



ACHIEVING THE AMBITION OF PARIS: DESIGNING THE GLOBAL STOCKTAKE

ELIZA NORTROP, YAMIDE DAGNET, NIKLAS HÖHNE, JOE THWAITES, AND KATHLEEN MOGELGAARD

EXECUTIVE SUMMARY

Highlights

- The global stocktake established under Article 14 of the Paris Agreement is a process for taking stock of collective progress toward achieving the purpose of the Agreement and its long-term goals. It takes place every five years.
- The outcome of the global stocktake shall inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the relevant provisions of the Agreement, as well as in enhancing international cooperation for climate action.
- This working paper analyzes options for the core elements of modalities of the global stocktake for adoption at the 24th Conference of the Parties (COP24), which will meet in December 2018. It highlights key considerations for the development of a robust, effective, and inclusive global stocktake.
- Parties should consider how best to operationalize the scope of the global stocktake through modalities and procedures such as inputs, workstreams, and outputs, while taking into account the mandate set by the Paris Agreement (form follows function).
- In designing the modalities, Parties should ensure that the global stocktake is a process that evolves and grows stronger over time by seizing opportunities that emerge from societal, economic, and technological changes; building on lessons learned; and incorporating new information and best practices.

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Context

With the aim of supporting an upward cycle of ambition and informing future action on climate change, Parties to the Paris Agreement established a process to assess implementation and collective progress toward achieving the Agreement’s long-term goals. Referred to in the Paris Agreement as the global stocktake, this process will occur every five years, starting in 2023.

The purpose of the global stocktake is to “take stock of the implementation of this Agreement to assess the collective progress toward achieving the purpose of this Agreement and its long-term goals” (UNFCCC 2015b). The stocktake must be undertaken in a manner that is “comprehensive and facilitative” and consider “mitigation, adaptation and the means of implementation and support. . . in the light of equity and the best available science” (UNFCCC 2015b). It is to be undertaken on a collective, not an individual, basis (i.e., it does not single out individual countries). The outcome of the global stocktake will be used to “inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the relevant provisions of this Agreement, as well as in enhancing international cooperation for climate action” (UNFCCC 2015b).

Following every global stocktake, Parties must prepare and communicate nationally determined contributions (NDCs) that are informed by outcomes of the global stocktake (UNFCCC 2015b, Article 4.9). These revised NDCs should reflect each Party’s highest possible ambition, taking into consideration equity and national circumstances (UNFCCC 2015b, Article 4). With respect to adaptation, the global stocktake shall recognize adaptation efforts of developing country Parties, enhance the implementation of adaptation action, review the adequacy and effectiveness of adaptation and support, and review overall progress made in achieving the global goal on adaptation set forth in Article 7.1 (UNFCCC 2015b). The global stocktake shall take into account the relevant information provided by developed country Parties and/or Agreement bodies on efforts related to climate finance and support on technology development and transfer for developing country Parties (UNFCCC 2015b, Articles 9.6 and 10.6).

The global stocktake is an essential part of the Paris Agreement architecture to reconcile its long-term global ambition with aggregate action by individual countries. The fundamental debate over “who does how much” was addressed through the Paris Agreement architecture

by requiring all countries to communicate NDCs and to assess collective progress and inform more ambitious action through the global stocktake.

The global stocktake can use the questions that will guide the Talanoa Dialogue in 2018: where are we? where do we need to go? and how do we get there?¹ Additional guiding questions that provide more specificity may be required to ensure that inputs remain relevant, dialogues include all relevant stakeholders, and outputs are tailored to deliver the outcomes of the global stocktake.

Ahead of COP24 in December 2018, Parties are negotiating the modalities and procedures of the global stocktake and identifying relevant sources of input to complement the inputs agreed to at COP21, in 2015. Design of the process and governance elements of the global stocktake and identification of additional relevant inputs (as well as a process for identifying new inputs over time) will be crucial to enabling this stocktaking process to fulfill its purpose within the broader architecture of the Paris Agreement, by ensuring that relevant inputs are commissioned in time for the first exercise, in 2023.

Core Elements in the Design of the Global Stocktake

Modalities

This working paper analyzes core elements of the modalities for the global stocktake. These core elements are identified on the basis of Party submissions and the informal note of the cofacilitators of the Ad Hoc Working Group on the Paris Agreement (APA). For each element, the paper identifies why it is key, describes considerations for developing it, and analyzes the range of options Parties are discussing.

In addition to developing robust and fit-for-purpose modalities and procedures for the global stocktake, Parties are required to identify additional sources of input to complement the list adopted in decision 1/CP.21 in 2015 (UNFCCC 2015a, paragraph 99). The type of inputs submitted and the source of the submission will play a significant role in determining both the scope and the quality of the assessment undertaken through the global stocktake and its ability to catalyze the level of enhanced action and cooperation needed.

An important starting point is reaching consensus on how to operationalize the scope of the global stocktake

through the modalities, procedures, and sources of input. Parties will need to agree on whether the list of thematic areas in Article 14 (mitigation, adaptation, means of implementation, and support) is intended to be an exhaustive or nonexhaustive list for taking stock of progress toward the long-term goals. This decision will have implications for the sources of inputs identified, what potential guiding questions are agreed

to, which workstreams are organized, who participates, and what outputs will be generated.

Table ES1 summarizes the analysis of the core elements of the modalities. For each element, it identifies the key considerations Parties need to weigh and provides suggestions based on analysis of the options.

Table ES-1. | **Key Considerations in and Suggestions for the Modalities of the Global Stocktake**

ISSUE	KEY CONSIDERATIONS	SUGGESTIONS BASED ON ANALYSIS OF OPTIONS
Length	<ul style="list-style-type: none"> ■ Ensuring adequate time for synthesizing and considering inputs ■ Avoiding placing undue burden on Parties and the United Nations Framework Convention on Climate Change (UNFCCC) system ■ Incorporating lessons from the Talanoa Dialogue and the 2013–15 review of the long-term goals 	<p>Main decision is how long the process leading up to the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) needs to be. Current options reflected in the informal note by the cofacilitators include 6, 12, 18, and 24 months. Twelve months could represent a compromise between allowing sufficient time for consideration of inputs by a broad range of stakeholders and a longer process that requires many iterations of key inputs to account for information changes. Given the opportunity to learn from the Talanoa Dialogue, Parties should consider building in some flexibility by either agreeing to a range, with the final length adopted by COP25, or agreeing to a length for the first global stocktake in 2023, to be reviewed ahead of 2028.</p>
Timing of Inputs	<ul style="list-style-type: none"> ■ Ensuring that the global stocktake is undertaken “in light of the best available science” ■ Taking into consideration the timing of reports by the Intergovernmental Panel on Climate Change (IPCC) ■ Taking into consideration the timing of national reports submitted under the Article 13 (including biennial reports (which will be determined under Article 13 negotiations)) ■ Ensuring adequate time after submission for consideration of the inputs, by Parties themselves or by UNFCCC bodies tasked with synthesizing or summarizing them 	<p>Options include a single predetermined deadline ahead of the start of the global stocktake, multiple predetermined deadlines for submission of inputs within the global stocktake process, and one predetermined deadline for submission with a mechanism for identifying additional inputs. These options are closely linked to the length of the global stocktake. Having two predetermined deadlines provides the necessary balance between clarity and flexibility without overcomplicating the process. The initial submission round could occur at the start of the process; a later round could update information (reports, additional synthesis, summary materials).</p>
Phases	<ul style="list-style-type: none"> ■ Managing the length of the global stocktake ■ Ensuring a simple yet effective process ■ Providing signals to external audiences ■ Engaging different stakeholders at different stages ■ Producing outputs for different audiences 	<p>There are three possible phases: preparatory, technical, and political. Two options are being discussed: all three phases or just the last two. There seems little practical difference between the two options. There could be a benefit in clearly delineating the phase for submission of inputs, although there are strong reasons for ensuring multiple opportunities for the submission of inputs within a single global stocktake cycle. One technical phase that incorporates both submission of inputs and technical dialogues could be preferable and address the relevant considerations.</p>

Table ES-1. | **Key Considerations in and Suggestions for the Modalities of the Global Stocktake (Cont.)**

