for efforts that contribute to this goal.
- **Significant technical and political attention has advanced our review of progress made toward achieving the global goal on adaptation (GGA).**

²³ Detailed in the 2021 Adaptation Committee Report: [How developing countries are addressing hazards, focusing on relevant lessons learned and good practices.](#)

²⁴ 2022 Adaptation Committee Report: [Efforts of developing countries in assessing and meeting the costs of adaptation: Lessons learned and good practices](#)

²⁵ Detailed in the 2021 Adaptation Committee Report: [How developing countries are addressing hazards, focusing on relevant lessons learned and good practices.](#)

- In 2021, the Adaptation Committee released a technical paper²⁶ on approaches to reviewing the overall progress made in achieving the GGA. This report helpfully identified various approaches for assessing collective progress on adaptation building on the best available literature.
- The Adaptation Committee, in collaboration with the Least Developed Countries Expert Group, Nairobi Work Programme partners, users, and developers, launched a pilot inventory of methodologies that Parties are using to inform their adaptation planning efforts. **As of this submission, the pilot inventory includes 241 case studies, 145 tools for assessment, 11 technical reports, 3 educational training resources, and 2 online portals collecting specific sectoral information.**²⁷
- The knowledge base in adaptation best practice illustrates that there is no one approach to measuring adaptation progress and, **for most countries, a suite of tools that includes quantitative and qualitative assessments will provide the best picture of adaptation progress.** The IPCC WGII report makes clear that the lack of comparability between methodologies for assessing adaptation risks, needs, and outcomes prevents easy comparisons of adaptation progress between different regions and spatial scales.²⁸
- **It is also important to note that measuring progress against the GGA is not about progress to a fixed end-state of fully realized adaptation.** Rather, it is based on understanding and evaluating progress across stages of implementation and iteratively improving on previous efforts.
- An initial analysis of methodologies made it clear that no quantum of finance is inherently “effective” or “adequate” and therefore cannot be examined in isolation of effectiveness. A Joint Working Group is continuing to evaluate and communicate approaches to assessing the adequacy and effectiveness of adaptation and support using bottom-up and top-down approaches.²⁹
- **Despite this progress, there remains a planning and implementation gap in adaptation.** The impacts of the climate crisis are being felt all around the world, and we know that we face unavoidable hazards even as we strive to keep a 1.5°C warming future alive.
 - Urgent, transformational adaptation action is needed, but as reflected in the AR6, IPCC Working Group II report, **progress has been incremental and somewhat fragmented**, reflecting a greater need for integrating adaptation across national and subnational development and sectoral policies, creating

²⁶ The technical paper produced by the Adaptation Committee in 2021 on Approaches to reviewing the overall progress made in achieving the global goal on adaptation is available at <https://unfccc.int/documents/273844>.

²⁷ The registry is available at <https://www4.unfccc.int/sites/NWPStaging/Pages/SearchAsses.aspx>.

²⁸ Cross-Chapter Box PROGRESS: Approaches and Challenges to Assess Adaptation Progress at the Global Level. In: Intergovernmental Panel on Climate Change (IPCC) (2022). Climate Change 2022. Impacts, Adaptation and Vulnerability. Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, pp. 17-96 – 17-99.

²⁹ From the Adaptation Committee’s report, “Methodologies for reviewing the adequacy and effectiveness of adaptation and support,” available at <https://unfccc.int/documents/302837>.

enabling conditions for implementing those policies, and managing longer-term risks as opposed to focusing only on short-term or current impacts.³⁰

Recommended responses:

- As a general matter, we expect that most of the GST’s recommended responses will be addressed in the CMA5 decision on a GGA framework. Nonetheless, the United States is providing its views here as well.
- **The GST’s recommended responses should comprehensively address a variety of contexts and systems, consistent with the GGA framework currently under development,** particularly through consideration of examples of national and local progress within each stage of the adaptation planning cycle. In addition, there are several concrete ways for Parties to strengthen the effectiveness of adaptation action, in turn contributing to progress towards the GGA. A few recommended responses are listed below.
 - **Deepen global understanding of climate risks, vulnerabilities, and adaptation solutions.** One-third of the world – including 60 percent of people in Africa – do not currently have access to or the ability to use climate information services to make informed decisions about how to address the risks posed by a changing climate.³¹ Having better quality observations, monitoring, and forecasting systems will help support the development of decision-support tools for decision makers and facilitate longer term planning in key development sectors. Equipping the next generation of practitioners to understand and plan for climate risks will be a crucial workforce development strategy to support comprehensive, longer-term adaptation action.
 - **Mainstream adaptation into policies, plans, budgets, and strategies across multiple sectors.** Formulating and implementing NAPs provides countries with a way to integrate adaptation into national and subnational planning and development efforts and provides for better alignment of local adaptation actions with national priorities. Moreover, local communities are often on the frontlines of climate impacts, and integrating locally-led approaches to adaptation planning and implementation can help bring context-specific and inclusive solutions forward. This includes integrating climate risk and impacts into the design of different systems, such as:
 - **Infrastructure:** Sustainably and inclusively planning, designing, implementing, and operating climate-resilient infrastructure, recognizing that climate change will stress infrastructure in new ways so efforts will be needed to adapt current and future infrastructure to projected

³⁰ IPCC WGII AR6 Summary for Policy Makers, paragraph C.1.2

³¹ More information on early warning coverage can be found in the 2022 joint report from the World Meteorological Organization and UN Office for Disaster Risk Reduction, available at <https://www.undrr.org/quick/74257>.

climate conditions, as well as assess the need for new infrastructure to adapt to climate impacts.