ISSUE	KEY CONSIDERATIONS	SUGGESTIONS BASED ON ANALYSIS OF OPTIONS
Workstreams	<ul style="list-style-type: none"> ■ Avoiding information silos ■ Avoiding unnecessary restriction of scope ■ Avoiding placing undue burden on the Parties or the UNFCCC system ■ Ensuring consideration of both progress toward Article 2.1(c) (shifting financial flows) and the means of implementation and support ■ Ensuring a balanced exercise that considers implementation of all substantive thematic provisions 	<p>Options include organizing around long-term goals (e.g., Articles 2.1(a), (b) and (c), 4.1, and 7.1); the thematic pillars listed in Article 14 (mitigation, adaptation, means of implementation and support); or a combination of both.</p> <p>Workstreams should be used to manage the flow of information, hold inclusive dialogues, and ultimately produce outputs that assess collective progress toward the long-term goals. Establishing workstreams oriented around the long-term goals but bringing in important substantive cross-cutting issues could provide balance between the positions of different Parties.</p> <p>Orienting the workstreams around long-term goals provides the opportunity to clearly identify inputs (based on an understanding of what is required to assess progress). It could facilitate focused discussions and dialogues, provide space for implementation of all substantive obligations to be taken stock of (in light of progress toward each goal), and avoid unduly restricting the scope of the assessment undertaken.</p> <p>Workstreams could be established as follows:</p> <ul style="list-style-type: none"> ■ Workstream A: Assessment of progress toward long-term temperature goal in Article 2.1(a), long-term peaking goal in Article 4.1, and related aspects ■ Workstream B: Assessment of progress toward long-term adaptation goal in Article 2.1(b) and related aspects ■ Workstream C: Assessment of progress toward long-term financing goal in Article 2.1(c) and related aspects. <p>Additional elements, such as loss and damage, education, and response measures, could be considered in the three workstreams as appropriate.</p>
Guidance	<ul style="list-style-type: none"> ■ Ensuring sufficient specificity to guide inputs and discussion ■ Fulfilling mandates ■ Conducting and preparing inputs to the phases of the global stocktake ■ Distinguishing between different analytical tasks ■ Providing signals to the research community, to ensure that information and data are available to address core questions 	<p>Options include identifying guiding questions as part of the modalities to be adopted at COP24 or in a separate process following COP24, by either the CMA or facilitators of workstreams or working groups.</p> <p>The purpose of more specific guiding questions (potentially in addition to the questions where are we, where do we need to go, and how do we get there) is to ensure that discussions remain focused, relevant sources of input are identified, and outputs are useful to achieving the purpose of the global stocktake.</p> <p>Agreeing to these questions as part of the modalities adopted at COP24 may be too difficult politically. A process should therefore be agreed to at COP24 to elaborate these questions by COP25, in order to ensure clarity and send clear signals to the research community well ahead of the first global stocktake in 2023.</p>
UNFCCC bodies involved	<ul style="list-style-type: none"> ■ Managing the volume of information ■ Ensuring that thematic expertise is harnessed ■ Managing the capacity of UNFCCC bodies ■ Harnessing the ability of different bodies to bring technical experts and nonstate Parties together 	<p>Options include the COP Presidency, the UNFCCC Secretariat, Subsidiary Bodies, other bodies established under or serving the Paris Agreement (such as the Adaptation Committee). Given the volume of information and the highly thematic nature of stocktaking, it may be beneficial to draw on the expertise and experience in synthesizing information of bodies serving the Paris Agreement. Different bodies could play different roles at various stages of the process.</p>

Table ES-1. | **Key Considerations in and Suggestions for the Modalities of the Global Stocktake (Cont.)**

ISSUE	KEY CONSIDERATIONS	SUGGESTIONS BASED ON ANALYSIS OF OPTIONS
Participation of non-Party stakeholders	<ul style="list-style-type: none"> ■ Ensuring engagement of a broad range of stakeholders, to fulfill purpose and achieve outcomes ■ Building political momentum at all levels ■ Recognizing the inability of Parties to deliver all information necessary to the process ■ Stimulating implementation 	Options include capturing the momentum of climate action by providing inputs and directly participating in technical or preparatory phases (not mutually exclusive). Parties should explore ways to ensure that non-Party stakeholders are engaged throughout the process.
Equity	<ul style="list-style-type: none"> ■ Scarcity of reporting on information related to equity ■ Managing the inherent conflict, that the global stocktake is a collective assessment of progress, not an individual one 	Options include no additional explicit reference to equity, analysis of how countries have reported on equity in their nationally determined contributions (NDCs), and analysis of studies that propose equitable courses of action for countries. The second option seems to strike the best balance. It also follows the bottom-up logic of the Paris Agreement. Such a review of the information could be used to improve the reporting of countries in the next round of NDCs, improving the common understanding of equity.
Outputs	<ul style="list-style-type: none"> ■ Sharing information and opportunities for enhanced action with a diverse range of external stakeholders ■ Communicating information that resonates with various audiences (political, general public, multilateral) ■ Avoiding placing undue burden on the UNFCCC Secretariat and the Subsidiary Bodies 	Options include no written outputs (the dialogue itself being an output); high-level political messages; and a detailed technical summary of options, best practices, recommendations, and CMA decisions. A combination of these options will likely be necessary to strike the right balance and inform action by a broad range of stakeholders (in addition to informing action and support, the global stocktake must also enhance international cooperation). The global stocktake alone will not be sufficient to enhance ambition. It must catalyze efforts by a broad range of stakeholders, both within and outside the UNFCCC. The outputs generated should therefore be able to speak to and inform the actions and decisions of these stakeholders.

Additional sources of input

To supplement the list agreed to in paragraph 99 of decision 1/CP.21 and other inputs specified in Articles 7.14(b), 9.6, 10.6, 13.5, and 13.6, at COP24 Parties should consider adopting a nonexhaustive list that includes additional sources of input for the global stocktake as well as a process for adding additional sources of input over time. Additional sources of input could include the following:

- Submissions from Parties
- Information on the efforts of non-Party stakeholders, including reports generated through various processes under the UNFCCC (such as the *Yearbook of Climate Action*) and submissions from non-Party stakeholders
- Reports from UN specialized agencies, such as the United Nations Environment Programme (UNEP), the United Nations Development Program (UNDP), the World Meteorological Organization (WMO), and the International Civil Aviation Organization (ICAO)

- Reports from other UN treaty bodies, such as the Montreal Protocol
- Peer-reviewed scientific content.

Asking the CMA to consider these inputs at least two years ahead of each global stocktake seems the most politically feasible option to adopt as part of the package at COP24.

Ensuring that the global stocktake becomes stronger over time

Developing a robust, effective, and inclusive global stocktake that can be strengthened over time is key to the success of the Paris Agreement. The process must be able to evolve and develop as Parties' needs and priorities change, opportunities for effective solutions emerge, and the availability of information increases. Some flexibility can be built into the modalities adopted at COP24 (e.g., enabling sources of input to be reviewed ahead of each global stocktake), but there may also be a need for a specific review ahead of future global stocktakes.

Although the Talanoa Dialogue and the global stocktake have different scopes and mandates, the first global stocktake in 2023 will be able to learn from the Talanoa Dialogue in 2018 in terms of the length, the availability of information and data, inputs from all stakeholders, and a focus on shared storytelling to identify how to move forward together. The process and outcome of the first global stocktake in 2023 is likely to be different from the subsequent one, not only because of the opportunity to improve the stocktaking exercise over time but also because some upcoming decisions (such as a common timeframe) could affect the way progress is assessed as well as the impact of the stocktake.² As the 2050 deadlines near, Parties will need to pay more and more attention to aligning NDC commitments with their long-term strategies.

Conclusion

The Paris Agreement establishes a clear purpose for the global stocktake and outcomes to deliver. Beyond the text of the Agreement is the much broader expectation that collective actions will grow more ambitious over time in order to fulfil the Paris Agreement's long-term goals.

Developing fit-for-purpose modalities and procedures and identifying relevant sources of input will be key to establishing a process that can deliver enhanced individual and collective action on climate change. Non-Party stakeholders (subnational, civil society, the private sector, UN and intergovernmental organizations) can play important roles ahead of, throughout, and after the global stocktake. In all aspects of the design of the global stocktake, Parties should consider how to ensure the inclusion and engagement of a broad range of stakeholders, including other multilateral forums, businesspeople and investors, representatives of civil society, academics, people from vulnerable communities, and youth.

INTRODUCTION

To update and enhance Parties' climate action and support over time, the Paris Agreement establishes collective moments for countries to reflect on the current state of implementation and inform future action (UNFCCC 2015a). These moments start in 2018 with the Talanoa Dialogue,³ then continue with "global stocktakes," which are to be conducted every five years beginning in 2023. Following each stocktaking exercise, Parties are expected to update and enhance their actions and support in a nationally determined manner (UNFCCC 2015b, Article 14.3). Through this system, global climate action is expected to increase over time.⁴ Designing an effective global stocktake is therefore critical to the credibility and effectiveness of the Paris Agreement (Dubash 2017).

Article 14 of the Paris Agreement establishes the global stocktake, the purpose of which is to "take stock of the implementation of this Agreement to assess the collective progress toward achieving the purpose of this Agreement and its long-term goals" (UNFCCC 2015b, Article 14.1). The stocktake must be undertaken in a manner that is "comprehensive and facilitative" and consider "mitigation, adaptation and the means of implementation and support. . . in the light of equity and the best available science." It is to be undertaken on a collective, not an individual, basis.⁵ The outcome of the global stocktake is to "inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the relevant provisions of this Agreement, as well as in enhancing international cooperation for climate action" (UNFCCC 2015b, Article 14.3).

Article 14 establishes both a backward- and a forward-looking function for the global stocktake. Assessment of implementation requires a discussion of where Parties are. It examines what has been done to implement targets, actions, and measures in nationally determined contributions (NDCs) to meet obligations under the Paris Agreement. The forward-looking function identifies the gap between where Parties currently are and where they need to be to meet the long-term goals of the Paris Agreement (Holz and Ngwadla 2016; Friedrich 2017).

This forward-looking component is strengthened by the specific outcomes of the global stocktake provided for in the Paris Agreement, which are to inform the next round of NDCs (UNFCCC 2015b, Article 4.9); enhance implementation of adaptation action (UNFCCC 2015b, Article 7.14(b)); and inform Parties in updating and enhancing their actions and support as well as enhancing international cooperation for climate change (UNFCCC 2015b, Article 14.1). The question “how do we get there?” has the potential to inform both collective and individual action. It can help Parties identify how the world can collectively achieve the Agreement’s long-term goals and provides individual countries with information that can guide their responses in a nationally determined manner. Article 7, paragraph 14 (adaptation); Article 9, paragraph 6 (finance); and Article 10, paragraph 6 (technology) contain provisions relating to the global stocktake.

The Conference of the Parties (COP) requested that the Ad Hoc Working Group on the Paris Agreement (APA) identify the sources of input to the global stocktake and develop the modalities of the global stocktake for recommendation by the COP to the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement (CMA) at COP24 in 2018 (UNFCCC 2015a, paragraphs 99 and 101; UNFCCC 2016, paragraph 10).

This working paper identifies options for developing the modalities of the global stocktake and identifying sources of input to ensure that the global stocktake achieves its purpose. It is organized as follows: Section two frames the global stocktake, identifying its role within the broader architecture of the Paris Agreement, unpacking its purpose and scope (as provided for in Article 14), and discussing the various mandated tasks. Section three analyzes the core elements for the development of the modalities, including how to conduct the global stocktake “in the light of equity” and what outputs will be necessary to deliver the expected outcomes. Section four identifies additional sources of input and options for a mechanism to add new sources of input over time. Section five summarizes the paper’s main suggestions.

Framing the Global Stocktake

The global stocktake is an essential part of the Paris Agreement architecture to reconcile long-term global ambition with aggregate actions by individual countries.

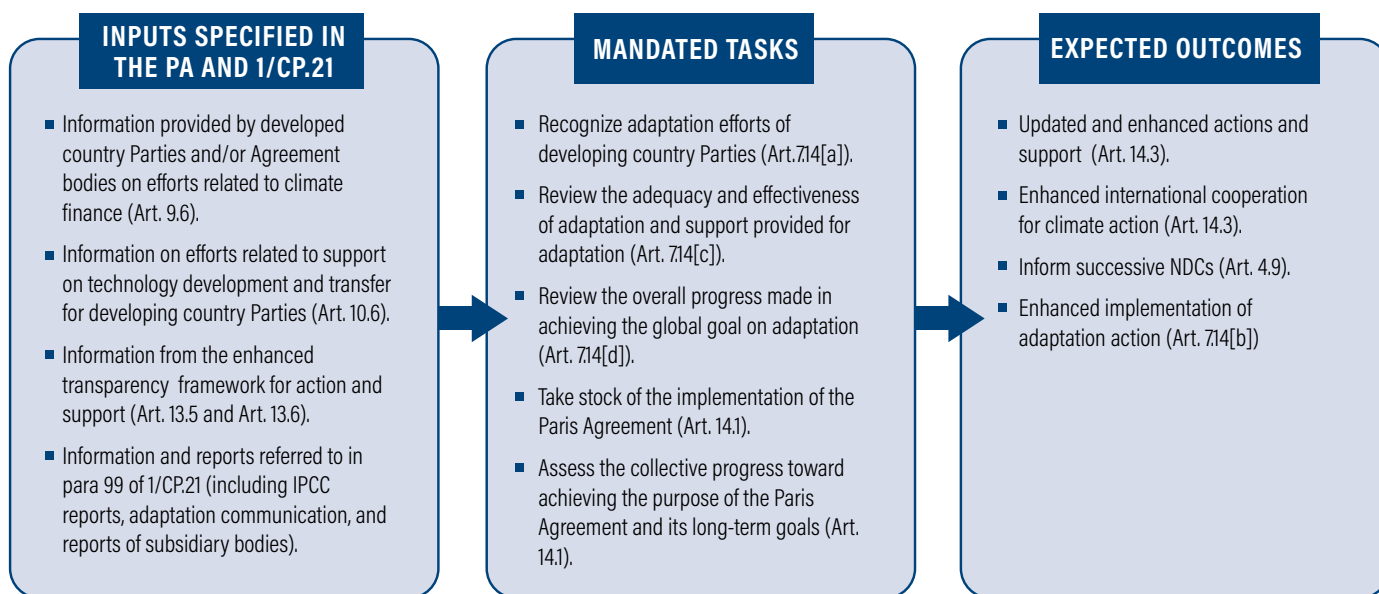
The Paris Agreement addressed the fundamental issue of “who does how much” through a “pledge, review, and enhance” process that requires all countries to communicate NDCs, regularly assess collective progress, and inform progressively ambitious action by all Parties over time through the ambition process (Höhne et al. 2017). Postponing the raising of ambition is not possible forever, however, as the global emissions budget available to keep the global temperature rise below 1.5°C or 2°C will be depleted by about 2030/2040 if emissions continue to rise as expected (Rogelj et al. 2016).

To fulfill this core role within the architecture of the Paris Agreement, the global stocktake could respond to the three broad questions selected for the Talanoa Dialogue of 2018: Where are we? Where do we need to be? How do we get there?

The global stocktake is one of many activities within and outside the United Nations Framework Convention on Climate Change (UNFCCC) that aim to raise ambition and make the ambition cycle work. Raising ambition requires at least two elements, both of which the global stocktake can support. The first is the building of political momentum. Climate change needs to be at the top of political agendas and mainstreamed across all sectors if the deep transformations needed are to be made. Climate considerations need to be included in international forums beyond the UNFCCC, such as the G20; sector-related events; and special climate change summits. The second element is the sharing of analysis, such as experiences on potentials and opportunities by countries; reports by UN organizations; and independent reports by research, financial, sectoral, and civil society organizations.

The Paris Agreement includes carefully negotiated mandated information sources, tasks, and outcomes for the global stocktake, described in Articles 7, 9, 10, 13, and 14. Paragraph 99 of COP decision 1/CP.21 also refers to information. The modalities of the global stocktake must be developed with a view to delivering on these mandates. This nonexhaustive list was carefully negotiated in Paris. It provides the foundation for developing the modalities, procedures, and additional sources of input and outcomes for the global stocktake.

Figure 1 | Unpacking the Mandates for the Global Stocktake



Source: Northrop et al. 2018.

Figure 1 illustrates how inputs, mandated tasks, and expected outputs build on one another. It contains only the mandates specifically referenced in the Paris Agreement and 1/CP.21. The APA will likely identify additional sources of input. Figure 1 is therefore not a final list of sources of information for the global stocktake.

Considerations in Operationalizing the Global Stocktake through the Modalities, Procedures, and Sources of Input

What is the scope of “taking stock of implementation”?

Central to decisions related to the modalities of the global stocktake is the scope of the global stocktake itself. The purpose of the global stocktake (to “take stock of the implementation of this Agreement to assess the collective progress toward achieving the purpose of this Agreement and its long-term goals”) and the manner in which it is to be undertaken (“comprehensive and facilitative, considering mitigation, adaptation and the means of implementation and support”) offer some guidance, but decisions still need to be made about how to best operationalize this scope through specific modalities and procedures (UNFCCC 2015b, Article 14.1) and relevant inputs.

Essentially, negotiators must decide whether “mitigation, adaptation, and the means of implementation and support” is an exhaustive or nonexhaustive list. If they determine that it is exhaustive, the scope of the global stocktake could be narrowed considerably, potentially excluding a stocktake of implementation of Article 8 (loss and damage) and Article 12 (education, training, and awareness). Both lack internal architecture explicitly linking them to the global stocktake, and neither fits neatly under the three thematic pillars listed.⁶

If negotiators determine that the list is nonexhaustive, implementation of all provisions could be considered as part of the stocktake. Article 8.3, for instance, contains a clear collective obligation on Parties to “enhance understanding, action and support” with respect to loss and damage, that could be considered in the global stocktake, based on its purpose under Article 14 (to “take stock of implementation” of the Agreement) under a broad interpretation of scope. Likewise, the collective obligation under Article 12 for Parties to “cooperate” makes a core element of effective implementation of the Paris Agreement and should therefore have a place in the collective assessment of progress under the global stocktake.

Article 14.1 is explicit that the global stocktake should be conducted in a “comprehensive” manner. Ordinarily,

this language should give rise to a presumption in favor of broad inclusion (Friedrich 2017). However, efforts must be made to ensure that the global stocktake does not unduly burden Parties or the UNFCCC system and that its outcomes can be widely disseminated. Breadth should not come at the expense of effectiveness—but effectiveness should not restrict the ambit of the global stocktake.

In view of the above, it is unlikely that the modalities and procedures themselves will include further elaboration or specification of what the “scope” of the global stocktake is. Rather, the scope laid out in Article 14.1 will be operationalized through aspects of the modalities and procedures—namely, workstreams, inputs, and outputs.

What are the Agreement’s long-term goals for the purpose of the global stocktake?

Intimately connected to what it means to “take stock of implementation” is the question of the Paris Agreement’s long-term goals. The Agreement does not explicitly define long-term goals for the purposes of Article 14 (Rajamani 2016). However, use of the plural indicates that there is more than one long-term goal. Article 2, paragraph 1, of the Agreement contains a statement of purpose,⁷ a long-term temperature goal (2.1[a]), a long-term adaptation goal (2.1[b]), and a long-term finance goal (2.1[c]).⁸ Article 4, paragraph 1, contains a global goal for mitigation.⁹ Article 7, paragraph 1, contains global goals for adaptation.¹⁰ There appears to be consensus that each of these goals falls within the scope of the global stocktake (Article 14.1).