- **Water:** Rapidly improving water storage capacity, efficiency, and quality through improved management and nature-based solutions as well as enhancing the climate resilience of water, sanitation, and hygiene services.
 - **Health:** Planning for and responding to the impacts of climate change on health systems as well as enhancing the resilience of key health and health care delivery services, recognizing that climate change threatens access to and delivery of health care and increases the potential for novel threats to emerge.
 - **Food:** Building more climate-resilient food systems by improving food system productivity, output, diversity, and nutrition through climate-smart approaches and advancing responsive adaptation policies and measures in agriculture, livestock, aquaculture, and fisheries management.
 - **Nature-based solutions:** Targets 8 and 11 of the recently adopted Global Biodiversity Framework³² acknowledge the linkages between conserving nature and building resilience to the impacts of climate change. Parties should take a holistic approach to adaptation planning that includes both the potential impacts of adaptation actions to nature as well as the potential benefits of restoring and conserving nature for adaptation.
- **Screen for and minimize maladaptation.** Proactively screening for maladaptation will help prevent or minimize lock-ins of vulnerability, exposure, and risks that are difficult to address and exacerbate existing inequalities. This can include:
 - Considering whether a project contributes to negative climate-related outcomes or reduces communities' ability to respond to impacts;
 - Holistically considering short-term benefits or losses against longer-term benefits or losses; and
 - Considering whether interventions that benefit some groups inadvertently harm or leave out other groups, particularly historically disadvantaged groups.
 - **Translate adaptation policies and plans into investible projects.** More focus is needed on translating these policies and priorities into investment plans that produce bankable projects. Improving the bankability of adaptation projects will also crowd in global, regional, and local sources of private finance that can play a complementary and significant role in mobilizing resources for adaptation.
 - **Communicate and learn from adaptation progress.** The GST should encourage countries to submit or update their adaptation communications by 2025 and update them regularly thereafter. This will allow an improved assessment of progress on adaptation before the second GST and beyond.

³² The Kunming-Montreal Global Biodiversity Framework, available at <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>.

- **Pursue climate-resilient development:** As defined by the IPCC AR6 WGII, climate-resilient development combines strategies to adapt to climate change with actions to reduce greenhouse gas emissions to support sustainable development for everyone.³³ As countries focus on meeting the Sustainable Development Goals by 2030, integrating climate-resilient development into these efforts can result in lasting reductions in poverty and hunger, improvements to health and livelihoods, more people with clean energy and water, and strengthened safeguards for ecosystems.

C.3 Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development

Collective progress towards achieving Article 2.1(c):

- **Substantial progress has been made toward the collective implementation of Article 2.1(c) of the Paris Agreement, though it has been uneven across sectors, regions, and actors.** The Paris Agreement has played a critical part in spurring many of these efforts, but significant opportunities remain to accelerate and enhance them.
- While Article 2.1(a) and 2.1(b) articulate the long-term goals of the Paris Agreement for mitigation and adaptation, **Article 2.1(c) – making financial flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development – represents the means of implementation for achieving these goals.** Indeed, to achieve the long-term goals of the Paris Agreement it will be necessary to make all financial flows, international and domestic, public and private, consistent with those goals. Achieving Article 2.1(c) will also require a whole-of-economy approach, including enhanced efforts from all countries and the full engagement of the public and private sector.
- There are three central aspects to achieving Article 2.1(c):
- **First, creating the demand for climate-smart investments,** primarily through policies and measures:
 - Parties have developed and submitted NDCs, NAPs, and other relevant national climate plans and strategies, which provide clear signals to firms and investors about their climate priorities. However, these plans and strategies vary widely in their levels of ambition, specificity, and implementation.
 - Policies and measures specifically related to green finance have continued to increase but remain unevenly distributed.
 - According to the Green Finance Platform,³⁴ in 2021 there was a 16 percent increase in the number of policy and regulatory measures for green finance, bringing the total to 648 measures registered in over 100 jurisdictions globally. Of these measures, 37 percent originate from

³³ IPCC WGII of AR6, SPM, Section D.

³⁴ Green Finance Platform (2023). “Green Finance Measures Database,” available at <https://www.greenfinanceplatform.org/financial-measures/browse>

developing and emerging economies and 63 percent from developed countries.