Some Parties have suggested that long-term goals should also include Article 8.1 (averting, minimizing, and addressing loss and damage); Article 10.1 (fully realizing technology development and transfer); and Article 11 (capacity building).¹¹ These articles are not formulated as goals per se but as recognition, shared vision, and enabling provisions to enhance the capacity and ability of developing country Parties to overcome major barriers and equip them to tackle some irreversible challenges.

Clarity on what the global stocktake assesses provides a foundation for development of the modalities and identification of relevant sources of inputs. To ensure that the right inputs are used and appropriate guidance provided, the institutional arrangements of the global stocktake should include the right bodies and external stakeholders, and outputs should be generated in a way that addresses progress toward all relevant long-term goals.

Long-term goals related to mitigation

The global stocktake will need to assess collective progress toward the long-term mitigation goals (Article 2.1[a]) and Article 4.1). Both goals are interrelated and best evaluated together (Levin et al. 2015). Assessment of progress toward the long-term temperature goal in (Article 2.1[a]) would include evaluation of peaking and specification of the timing of the balance of anthropogenic sources and removals (Article 4.1).¹²

NDCs alone do not capture the extent of global mitigation efforts. The global stocktake will need to look beyond the actions communicated in NDCs, taking stock of additional actions, policies, and measures implemented as well as mitigation efforts taking place in other venues, such as actions under the Montreal Protocol and by the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO), and other actors (including subnational and nonstate actors, such as the private sector).

Long-term goals related to adaptation

For purposes of the global stocktake, the goal outlined in Article 7.1 is the central focus for assessment of progress. Article 7.14(d) states that the global stocktake shall “review the overall progress made in achieving the global goal on adaptation referred to in Paragraph 1 of this Article.” Article 7.1 establishes “the global goal on adaptation of enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to the impacts of climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal stated in Article 2.” Like Article 7.1, Article 2.1(b) refers to qualitative outcomes related to adaptive capacity and resilience, though the reference to fostering “resilience and low greenhouse gas emissions development, in a manner that doesn’t threaten food supply” may warrant further exploration in the context of the global stocktake.

The qualitative nature of these goal statements raises important questions about how progress can be measured, particularly in the absence of universally applied metrics. Some observers have suggested that qualitative approaches (through countries’ self-assessments or third-party assessments) make the most sense (see, for example, Kato and Ellis 2016). Others have advanced the idea that quantitative measures—such as risk-based metrics, the Human Development Index, and process indicators—could play a role in

assessing progress (see, e.g., Holz and Ngwadla 2016 and Bhushan and Rattani 2017). Decisions about approaches to measuring progress on the global adaptation goal will have direct implications for the modalities of the stocktake, in particular the types and range of inputs needed.

The adaptation goal statement in Article 7.1 raises questions about how contributions to sustainable development will be assessed, which could have implications for appropriate inputs for the stocktake and the selection of qualitative and quantitative measures. The goal statement's reference to "ensuring an adequate adaptation response in the context of the temperature goal" links directly to one of the specified adaptation tasks for the stocktake, as described below.

Long-term goals related to finance

Article 2.1(c) is a long-term goal relating to finance flows. It thus falls within the scope of the global stocktake. It is not, however, elaborated in the Agreement in the way that Article 2.1(a) and Article 2.1(b) are linked to Article 4 on mitigation and Article 7 on adaptation. In order to ensure that the global stocktake delivers on its comprehensive mandate, the APA will need to elaborate on Article 2.1(c) in the modalities.

Assessment of finance flows—including, but not limited to, the provision and mobilization of support—is necessary to gauge progress toward the aims of the Agreement and the other long-term goals.

Meeting the global climate goals requires a significant shift in investments away from high-emissions and maladaptive activities toward low-emissions and climate-resilient actions. Despite significant progress in recent years, in 2016 total global investments in fossil fuels exceeded investments in all renewable energy sources by a factor of more than 2.6 (IEA 2017). If this pattern is not radically reversed, investments in high-emissions infrastructure are likely to lock in the use of fossil fuels exceeding the global carbon budget for 1.5°C or 2°C (Höhne et al. 2015; NCE 2016; OECD 2017). Investments in land use also need to shift, in order to curb deforestation and forest degradation. Significant investments in activities and infrastructure also fail to take into account climate resilience, and in some cases they are maladaptive to climate impacts. Mainstreaming consideration of climate resilience into all investments and mobilizing funding is necessary for effective adaptation. For both mitigation and adaptation, a change in investment patterns and new financing tools to enable low greenhouse gas and climate-resilient investment will be needed.

The long-term goal of Article 2.1(c)—"making finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development"—holds significant transformative potential. But its broad scope and abstract framing can make it difficult to conceptualize and put into practice. The global stocktake will play an important role in operationalizing it.

Previous assessments of the alignment of financial flows with climate goals focused on individual or groups of countries or institutions, making it difficult to determine the climate compatibility of actions, which depend on investment decisions by other entities in the global financial system.¹³ With its scope to assess the compatibility of global finance flows, the stocktake is uniquely positioned to tackle this challenge. Approaches and methodologies will need to be developed, in collaboration with relevant actors (governments, central banks, investors, companies). In many cases these actors will also be key sources of input data to the global stocktake's assessment of finance. Based on its assessments, the stocktake could then offer recommendations to policymakers, regulators, and investors for ways to better align finance flows with climate goals. These recommendations can also inform Parties about potential finance actions and policies that could help increase mitigation and adaptation ambition, which might be included in future NDCs.

Realizing the Outcomes Envisaged for the Global Stocktake

Enhancing actions and support

Article 14.3 requires that the outcome of the global stocktake inform Parties in updating and enhancing their actions and support. Article 4.9 requires that new or updated NDCs communicated every five years "be informed by the outcomes of the global stocktake referred to in Article 14." Article 7.14(b) calls on the global stocktake to "enhance the implementation of adaptation action taking into account the adaptation communications referred to in Paragraph 10 of this article."

To realize these outcomes, the modalities of the global stocktake and its outputs can highlight information, options for moving forward, and best practices that can be acted upon by both Parties and non-Party stakeholders. Toward that end, to inform the next round of NDCs, the global stocktake should do the following:

- Identify specific opportunities to enhance ambition and accelerate implementation, including sectoral, high-mitigation potential, and/or regional and subnational opportunities.

- Support alignment of NDCs with long-term planning (i.e., long-term low greenhouse gas emission development strategies in Article 4.19) to ensure that additional mitigation opportunities are identified and acted on, lock-in is avoided, and climate actions align with and help drive development objectives and priorities (recognizing the expectation that Parties formulate long-term low greenhouse gas emission development strategies by 2020, pursuant to Article 4.19).
- Share best practices and lessons learned.

Article 7 articulates a clear outcome for the stocktake for adaptation: to “enhance the implementation of adaptation action taking into account the adaptation communications referred to in paragraph 10 of the article.” Guidelines for preparing the adaptation communications are under negotiation by Parties; it remains unclear how their content will be shaped to support enhanced adaptation action. To support enhanced implementation of adaptation action, the information collected could enable the stocktake to produce outputs that

- identify collective capacity-building and technology needs to inform future capacity-building initiatives and research and development efforts and
- share best practices and lessons learned from successful implementation efforts.

Outputs from the stocktake that serve these functions should be complementary to, and informed by, the specific adaptation tasks for the stocktake identified in Article 7.14 (recognizing adaptation efforts of developing countries, reviewing the adequacy and effectiveness of adaptation and support provided for adaptation, and reviewing the overall progress made in achieving the global goal on adaptation), as described below. Parties should also ensure that outputs of the stocktake reflect the guidance on adaptation action contained in Article 7.5 (that adaptation action should follow a country-driven, gender-responsive, participatory, and fully transparent approach, etc.) and support the strengthening of cooperation on enhancing action on adaptation, taking into account the Cancun Adaptation Framework, as highlighted in Article 7.7.

In terms of informing Parties to update and enhance their support, as envisaged by Article 14.3, the stocktake could

- assess the effectiveness of policies and support to align finance flows in accordance with Article 2.1(c), and identify needs and gaps in policies and support (including the adequacy and effectiveness of adaptation support, as specified in Article 7.14);

- assess progress toward the collective mobilization of support, the balance between financial resources for mitigation and adaptation, and efficient access to financial resources; and
- share best practices and lessons learned.

On the basis of the outputs of the global stocktake (which must be determined through the modalities), it is expected that Parties would undertake the necessary domestic technical and policy work in the two years following each global stocktake to enhance their action and support in preparation for subsequent NDCs. The global stocktake could provide the space for all countries to explain how they intend to receive and act on the information provided through the process, recognizing that final decisions on how this information is reflected in new or updated NDCs is nationally determined and that Parties should take part in the stocktaking exercise in good faith, without prejudging its outcome.¹⁴

Enhancing international cooperation

Article 14.3 provides that the outcome of the global stocktake shall inform Parties in “enhancing international cooperation.” The identification, development, and dissemination of outputs from the global stocktake as well as who is invited to participate in the process (UN organizations and initiatives, intergovernmental organizations, nongovernmental organizations, subnational authorities, the private sector) will play a significant role in delivering this outcome.

Much of the discussion in the negotiations so far has been about how the global stocktake can inform and drive action at the national level. However, inclusion of this language in Article 14.3 highlights that the global stocktake could have a much broader sphere of influence should the modalities enable it. Parties could identify opportunities for greater cooperation in NDC implementation. For instance, outputs could include the sharing of good practices and opportunities to scale or work across country borders or regions, in a way that better leverages the role of non-Party stakeholders, to address common challenges or highlight specific initiatives for countries to join or support. Indeed, the global stocktake could highlight the mutually reinforcing impacts of action by Parties, non-Parties, and subnational actors to implement and enhance the targets, policies, and measures set by national governments in their NDCs.

The global stocktake could also identify opportunities for enhanced international cooperation outside the bounds of what is currently contained in NDCs. All options for climate action will need to be considered

in order to assess progress toward the long-term goals and identify opportunities to meet them. For instance, by ensuring space in the dialogues held throughout the process and through the types of outputs generated, the global stocktake could inform Parties and non-Party stakeholders about ways to better cooperate in reducing bunker fuels from international shipping, including through the IMO, or reducing emissions from international civil aviation, including through the ICAO.¹⁵ The global stocktake could explore the enormous potential for action on climate change through the mainstreaming of climate measures into activities and programs of international cooperation in the fields of international trade (the World Trade Organization, free trade agreements); international investment law; food production and agriculture (the Food and Agriculture Organization); development cooperation and financing (multilateral, regional, and national development banks); financial stability (the International Monetary Fund and the Financial Stability Board); and the 2030 Agenda for Sustainable Development (Friedrich 2017). International cooperation could also consist of opportunities for action through international cooperative initiatives; the sharing of good practices; replicable, scalable policies; and technology cooperation (Friedrich 2017).

Delivering on the Mandates Provided in the Paris Agreement

Various provisions in the Paris Agreement (and the accompanying COP decision) provide specific mandates to the global stocktake, in terms of either inputs or information that must be considered (contained in Article 7.14(b) for adaptation, 9.6 for finance, 10.6 for technology, and 13.5 and 13.6 on transparency) or discrete tasks for the global stocktake to accomplish (Article 7.14 for adaptation) (see figure 1). Each of these mandates will have implications for the modalities and procedures.

- Article 7.14 outlines two tasks that are meant to be based on modalities and methodologies recommended by the Adaptation Committee and Least Developed Countries Expert Group (AC-LEG): recognizing the adaptation efforts of developing countries and reviewing the adequacy and effectiveness of adaptation and support provided for adaptation.¹⁶ The AC-LEG has advanced recommendations on these tasks, which are currently under consideration by Parties. Key issues in recognizing the adaptation efforts of developing countries include identifying the kinds of activities that are considered adaptation efforts and the modalities for recognition. The AC-LEG advanced the idea that determining which efforts to recognize should be country driven and could include financial and capacity-building investments;

processes and systems to enable adaptation planning and implementation; national adaptation plans and subnational and sectoral action plans and actions; and outcomes and demonstrable results in strengthening resilience, enhancing adaptive capacity, and reducing vulnerability to climate change. The AC-LEG also noted that efforts that result in autonomous adaptation outcomes (outcomes not associated with a project or program) as well as any impacts on broader sustainable development could be among those recognized. The AC-LEG has advanced recommendations for modalities for recognition, including a high-level event during the global stocktake to consider a compilation and synthesis report on adaptation efforts prepared by the Secretariat under the guidance of the AC-LEG; regular events throughout each year to showcase efforts, including events at National Adaptation Plan Expos and Adaptation Forums; and regular thematic, compilation, and synthesis reports on the state of adaptation prepared by the Secretariat under the guidance of the AC-LEG (UNFCCC 2017). The AC-LEG noted constraints, including the long timescales for adaptation, the uncertainty associated with impacts, the context specificity of adaptation, challenges in setting baselines and targets, and the lack of common metrics to measure reductions in vulnerability or enhancement of adaptive capacity, noting that such metrics are evolving but require further testing to gain broad acceptance. It also recognized challenges developing countries face in accessing means of implementation, data at the appropriate scale, and other capacity constraints for carrying out monitoring and evaluation. It has recommended that Parties and other stakeholders submit information on gaps, challenges, opportunities, and options associated with methodologies for reviewing the adequacy and effectiveness of adaptation and support and that it, in conjunction with the Standing Committee on Finance, continue the analysis of such methodologies (UNFCCC 2017). These recommendations are currently under review by Parties, with a view toward making a recommendation by COP24.

- Article 9.6 states that the global stocktake “shall take into account relevant information provided by developed country Parties and/or Agreement bodies on efforts related to climate finance.” The requirement that the stocktake be comprehensive (Article 14.1) suggests that it take into account all relevant information available from the specified sources. “Agreement bodies” include the Financial Mechanism and its operating entities (the Global Environment Facility and the Green Climate Fund) (Article 9.8) as well as the Standing Committee on Finance (UNFCCC

2015a, paragraph 63). These bodies could also include entities that serve the Paris Agreement, such as the Least Developed Countries Fund, the Special Climate Change Fund, and the Adaptation Fund (as set out in UNFCCC 2015a, paragraphs 58–59). Agreement bodies that are not focused solely on climate finance, such as the Subsidiary Body for Scientific and Technological Advice (SBSTA); the Subsidiary Body for Implementation (pursuant to UNFCCC 2015b, Article 18.1); and the Warsaw International Mechanism (pursuant to UNFCCC 2015b, Article 8.2) may also provide relevant information on climate finance.

Types of information on climate finance relevant to the global stocktake include information reported by developed countries and other Parties on past finance provision pursuant to Articles 9.7 and 13.9, indicative information on future finance communicated by developed countries pursuant to Article 9.5, the Standing Committee on Finance’s Biennial Assessment and Overview of Climate Finance Flows, and annual reports to the COP from the operating entities of the Financial Mechanism and by other funds that serve the Agreement. Information from developing country Parties on finance needed and received, which will be reported in accordance with Article 13.10, could also inform the stocktake.

- Article 10.6 states that the global stocktake “shall take into account available information on efforts related to support on technology development and transfer for developing country Parties.” This information could include reporting by developed country Parties and other Parties that provide support on technology transfer support provided pursuant to Article 13.9 and by developing country Parties on technology transfer support needed and received pursuant to Article 13.10. It could also include reporting from the Technology Mechanism of the Agreement (pursuant to UNFCCC 2015b, Article 10.3) as well as from operating entities of the Financial Mechanism of the Convention related to financial support for technology development and transfer.
- Articles 13.5 and 13.6 identify specific inputs to the global stocktake. Article 13.5 describes the purpose of the framework for transparency of action as including “to inform the global stocktake under Article 14” (UNFCCC 2015b, Article 13.5). Article 13.6 makes clear that the framework for transparency on support is to inform the global stocktake by providing “clarity on support provided and received by relevant individual Parties in the context of climate change actions under Articles 4, 7, 9, 10, and 11, and, to the extent possible, to provide a full overview of aggregate financial support provided” (UNFCCC 2015b, Article 13.6). Several outputs from the transparency framework

could inform the global stocktake in this regard, including national biennial reports; review reports produced by the expert review teams; synthesis and/or summary reports produced by the Secretariat, including the compilation and synthesis of reports; and summary reports of the facilitative, multilateral consideration of progress (Dagnet et al. 2017). Key considerations are how this information will be provided in time to inform the global stocktake and its phases and how it will be aggregated (Dagnet et al. 2017).

Ensuring Linkages between the Global Stocktake, the Enhanced Transparency Framework, and the Mechanism to Enhance Implementation and Promote Compliance

The global stocktake, the Enhanced Transparency Framework for action and support under Article 13, and the mechanism to facilitate implementation with and promote compliance of the provisions of the Agreement under Article 15 are mutually reinforcing, as highlighted in Figure 2 (Dagnet et al. 2017). The outputs of the transparency framework will provide information on individual efforts that can be aggregated to facilitate the assessment of collective efforts, including their progress toward the long-term goals. Outputs from the Article 15 mechanism, such as annual reports and special reports on systemic issues, could constitute inputs to the global stocktake (whether they will remain to be negotiated). Where necessary, Parties could also call upon the Article 15 mechanism as they prepare for the global stocktake.