- Beyond climate- and green finance-specific policies and measures, efforts to develop legal systems that promote contract enforceability, good governance practices, the implementation of strong fiscal policies, and support for robust and accountable institutions continue but remain insufficient to improve general investment climates.
- Overall, **significantly more work is required to develop and implement policies and measures to incentivize investments in climate action globally.**
- **Second, increasing the supply of finance** by mobilizing capital from all sources, public and private, international and domestic;
 - According to the IPCC,³⁵ there is sufficient global capital and liquidity to close global investment gaps, given the size of the global financial system, but there are barriers to redirecting capital to climate action both within and outside the global financial sector. According to the Standing Committee on Finance,³⁶ climate finance flows, while increasing, remain relatively small when viewed in the context of other finance flows, investment opportunities, and costs. In this regard, **it is essential to focus efforts on shifting financial flows toward the goals of the Paris Agreement, including scaling-up investments in climate-aligned activities and scaling-down investments in activities which actively detract from our achievement of these goals.**
 - On **scaling-up**, efforts have dramatically increased in the private sector to shift financial flows toward consistency with the goals of the Paris Agreement. However, significant work remains to capitalize on the high private sector interest and channel finance flows toward needed investments on the ground.
 - The Climate Bonds Initiative³⁷ reported the issuance of over half a trillion (USD 522 billion) green bonds in 2021, a 75 percent increase from 2020.
 - The Glasgow Financial Alliance for Net Zero (GFANZ)³⁸ now includes over 450 financial firms from 45 countries with more than USD 130 trillion in assets.
 - Over 2,000 investors reported data in 2020 against the UN Principles for Responsible Investment: Climate Snapshot,³⁹ representing over USD 97 trillion in assets, a 350 percent increase from 2019.
 - The Net Zero Banking Alliance, where 53 banks, representing over USD 37 trillion in assets -- a quarter of global banking assets -- have pledged to align their lending and investment portfolios with net-zero emissions by 2050.

³⁵ IPCC (2022). Climate Change 2022: Mitigation of Climate Change. E.5.2.

³⁶ Standing Committee on Finance (2022). Fifth Biennial Assessment of Climate Finance Flows. Paragraph 333.

³⁷ Climate Bonds Initiative (2023). "Market Data," available at <https://www.climatebonds.net/market/data/>.

³⁸ Glasgow Financial Alliance for Net Zero (2023). "About," available at <https://www.gfanzero.com/about/>.

³⁹ UN PRI (2020). "Climate Change Snapshot 2020," available at <https://www.unpri.org/climate-change/climate-change-snapshot-2020/6080.article>.

- The Net-Zero Asset Owner Alliance, where over 40 institutional investors with USD 6.6 trillion in assets have pledged to align portfolios with net-zero emissions by 2050.
 - The establishment of sustainable bond listing processes at 34 of 103 stock exchanges.
 - Tracked climate finance flows have continued to increase globally, though significant opportunities exist for them to grow further, particularly in emerging markets and developing economies.
 - The Fifth Biennial Assessment of Climate Finance Flows⁴⁰ found that global climate finance flows have grown 12 percent in the 2019-2020 period to an average of USD 802 billion per year.
 - On **scaling-down**, investment activities that run directly counter to the goals of the Paris Agreement remain concerningly high but are showing signs of decreasing. According to the Standing Committee on Finance:⁴¹
 - In 2019-2020, investments in unabated fossil fuels were USD 892 billion, a 13 percent decrease from 2017-2018.
 - In 2019-2020, fossil fuel subsidies were USD 450 billion, a 23 percent decrease from 2017-2018.
- **Third, managing climate-related financial risks** across investment portfolios and assets:
 - There is a high degree of interest from governments, financial institutions, and firms in the identification and reporting of climate-related financial risks.
 - The Task Force on Climate Related Financial Disclosure⁴² (TCFD) now has over 2,600 supporters with a combined market capitalization of USD 25 trillion and financial institution assets under management of USD 194 trillion.
 - Of these, over 50 percent of public company TCFD supporters made climate-related financial disclosures, 13 percent reported on the resilience of their strategies under different climate scenarios, and 20 percent disclosed the financial impacts of identified risks.

Recommended responses:

- **Parties should continue to take steps to create the demand for Paris-aligned investments, most importantly by developing and implementing NDCs that are aligned with Article 2.1(a) of the Paris Agreement.** Ambitious and clear NDCs – along with regular information on how a Party is implementing its NDC – send clear signals to the private sector about the direction and scale of climate action in a given context, providing needed confidence to the market. Further, ambitious NDCs also serve as the foundation for more detailed policies and measures that aim to incentivize climate action domestically.

⁴⁰ Standing Committee on Finance (2022), Fifth Biennial Assessment of Climate Finance Flows, paragraph 333.

⁴¹ Id., figure 5.

⁴² Id., Table 2.11.