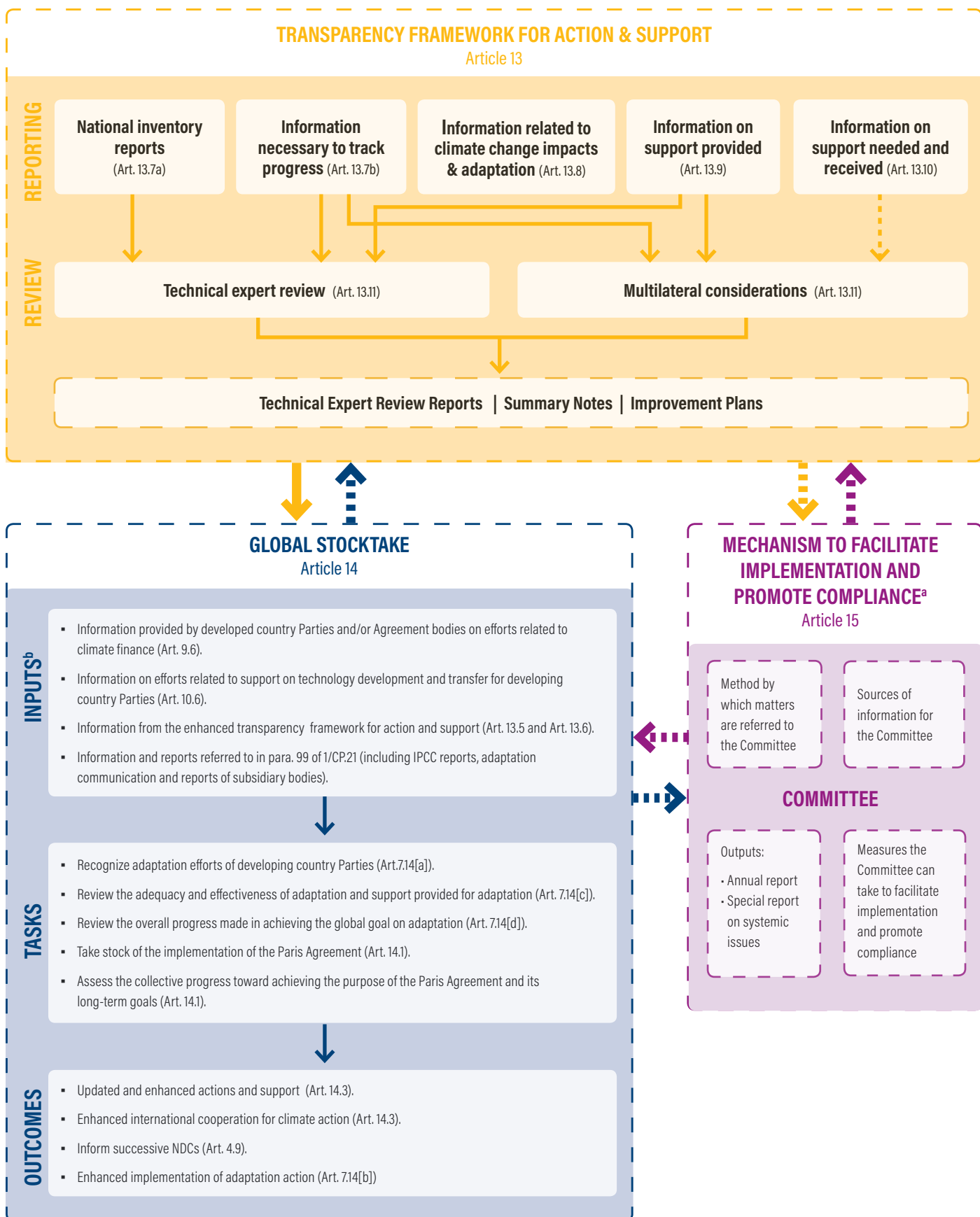
Implications of Common NDC Timeframes for the Global Stocktake

Parties have communicated NDCs with different timeframes; most have 5- or 10-year mitigation undertakings. At the first session of the CMA, Parties agreed to consider adopting common timeframes for future NDCs (Article 4.10).

Before they do so, they need to unpack what is meant by a common timeframe (timetables for communication and updating of NDCs, length of implementation period). They then need to decide when there should be a common timeframe and which aspects of it should be common. These decisions will likely affect the way the global stocktake is undertaken, its outcome, and the effectiveness of the ambition mechanism more broadly.

Table 1 unpacks the implications of the possible choices regarding the timeframe (especially in terms of the type of assessment undertaken and the potential outcome of the global stocktake). There is little room for

Figure 2 | Potential Linkages between Article 14 and Articles 13 and 15 of the Paris Agreement



Note: a. Indicates the potential modalities only and is all subject to the current APA negotiations. b. Not exhaustive. Additional sources of input are to be identified by the APA.
Source: Northrop et al. 2018, adapted from Dagnet et al. 2017.

Table 1 | Implications of Options on the Implementation Period of the Global Stocktake

SUBMISSION DATE OF REVISED OR NEW TARGET	IMPLEMENTATION PERIOD	IMPLICATIONS		
		FOR UPDATING, COMMUNICATING, AND RECORDING NATIONAL DETERMINED CONTRIBUTIONS (NDCS)	FOR NEXT RELEVANT GLOBAL STOCKTAKE	FOR SUBSEQUENT GLOBAL STOCKTAKE
2020	Status quo	<p>Revised/final 2025 target is recorded in registry.</p> <p>All Parties submit new (indicative) or revised 2030 target. Not clear whether 2030 targets would be locked in in registry.</p> <p>Possible new (indicative) target is established for 2035.</p>	<p>The 2023 global stocktake would include an assessment of Cancun (2020) pledges and projections for 2025 and 2030 targets. It would inform the finalization of the 2030 NDC and communication of an indicative target for 2035.</p>	<p>Having two different implementation periods for the global stocktake in 2028 might make discussion of comparability of efforts, including cooperative approaches, more difficult.</p>
2025	Status quo	<p>Some parties may record a revised 2030 target.</p> <p>All Parties submit new (indicative) targets for 2035 or 2040.</p>	<p>The 2028 global stocktake would include partial assessment of efforts (for parties with 2025 targets) and projections for 2030 and 2035 targets. Comparability of efforts would remain challenging. The global stocktake would inform the revision of the NDC submitted in 2035 or communicated in 2040, together with the communication of indicative targets for 2040 or 2050.</p>	<p>The 2033 global stocktake would include assessment of efforts and achievement of 2030 targets. Two different implementation periods would make comparing efforts and assessing equity more difficult. The global stocktake would inform revision of the 2035 or 2040 NDC and communication of indicative targets for 2040 or 2050.</p>
	Five years	<p>All 2030 targets would be locked into a registry.</p> <p>All Parties communicate indicative target for 2035, which is reviewed and inscribed in the registry in 2030.</p> <p>Parties willing to do so could also submit an indicative target for 2040, which they would need to update/revise and communicate in 2030 and 2035.</p>	<p>The 2028 global stocktake would include partial assessment of efforts (for parties with 2025 targets) and projections for 2030 and 2035 targets. Comparability of efforts would remain challenging. The global stocktake would inform the 2030 submission of the NDC for a 2035 target (for recording in registry) and preparation and planning of the 2035 submission of NDCs (2040 targets).</p>	<p>The 2033 global stocktake would include full assessment of efforts and achievement of 2030 targets.</p> <p>Comparing efforts and assessing equity would be difficult, because some Parties would have had more implementation time than others. The global stocktake would inform the 2035 submission of NDC for a 2040 target of NDCs and preparation of and planning for the 2045 targets.</p>
	Ten years	<p>All Parties can submit final 2030 targets.</p> <p>All Parties submit at least an indicative target for 2040, which would be reviewed and locked in in the registry in 2030 or 2035.</p>	<p>The 2028 global stocktake would include partial assessment of efforts (for parties with 2025 targets) and projections for 2030 and 2035 targets. Comparability of efforts would remain challenging. The global stocktake would inform the revision of the 2040 target.</p>	<p>The 2033 global stocktake would include the first full assessment of efforts and achievement of 2030 targets.</p> <p>Comparing efforts and assessing equity would be difficult, because some Parties would have had more implementation time than others. The stocktake would inform the revision of 2040 and 2050 targets with alignment with the 2050 long-term strategy.</p>

maneuvering regarding the next round of submissions, because (a) according to paragraphs 23 and 24 of 1/CP.21(a), Parties with a 2025 target year are requested to communicate by 2020 a new NDC (it does not indicate whether it should be 2025, 2030, or 2035) and a new one every five years thereafter, and (b) parties with a 2030 target year are requested to communicate or update by 2020 their 2030 target and to do so every five years thereafter. The options in Table 1 for the implementation period therefore come to play only beginning in 2025.

If Parties maintain the status quo, assessment of collective efforts based on equity could be made more complex, because some countries would implement and revise their NDCs more quickly than others. Assessment of individual efforts and therefore collective efforts could be made also more complex when taking into account the Internationally Transferred Mitigation Outcomes (ITMOs) generated through cooperative approaches, as trading or crediting could be accounted for in different implementing periods (if not rigorously regulated).

If Parties adopt a common 10-year timeframe, the focus of the global stocktake would be on 2030, 2040, and 2050 undertakings. There would be two global stocktakes between each communications or inclusion in the registry. It would be very important to include an assessment of the alignment of the NDC targets with the 2050 long-term strategies early (no later than the 2033 global stocktake).

If Parties agree to a common five-year timeframe at COP24, it would put all countries on the same five-year schedule from the 2030 undertakings, facilitating the assessment of collective efforts from the 2033 global stocktake. Each global stocktake would inform the revision of the NDC to be submitted two and seven years later. The global stocktake could also take account of efforts made by countries to produce long-term 2050 strategies.

Assessment of achievement of the 2025 targets during the 2028 global stocktake is likely to be very limited. By 2028 more long-term strategies will have been submitted, allowing for more comprehensive review to update countries' long-term strategies, which could be used to gauge efforts toward meeting the Cancun pledges and the 2025 targets. These strategies could be incorporated into the global stocktake assessment process.