- **Similarly, Parties should take steps to create the demand for Paris-aligned adaptation efforts** by developing and implementing adaptation communications or NDCs, as appropriate, and NAPs, in alignment with Articles 2.1(b) and 7.1.
- **At the same time, Parties should undertake efforts to reduce the demand for investments that are not Paris-Aligned.** Just as clear plans and strategies, policies, and incentives can enhance the demand for investments in ambitious climate action, steps should also be taken to minimize or remove incentives for investments in high-emission or maladaptive activities.
- **Parties and non-Party stakeholders should collectively enhance existing efforts to improve the supply of financing for climate action, including scaling-up investments internationally and domestically in areas that support the Paris Agreement’s goals, and scaling-down investments in those which actively counteract them.** The private sector has already taken significant steps in this regard and must continue to do so, while public sector actors can continue to facilitate those efforts, including through de-risking and blended finance approaches to channel investments where it is most needed.
 - It is also essential to continue to develop robust pipelines of bankable activities, creating clear opportunities for the growing pool of interested investors to engage in.
 - There is a need to continue to enhance transparency measures around these efforts, working to assure that investment opportunities labeled as having positive climate impacts are indeed effectively contributing to achieving the goals of the Paris Agreement.
- **Parties and non-Party stakeholders should continue to improve the disclosure of climate-related financial risks, including by encouraging more organizations to disclose, and further developing the tools and methodologies needed for firms to effectively implement the TCFD’s recommendations.**
- **Finally, there is a need for a Paris-Alignment Work Program for Parties to provide information on their respective efforts related to the achievement of Article 2.1(c), to present clear plans to further accelerate implementation, and to exchange views on experiences and best practices.** While the Standing Committee on Finance has produced a number of standalone products,⁴³ there has been little opportunity for Parties to engage with these products or otherwise discuss Article 2.1(c). The Sharm el-Sheikh Dialogues established at CMA4 are a small step in this regard, but there is a need for a decision by Parties at CMA5 to establish a long-term institutional architecture to facilitate enhanced action on Article 2.1(c) going forward.

⁴³ Standing Committee on Finance (2022). Synthesis of Views Regarding Ways to Implement Article 2.1(c) of the Paris Agreement; Standing Committee on Finance (2022). Mapping of Available Information Relevant to Article 2.1(c) of the Paris Agreement, including its Reference to Article 9 Thereof.

C.4 Means of implementation and support

Finance

- Enhancing means of implementation and support, including scaling-up finance and financial support, continues to be a critical enabler for achieving the long-term goals of the Paris Agreement.
- This section speaks to, among other aspects related to finance, the USD 100 billion goal referenced in decision 1/CP.21, while noting that the commitment to the goal is not in the Paris Agreement.
- As noted above, **significant progress has been made in scaling-up climate finance globally**, reaching an average of USD 802 billion per year over the 2019-2020 period. A range of actors, international and domestic, public and private, have contributed to this effort.
- Continuing to provide and mobilize support for developing countries is another essential aspect of the Paris Agreement. **Developed countries remain fully committed to the goal of jointly mobilizing USD 100 billion to address the needs of developing countries, through to 2025, in the context of meaningful mitigation actions and transparency on implementation.** The USD 100 billion goal has played an important role in inspiring Parties to the Paris Agreement to mobilize resources and support the efforts of developing countries to take ambitious mitigation action and build climate resilience.
- Though official data first available in 2022 shows that contributors did not fully achieve the USD 100 billion goal in 2020, developed countries remain fully committed to the goal. In 2021, the Climate Finance Delivery Plan: Meeting the USD 100 Billion Goal⁴⁴ outlined the expectation that **developed countries will make significant progress toward the USD 100 billion goal in 2022 and expressed confidence that it would be met in 2023.** This has been reaffirmed by the Climate Finance Delivery Plan Progress Report,⁴⁵ published in 2022, and by climate finance contributors throughout 2023.
- In 2022, the SCF published the report on progress toward achieving the goal of mobilizing jointly USD 100 billion per year to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation.⁴⁶ This critical report found that:
 - It is essential to consider all three dimensions of the USD 100 billion goal (i.e., mobilizing jointly USD 100 billion per year by 2020 and through to 2025; addressing the needs of developing countries; and the context of meaningful

⁴⁴ COP26 Presidency (2021). Climate Finance Delivery Plan: Meeting the USD 100 Billion Goal, available at <https://ukcop26.org/wp-content/uploads/2021/10/Climate-Finance-Delivery-Plan-1.pdf>.

⁴⁵ Government of Canada (2022). Climate Finance Delivery Plan: Progress Report, available at <https://www.canada.ca/en/services/environment/weather/climatechange/canada-international-action/climate-finance/delivery-plan/progress-report-2022.html>.

⁴⁶ Standing Committee on Finance (2022). Report on progress toward achieving the goal of mobilizing jointly USD 100 billion per year to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation.

mitigation actions and transparency on implementation). While there has been significant focus on the first dimension, there has been remarkably less on dimensions two and three.