The main difference between the two options described above is the dynamism of the process and the ability of countries to align their efforts with economic, policy, societal, and technological changes and seize the

resulting opportunities. When considering the impact of NDC timeframes on the global stocktake, Parties need to consider and possibly act on the following:

- Agree on the expected outcome of the submission of NDCs in 2025. The 2028 global stocktake is likely to become a cornerstone in the process.
- Acknowledge that the assessment of long-term strategies and their alignment with the NDCs is likely to play an increasingly important role in the global stocktake, in order to increase the chance of keeping countries on track to reach the objectives and long-term goals of the Paris Agreement and identifying additional opportunities for action.
- Pending a decision on the implementation period, consider the implications regarding the support developing countries may need to have a domestic institutional and legislative system in place that is fit for purpose.

Supporting a Virtuous Cycle of Improvement for 2028 and Beyond

Although most modalities would be expected to be locked in for the 2028 global stocktake, a clause could be included in the guidelines to review the effectiveness of the global stocktake on the basis of the lessons and experience from previous global stocktakes; the availability of additional relevant sources of information; and major social, technological, economic, and environmental changes. This review would be both backward looking (assessing whether the global stocktake was undertaken as effectively as it could have been and whether/how the global stocktake increased ambition) and forward looking (considering any adjustments that need to be made in light of additional sources of information, as well as socioeconomic, environmental, and technological changes). Such a review could be scheduled about a year after the end of the first (and when appropriate subsequent) global stocktake, to allow sufficient assessment and adjustment time before the next round. The timing of such a review need not be agreed on at COP24.

Five criteria could guide the outcome of these reviews:

- **Relevance:** Do inputs drive ambition? Are they diverse enough to address different circumstances, challenges, and opportunities? Are the outputs generated adequate to produce the intended impacts and effects?
- **Effectiveness:** What aspects of the modalities are influencing the achievement or nonachievement of the long-term goals and other objectives of the Paris Agreement?

- **Efficiency:** Could some of the activities be undertaken with fewer resources and be less time consuming while delivering the same or a better outcome? How manageable have the inputs been?
- **Impact:** What has happened in the real economy as a result of these global stocktakes?
- **Sustainability:** How much of the international process is integrated into national policy and the regulatory and institutional framework to enable countries to systematically adjust their actions?

CORE ELEMENTS OF THE MODALITIES OF THE GLOBAL STOCKTAKE

The elements identified in this section are based on an analysis of Parties' submissions to the APA as well as the informal note by the cofacilitators APA Agenda Item 6, developed from discussions held during COP23 in November 2017. The section is not an exhaustive list of proposed elements for the modalities; it covers only elements that are basic to developing a robust and effective global stocktake.

These core elements include the following:

- Length of the global stocktake process and the timing of the milestones
- Timing of the submission of inputs
- Phases
- Workstreams
- Guidance
- UNFCCC bodies involved
- Role of non-Party stakeholders
- Equity
- Outputs

Length of the Global Stocktake Process and the Timing of Milestones

There is broad consensus that the global stocktake is not a single moment but rather a process that will take place over a certain timespan. However, the length of such a process remains to be determined through the modalities, as does guidance on who does what and when.

Suggestions on the timing and duration of the global stocktake range from up to 6 months to 18 months. There appears to be consensus that the global stocktake process would culminate at the CMA during each year of the global stocktake, so the main decision is how long

the process leading up to the CMA needs to be. It is envisaged that the modalities to be adopted by COP24 would include clarity on the duration of the global stocktake. Related to the concept of length is the timing of milestones within the process—that is, when inputs are due and phases begin and end.

Key considerations

Key considerations include the following:

- Need to ensure adequate time for synthesizing and considering inputs. The global stocktake will involve a large amount of information. Sufficient time must be allowed for it to be synthesized or summarized by the bodies involved in supporting the global stocktake.
- Implications of a cut-off date for submission of inputs ahead of the start of the whole process or at particular times throughout the process (e.g., by six months ahead of the CMA).
- Need to avoid placing undue burden on Parties. The global stocktake will occur every five years. Efforts must be made to keep each global stocktake as concise and focused as possible, to avoid fatigue and undue burden on Parties participating in various elements. Adequate time between the end of one global stocktake process and the start of the next should be provided to allow information to be updated and progress toward implementation made.
- Incorporation of lessons from the Talanoa Dialogue and the 2013–15 review of the long-term goals. From the outset, the Talanoa Dialogue was limited to a one-year process; other comprehensive assessments under the UNFCCC, such as the 2013–15 review or the review under Article 9 of the Convention, took more than two years to complete.

Options

Table 2 summarizes the pros and cons of different lengths of the global stocktake that Parties have proposed.

On the basis of experience, the global stocktake is likely to take at least a year. Critical inputs, such as special reports or synthesis report from the Intergovernmental Panel on Climate Change (IPCC), will need to align to the period of the stocktaking exercise, to facilitate a robust discussion. Establishing a process that is longer than a year may require inputs to be updated over that period, resulting in unnecessary duplication. It is therefore suggested that a year-long process (culminating in the relevant CMA) could be a good starting point.

Table 2 | **Pros and Cons of Options on the Length of the Global Stocktake**

LENGTH OF GLOBAL STOCKTAKE	PROS	CONS
6 months	<p>Provides maximum time between each global stocktake for new information to be generated and national reports to be submitted on progress made toward implementation of the nationally determined contribution (NDC).</p> <p>Avoids need to have two rounds of input submission and synthesis.</p> <p>Is potentially least burdensome on Parties.</p> <p>Enables discussions to start during the relevant Subsidiary Body session for the year.</p>	<p>No time for consideration of inputs ahead of Subsidiary Bodies.</p> <p>Limited time for information to be synthesized or summarized ahead of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).</p> <p>Little opportunity for engagement and participation of external stakeholders.</p> <p>Potential for increased pressure and burden given tight timeframe to consider, assess, and discuss relevant inputs.</p>
12 months or less	<p>Enables every year to be a “global stocktake year,” providing clarity and focus for the process.</p> <p>Enables milestones to be set during the year for phases of the process.</p> <p>Provides opportunity for engagement of broad range of external stakeholders.</p> <p>Creates the opportunity for inputs to be submitted ahead of the 12 months, at a midway point or both.</p>	<p>Primary time for dialogue and discussion would be midyear meeting of the Subsidiary Bodies, potentially limiting the bandwidth for other issues and workstreams to progress and limiting the opportunity for adequate reflection and dialogue between Parties and non-Party stakeholders.</p>
12–18 months	<p>Enables global stocktake to incorporate two Conference of the Parties (COPs) as part of the process to provide additional space for dialogue and interaction with stakeholders.</p> <p>Provides opportunity for engagement of broad range of external stakeholders.</p> <p>Enables sufficient time for multiple milestones and phases of the process.</p> <p>Creates the opportunity for inputs to be submitted ahead of the 18 months, 12 months, at a midway point (e.g., by June) for all.</p>	<p>Would require at least two cycles for input to ensure consideration of latest information.</p> <p>Inputs at start of 18-month process may be replaced by subsequent reports within the same global stocktake process, resulting in unnecessary duplication.</p> <p>Increases burden on Parties and United Nations Framework Convention on Climate Change (UNFCCC) bodies; diverts resources from other processes for a longer period.</p>
24 months	<p>Allows for more comprehensive review of progress against long-term calls and other provisions of the Paris Agreement.</p> <p>Creates potentially two dialogues of a more technical nature during the June intersessions and two more political considerations during two COPs.</p>	<p>Requires more resources.</p> <p>May leave less time for countries to undertake the necessary domestic, technical, and political processes and dialogues based on the outcome.</p> <p>The longer the duration, the more challenging and costly the process is to manage and the more difficult it is to sustain political momentum.</p>

Source: Northrop et al. 2018.

Given the potential to learn from the Talanoa Dialogue (which is a year-long process), Parties may want to build in some flexibility on the length (although doing so may have implications for being able to settle related aspects of the modalities, such as the timing of the submission of inputs and phases, as discussed below). Two options could be considered:

- **Option 1:** At COP 24, agree on a range. Parties could decide, for instance, that the global stocktake would take between one and two years. On the basis of the experience of the Talanoa Dialogue, a decision on the exact length of the global stocktakes could be reached at COP25.
- **Option 2:** At COP24, agree on the length for the first global stocktake, and agree to decide on the length of the subsequent global stocktakes in 2028 based on the outcome of the first global stocktake (enabling lessons to be learned from both the Talanoa Dialogue and the first global stocktake). It would be preferable if some universal denominators with regard to length, phases, and guidance were agreed to at COP24 while leaving some flexibility to revisit the issues on the basis of experienced gained.

A decision on the length of the process will have implications on how phases are delineated within the process (both the number and the length of the phases). For instance, the technical considerations could last longer than observed for the Talanoa Dialogue if the process lasts 18–24 months (it could extend, for instance, over two intersessions and one CMA, leaving political considerations and decisions to the subsequent CMA).

Timing of the Submission of Inputs

Related to the duration of the global stocktake is the timing of the preparation and submission of inputs. This section looks at the considerations and options currently under discussion in the APA for when inputs are called for and submitted and what flexibility is offered for additional inputs to be submitted after this deadline. Inclusion of dates for submission of inputs could be identified in the modalities adopted at COP24 or left for decision closer to the relevant global stocktake. However, the timing for submission of inputs to the first global stocktake should be agreed to at COP23, in order to provide adequate clarity to Parties and the IPCC.