- **Climate finance has continued to steadily increase from 2013 to 2020, reaching USD 83.3 billion in 2020** according to the OECD, including an increase of 42% since 2016. Of this support, the proportion for adaptation has also continued to increase, reaching 34% in 2020, in addition to 7% of activities that supported both mitigation and adaptation objectives. In absolute terms, this has significantly exceeded projections of adaptation finance made in the 2016 Climate Finance Roadmap.
- While the USD 100 billion goal was never intended to meet the totality of developing countries' needs, **the sectoral, thematic, and geographic distribution of needs expressed by developing countries is well-aligned with the distribution of climate finance provided and mobilized through 2020.**
- Regarding transparency on implementation, the submission of biennial update reports (BURs) by developing country Parties has been increasing, though only 59% of such Parties had submitted at least one BUR at the time of the report and only two Parties had submitted all four as of 2023. Indeed, as of September 2023, 92 Parties have submitted their first BUR, 39 have submitted a second BUR, 27 have submitted a third BUR, 12 have submitted a fourth BUR, while only two have submitted a fifth BUR. Sixty-four developing country Parties (26 of which are not SIDS or LDCs) have yet to submit a single BUR, and only 39 Parties have submitted more than one BUR.
- Multilateral Development Banks (MDBs) have continued to play an important role in the provision and mobilization of climate finance. According to the 2021 Joint Report on Multilateral Development Banks Climate Finance, **globally MDBs continue to quickly increase their climate finance commitments in pursuit of ambitious targets, committing over \$82 billion in climate finance in 2021 worldwide, including over \$50 billion to low-income and middle-income economies.**⁴⁷ Of this, over \$63 billion was directed toward mitigation projects while over \$19 billion was for adaptation projects, with 92% of adaptation finance going to low-income and middle-income economies.
- Actors have also continued to redouble their efforts to enhance the transparency of climate finance. Many Parties have begun to take steps to prepare for enhanced reporting on climate finance provided, mobilized, needed, and received, in the context of the Enhanced Transparency Framework and the first submission of Biennial Transparency Reports (BTRs) in 2024. Further, twenty-one submissions of Biennial Communications in Accordance with Article 9, paragraph 5 of the Paris Agreement (BCs) have been submitted by Parties, including ten First BCs and eleven Second BCs. **These**

⁴⁷ Inter-American Development Bank (2022). Joint Report on Multilateral Development Banks' Climate Finance.

Biennial Communications have provided important information on forward-looking climate finance information, noting that not all developed country Parties have provided such submissions and no submissions have been provided by other Parties that are providing support to developing country Parties.

- Critically, climate finance is a means to an end. While the financial value of investments in climate action is a useful indicator of progress, **the true test of climate finance is its ability to effectively reduce greenhouse gas emissions and build climate resilience**, supporting the achievement of the long-term goals of the Paris Agreement. Unfortunately, according to the Fifth Biennial Assessment of Climate Finance Flows, **there is little high-quality evidence on climate finance effectiveness** and challenges remain to track results and measure impacts.⁴⁸ This information is essential for providers to have clear evidence that their investments are leading to results, improving confidence for future work, and for recipients to increase learning and drive the selection of interventions which are most impactful.
- While reporting on actual results remains difficult, many multilateral climate funds have reported on the expected results of their investments at the portfolio level, including:
 - **The Adaptation Fund** across 121 projects reducing the vulnerability of over 31 million beneficiaries, introducing 414 early warning systems, and protecting over 160 thousand meters of coastline.
 - **The Least Developed Countries Fund** across 288 projects reducing the vulnerability of over 52 million beneficiaries and introducing over 3000 policies that mainstream climate resilience.
 - **The Green Climate Fund** across 152 projects reaching 588 million beneficiaries and mitigating 1980 Mt of CO₂-equivalent.
 - **The Clean Technology Fund** across 104 projects mitigating nearly 70 Mt of CO₂-equivalent per year, installing over 26 GW of solar electricity generation capacity, and providing over 2.1 million passengers per day with low-carbon public transportation.
- **Climate finance must continue to be scaled-up globally** in view of the significant global investment needs for achieving the long-term goals of the Paris Agreement.
- **All countries should continue to increase efforts to enable the full delivery on the USD 100 billion goal as soon as possible across all three of its dimensions.**
 - For contributors, this includes through efforts to scale up public finance, redoubling efforts to mobilize private finance, engaging new climate finance contributors, and continuing to explore innovative sources of finance.
 - For recipients, this includes continuing to improve the demand for climate finance, developing relevant capacities, strengthening domestic enabling environments, including through policies and measures, and developing robust pipelines of bankable projects, and submitting timely biennial reports.
- **Efforts must continue to better align the needs expressed by developing countries with finance provided and mobilized.** In particular, more work needs to be done to

⁴⁸ Standing Committee on Finance (2022). Fifth Biennial Assessment of Climate Finance Flows. Paragraph 300.

increase both the quantity and accessibility of adaptation finance, especially for the poorest and most vulnerable countries and communities. Relatedly, there is a need to continue to improve methodologies for and transparency of needs assessments.

- **There is a clear need to improve reporting related to meaningful mitigation actions and transparency on implementation**, including exploring the relationships between ambitious NDCs and enhanced domestic climate action with the finance mobilized, and how finance mobilized translates into impactful outcomes on the ground.
- **Multilateral Development Banks should continue to evolve so that they are better equipped to respond to global challenges including climate change.** This includes improving private capital mobilization, mainstreaming climate within their assessments and lending policies, and enhancing coordination with multilateral climate funds to make the global climate finance architecture more accessible.
- **All Parties providing financial support to developing countries, including developed country Parties and other Parties, should continue to enhance reporting on forward-looking climate finance information.**
- **We must continue to shift focus toward the effectiveness of climate finance**, improving our understanding of how investments translate to tangible outcomes and contribute to achieving the goals of the Paris Agreement. This will continue to increase confidence for both contributors and recipients, thereby enhancing access and supporting future efforts to direct climate finance toward the most impactful activities and effectively support the most vulnerable communities.

Capacity-building

- **Parties have made significant efforts to scale up capacity-building support since the adoption of the Paris Agreement, including through the Paris Committee on Capacity-building (PCCB).** These include:
 - The PCCB toolkit (in four UN official languages), comprised of an online publication and complementary resources provided by stakeholders;
 - Collating and sharing information on the capacity-building efforts of bodies under and outside the Paris Agreement, publishing the newsletter of the PCCB Network, and preparing summary reports on joint activities, such as the Capacity-building Hub;
 - Four Capacity Building Hubs at the United Nations Climate Change Conferences (Katowice, Madrid, Glasgow, and Sharm-El Sheik); and
 - Engagement with a large number and variety of stakeholders across a significant number of events and activities either organized or hosted by the PCCB.
- **The GST decision could highlight the efforts to date on capacity-building along with its critical importance and several best practices.** This includes:
 - Capacity-building is critical to long-term durable, independent, and rapid climate action and sustainable development.

- Successful capacity-building work is inclusive. It operates with strong multi-stakeholder engagement, a broad range of Party and non-Party stakeholders, including academia, civil society, indigenous peoples, youth, and the private sector, and at all levels (national and subnational levels).
- Successful capacity-building is locally- and nationally-owned, and ultimately can be maintained and enhanced independent from international support.
- Successful capacity-building has direct finance benefits, e.g., through building capacity for more resource-efficient approaches to climate action, the climate action itself saves costs and is more durable, in addition to creating a positive feedback loop of additional and sustained mitigation and adaptation action.

Technology development and transfer

- **The development and transfer of technology supports the achievement of the goals of the Paris Agreement.**
- Article 10 of the Paris Agreement and the Technology Framework provide a framework for cooperative action on technology, “a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions.”
- **Parties have made significant efforts to scale up technology development and transfer since the adoption of the Paris Agreement.**
- **Strengthening domestic and local enabling environments** to foster trade and investment in technology development and transfer that is voluntary and on mutually agreed terms is central to effective international cooperation.
- Effective action on technology requires targeted support by international financial mechanisms, development assistance, and public policy that aligns private sector investment with climate objectives.
- Advances in the development and deployment of technology underpins progress that has been made in nearly every sector.
- Governments increasingly recognize the importance of **promoting innovation to foster local capacities and entrepreneurship that supports social and economic objectives.**
- Innovation has played a key role in the reduction of costs in renewable technologies and the rapid growth in renewable deployment, particularly for wind and solar technologies. Tools such as appliance and efficiency standards have proven effective for deploying climate-friendly technologies such as LED bulbs.
- Targeted tax incentives and public investment, along with collaboration on innovation, has spurred the dramatic growth of wind energy.
- According to the IEA, while global reductions in CO₂ emissions between now and 2030 in the net zero-pathway come from technologies readily available today, almost half the

reductions needed to achieve net-zero emissions by 2050 must come from technologies that are currently only at the demonstration or prototype phase.⁴⁹

- **The Technology Mechanism, comprising the Technology Executive Committee (TEC) and the Climate Technology Center & Network (CTCN), is the principal vehicle through which Parties cooperate on technology development and transfer policy guidance and implementation in the Paris Agreement.** The GST decision could highlight these efforts and highlight the critical importance of technology development and transfer, including best practices.
- The GST could refer to the information in the Technology Executive Committee’s Synthesis Report for the Technical Assessment Component of the First Global Stocktake. This includes:
 - The TEC and CTCN have developed a strong foundation for multilateral cooperation on technology development and transfer that includes collaborative research and development, technical assistance, capacity building, and knowledge sharing. Enhanced international cooperation focusing on these themes and supporting developing countries abilities to strengthen their national enabling environment to incentives trade and investment, can be pivotal in the international effort to accelerate progress on climate.
 - **The Joint Work Program of the UNFCCC Technology Mechanism for 2023-2027** provides a constructive structure through which Parties and stakeholders can make meaningful progress through cooperation on technology development and transfer.
 - The IPCC and the Technology Mechanism have emphasized that promoting innovation, including through collaborative research and development and promoting national systems of innovation, is critical to drive the most impactful technologies and to lower costs for the deployment of climate technologies.
 - The IPCC and the Technology Mechanism have also identified digitalization as a general-purpose technology that offers potentially transformative effects, which policy makers should promote to accelerate progress toward climate and sustainable development objectives.
- In addition, the GST decision could encourage enhanced international cooperation on public-private partnerships and strategies such as sectoral roadmaps, converting technical needs assessments and action plans into bankable projects, and leapfrogging to digital infrastructure to maximize the benefits of technology and innovation in achieving climate objectives, including by promoting these technology-oriented approaches through multilateral funding mechanisms and international initiatives.
- The GST could also consider addressing the value of Parties cooperating through the UNFCCC Artificial Intelligence for Climate Action initiative to promote the enormous

⁴⁹ IEA, Net Zero by 2050: a Roadmap for the Global Energy Sector, available at <https://www.iea.org/news/pathway-to-critical-and-formidable-goal-of-net-zero-emissions-by-2050-is-narrow-but-brings-huge-benefits>.

potential of artificial intelligence to accelerate progress on climate, while also addressing the risks of artificial intelligence.

C.5 Efforts related to loss and damage

- Countries and communities in every region of the world are already experiencing loss and damage. With every increment of additional warming, loss and damage will increase. Urgent action is required to avoid these impacts.
- The **Paris Agreement included a specific article on loss and damage**, which, *inter alia*, recognizes the importance of averting, minimizing, and addressing loss and damage, specifies that the Warsaw International Mechanism (WIM) shall serve the Paris Agreement, and identifies specific areas of cooperation.
- Since the Paris Agreement was adopted, there have been **significant advancements in international cooperation** to avert, minimize, and address loss and damage in developing countries that are particularly vulnerable to the adverse effects of climate change.
- Within the CMA, the **Warsaw International Mechanism (WIM) has made progress on all three of its functions**. The Executive Committee and its expert groups, which include a broad range of organizations, networks, and experts, have served as useful venues for enhancing knowledge, strengthening coordination, and enhancing action in addition to producing helpful technical products.
 - In 2018, the Task Force on Displacement produced a set of recommendations on integrated approaches to averting, minimizing, and addressing displacement related to the adverse impacts of climate change, which were adopted at CMA1/COP24. The new Plan of Action for the task force focuses on activities to assist with the implementation of the recommendations and maximizing synergies among relevant stakeholders and processes.
 - As a contribution to the Plan of Action of the Technical Expert Group on Comprehensive Risk Management, the UN Office for Disaster Risk Reduction (UNDRR) developed the “Technical guidance on comprehensive risk assessment and planning in the context of climate change.” The technical guide is intended to help disaster risk reduction and climate change adaptation decision-makers, take a comprehensive risk management approach, and UNDRR is providing technical support to fifteen countries to implement this approach.
- The **Santiago Network was established to catalyze demand-driven technical assistance** for the implementation of relevant approaches to avert, minimize, and address loss and damage at the local, national, and regional level in developing countries that are particularly vulnerable to the adverse effects of climate change.
- At CMA4, Parties decided to **establish new funding arrangements, including a fund, for assisting developing countries that are particularly vulnerable to the adverse effects of climate change, in responding to loss and damage**. The decision also recognizes that operationalizing the funding arrangements should engage a wide range of actors and

identify and expand sources of funding. The understanding in connection with adoption of the corresponding agenda item made clear that it does not involve liability and compensation.

- The Paris Agreement has catalyzed action on areas outlined in Article 8.4 of the Paris Agreement. For example:
 - Early warning systems: Early warning systems save lives and save money. The Sendai Framework recognizes the significant benefits of early warning systems by incorporating them into one of its seven global targets. As noted above, the UN Secretary General’s “Early Warning for All” initiative is further galvanizing international cooperation to close remaining gaps. For example, the recently launched Systematic Observations Financing Facility (SOFF) supports countries to generate and exchange basic surface-based observational data critical for improved early warning systems and climate services.
 - Emergency preparedness: The Food and Agriculture Organization estimates that every dollar they invest in anticipatory action could give families seven dollars in benefits and avoided losses. The number of pilot initiatives delivering support to vulnerable communities before disasters strike have grown in number and size. The United Nation’s Office for the Coordination of Humanitarian Affairs has facilitated the development of eleven anticipatory action pilots. The Risk-Informed Early Action Partnership (REAP), another innovative initiative, aims to make 1 billion people safer from disasters by 2025. To achieve these goals, REAP brings together the climate, humanitarian, and development communities. We know that we need stronger and more consistent coordination, collaboration, and partnership among these different stakeholders.
 - Risk insurance facilities, climate risk pooling, and other insurance solutions: Insurance solutions can help bolster early action in the face of a disaster and speed up recovery; in doing so, they protect against loss and damage. The insurance solutions available and the coverage of insurance has increased. Since the Caribbean Catastrophe Risk Insurance Facility (CCRIF) was established fifteen years ago, three more sovereign catastrophe risk pools have been created (the Pacific Catastrophe Risk Insurance Company (PCRIC); the African Risk Capacity (ARC); and the newly established Southeast Asia Disaster Risk Insurance Facility (SEADRIF)). Together, the regional risk pools protect about 40 low- and middle-income countries and total insurance coverage has reached \$1.2 billion. Since inception, these pools have been innovating to better respond to the needs of their members. In addition, global initiatives have increased the access to insurance in developing countries. The World Bank’s Global Facility for Disaster Reduction and Recovery is developing insurance solutions and providing finance to help vulnerable countries proactively manage disaster risks. The InsuResilience Global Partnership aims to stimulate the creation of effective climate risk insurance markets and has expanded coverage to 150 million people across more than 100 countries. The Global Shield against Climate Risks builds on this experience. The Global Shield will integrate the existing activities and

make them more readily accessible, while mobilizing additional finance at the same time.

- These initiatives represent significant advancements, but gaps remain, particularly reaching the most vulnerable communities. Additional efforts to close these gaps could significantly help households, communities, and countries manage the adverse impacts of climate change.
- In addition to these multilateral initiatives and processes, it is important to recognize national efforts to respond to loss and damage, such as establishing national loss and damage frameworks, integrated disaster risk management and adaptation plans, and mechanisms to channel funding to the local level to support activities relevant to averting, minimizing, and addressing loss and damage.
- CMA5 is expected to adopt a decision on operationalizing funding arrangements for loss and damage, which could be recognized in the GST outcome.
- In addition, Parties in the GST outcome should recognize the importance of the stability, security, certainty, and predictability of maritime entitlements that are vulnerable to sea-level rise caused by climate change and adopt practices that promote such stability, security, certainty, and predictability, including by committing not to challenge lawfully established baselines and maritime zone limits that are not subsequently updated despite sea-level rise caused by climate change.
- Finally, while not all loss and damage can be avoided or minimized through mitigation and adaptation, urgent mitigation and adaptation action are crucial to avoiding and minimizing loss and damage, to the extent possible.

C.5 Efforts related to response measures

- Since the Paris Agreement was adopted, Parties and non-Parties have taken **significant action to assess and address the positive and negative socioeconomic impacts of response measures** domestically and under the 6-year workplan of the response measures forum and its Katowice Committee of Experts on the Impacts of the Implementation of Response Measures (KCI).
 - For example, many regions and countries, including the United States, have established national just transition commissions or task forces and related national policies to support creation of green jobs and reskilling and retraining workers.
- **Just transition of the workforce and economic diversification and transformation, supported by strong domestic policies and investments, can help to facilitate the transition to a net-zero GHG economy, in line with Article 2.1(a) of the Paris Agreement**, and should be complementary to the implementation of response measures.
 - The response measures forum and its KCI have helped Parties build capacity to implement domestic just transition policies. The new work programme on just transition, established at CMA4, should build on this work and further highlight

ways in which Parties can simultaneously undertake response measures while supporting their impacted workers and communities.

- There are significantly more economic growth and job opportunities in pursuing a 1.5°C pathway than a business as usual trajectory. Parties should therefore make efforts to maximize these opportunities by fostering domestic policy enabling conditions and maximizing such positive co-benefits of implementing response measures.
- Lack of implementation of response measures, especially by major emitters, and/or building new unabated fossil fuel infrastructure not only contributes to global GHG emissions, but also risks stranded assets and economic and job losses.

D. Enhancing international cooperation for climate action

- **All actors must do their part to tackle the climate crisis; the Paris Agreement cannot do it alone.** Indeed, efforts under the Paris Agreement must be complemented by additional international cooperation.
 - For example, other international agreements and bodies must take urgent action, as appropriate, to address the climate crisis. Similarly, Parties and non-Party stakeholders must continue to scale up bilateral and plurilateral initiatives and cooperation consistent with the goals of the Paris Agreement. Many of these are discussed in the preceding sections.
- International cooperation is essential to achieve the goals of the Paris Agreement, as highlighted throughout the key messages above.
- **As noted in IPCC AR6 Working Group III report, international cooperation is a critical enabler for achieving ambitious climate action and encouraging development and implementation of climate policies, but gaps remain.**⁵⁰
- In particular, there are opportunities for more effective and inclusive engagement of multiple actors across sectors and levels of governance. Building coalitions and partnerships is a central tenet of climate action. This includes focusing on inclusive engagement of civil society, Indigenous Peoples and local communities, and the private sector to spur innovation and ambition.
- The IPCC AR6 Working Group III report also found that the Paris Agreement reshaped international cooperation and is helping to catalyze non-state and sub- and transnational actions at multiple levels and across sectors by sending strong signals to these various actors to create the political, economic, and social enabling conditions for ambitious climate action.⁵¹

⁵⁰ IPCC, 2022: Summary for Policymakers. In: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.001.

⁵¹ Patt, A., L. Rajamani, P. Bhandari, A. Ivanova Boncheva, A. Caparrós, K. Djemouai, I. Kubota, J. Peel, A.P. Sari, D.F. Sprinz, J. Wettestad, 2022: International cooperation. In IPCC, 2022: Climate Change 2022: Mitigation of Climate

E. Guidance and way forward

- We expect that specific activities, either within or outside the Paris Agreement process, will be addressed in the respective sections above. This section could collate the above-referenced activities.
- We've also heard several Parties call for a dedicated GST-specific agenda item in 2024 and beyond. We question whether a single item can comprehensively address all issues but are open to considering other proposals on the way forward.

Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.016.