Key considerations

Key considerations include the following:

- Requirement in Article 14 to undertake the global stocktake “in light of the best available science” (such as IPCC reports). To fulfill this requirement,

efforts should be made to ensure that the latest information and scientific data are available for consideration in each global stocktake.

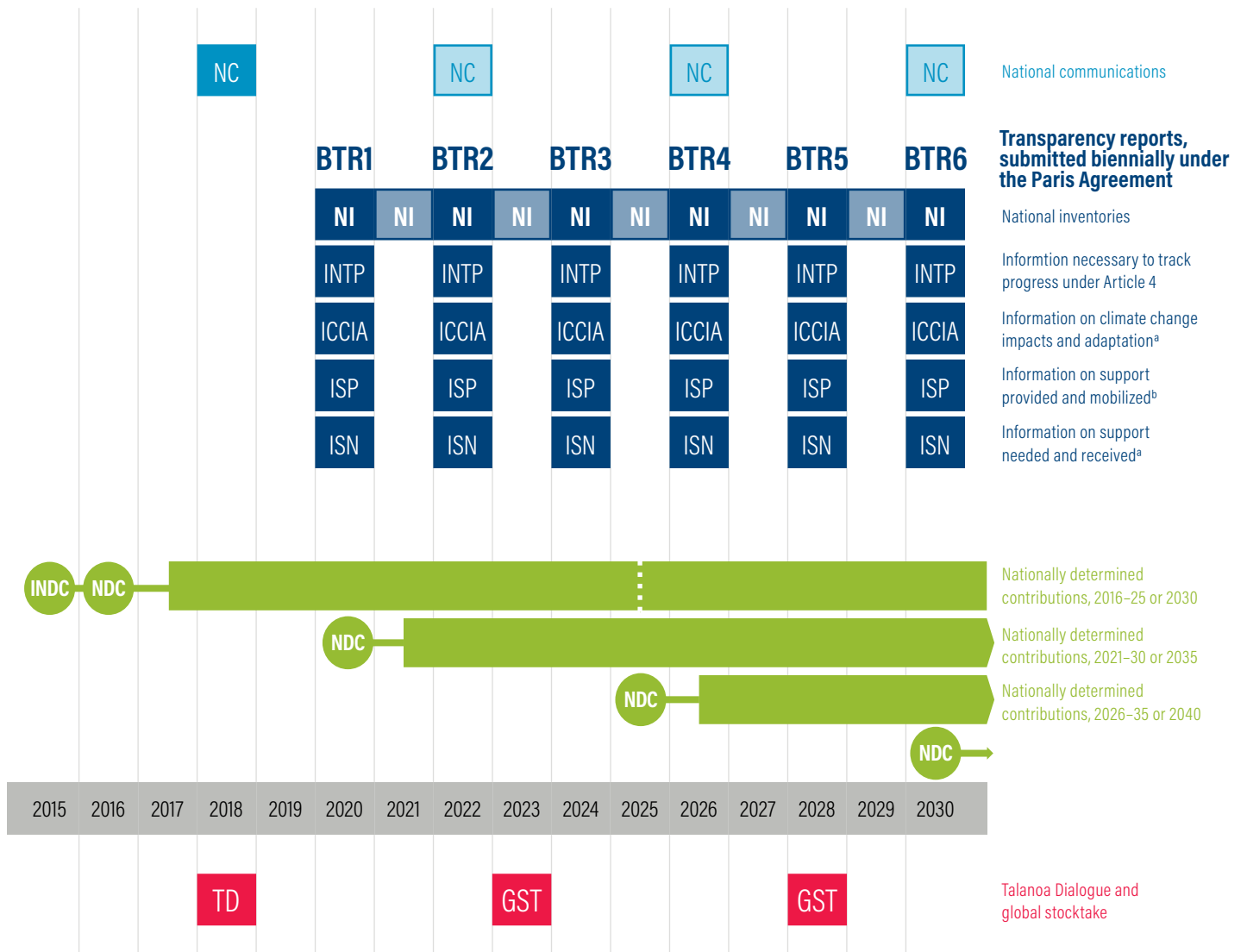
- **Timing of IPCC reports.** IPCC reports are a central source of inputs for the global stocktake. They should be aligned with the global stocktake cycle if possible, or special reports should be produced. Either way, it is crucial that the latest scientific information be available. For the first global stocktake, in 2023, the IPCC will be in its sixth assessment cycle.¹⁷ It recently agreed to establish a task group, cochaired by France and Mexico, on aligning the IPCC cycles and the global stocktake under the UNFCCC (IISD Reporting Services 2017).
- **Timing of the publication of national reports submitted under Article 13 (figure 3).** In general, Parties will report information under Article 13 on a biennial basis, with some possible variations regarding national inventories (annually for developed countries on the basis of paragraph 92(e) of 1/CP.21) and adaptation (at least quadrennially, as currently done by all Parties for national communications). Although the details of the reporting requirements under Article 13, including timing, remain to be developed, Parties should keep in mind the need for such information as an input to the global stocktake. Given that past reporting under the UNFCCC has not always been timely, sufficient time must be provided to ensure that the global stocktake has sufficient information to fulfill its purpose and various tasks. It will also be important for the global stocktake to take place as scheduled.
- **Ensuring adequate time after submission for consideration of the inputs by Parties or UNFCCC bodies tasked with synthesizing or summarizing the inputs.**

Options

Three options for submissions should be considered:

- **Option 1:** Single submission opportunity at a predetermined deadline. Suggestions range from one to two months ahead of the time that inputs are to be considered. This option depends on the duration of the global stocktake. If it lasts only six months, having all inputs submitted ahead of the Subsidiary Bodies would be appropriate. If the global stocktake lasts a year or longer, having only one time for submission would significantly reduce the opportunity for the latest information to be considered (unless the date was immediately before the global stocktake, which would then raise concerns about leaving sufficient time for analysis and dialogue).

Figure 3 | Hypothetical Example of Reporting under the Paris Agreement



Notes: a. All Parties are encouraged to provide information on climate change impacts and adaptation, and developing country Parties are encouraged to provide information on support needed and received
 b. Developed country Parties are required, and other Parties that provide support are encouraged, to provide this information.

Source: Elliott et al. 2017.

- **Option 2:** Multiple submission opportunities at predetermined deadlines. This option would enable information generated later in the process to be included. For a six-month global stocktake process, information could be submitted immediately ahead of the CMA, to reflect the latest UN reports published late in the year and include recent national reports. For a 12-month global stocktake process, information could be submitted ahead of the relevant Subsidiary Bodies and the CMA. For an 18-month time period, any combination of these options could be adopted. Predetermined deadlines would provide clarity and certainty for the process, but if not established carefully and with reference to the publication date or submission of key inputs, they could leave relevant information out of the process.
- **Option 3:** One predetermined deadline for certain submissions, with a mechanism for identifying additional inputs. This option adds flexibility, but it requires a significant governance process to be established, which could be burdensome. It consists of an initial submission round at the start of the global stocktake process (either during the preparatory phase or ahead of the technical phase) and a mechanism to assess gaps and identify additional sources of input later in the global stocktake process (e.g., after the initial round of inputs are summarized and discussed). The reasoning behind this approach seems to be that it would enable information gaps to be identified and resolved within a global stocktake process rather than forcing Parties to wait until the next global stocktake process. Various bodies engaged in the global stocktake (including the Secretariat, the SBSTA, and others) could identify additional inputs. They could then make recommendations to the CMA as to who could produce such inputs (assuming they did so before a meeting of the CMA) or make a more general call. This option gives some discretion to the bodies engaged in the global stocktake, which could enable specific thematic expertise to be brought to bear in identifying additional sources of input. It provides greater flexibility and reduces the risk of information gaps or outdated information being considered as part of the global stocktake. It would provide less clarity and predictability, however, and could be subject to politicization of inputs unless the criteria were clear and guidance offered.

Phases

It is generally accepted that the global stocktake will not be a singular event but rather a process consisting of a number of different elements to bring together all relevant stakeholders and forms of inputs. A key question is how the concept of phases can be used to ensure that the global stocktake facilitates subsequent international and domestic processes.

The global stocktake is expected to inform national decision-making through the next round of NDCs, indicating a need for the outcomes of the global stocktake to be disseminated at both the political and technical level to inform the implementation of climate action. The link between the national and international decision-making processes indicates a need for lessons learned and experience shared at a more technical level first. The global stocktake is required to inform “international cooperation for climate action,” suggesting the need for space for interaction and participation of non-UNFCCC bodies and processes relevant to climate action (e.g., the IMO, the ICAO, and the 2030 Agenda for Sustainable Development).

Key considerations

Key considerations include the following:

- Duration of the global stocktake. The shorter the duration, the less time there is for multiple phases and inputs from a wide range of stakeholders. The longer the duration, the more challenging and costly the process is to manage and the more difficult it is to sustain political momentum.
- Number of UNFCCC meetings that each phase will include. Sufficient opportunities need to be provided for dialogues, but costs need to be contained.
- Need to avoid complicating the process unnecessarily.
- Delineation of phases as a communication tool to focus the global stocktake and send clear signals to external audiences.
- Need to engage different stakeholders and conduct different activities at different points in the process.
- Need to produce distinct outputs for different audiences. The outcomes of the global stocktake are not just technical or political.

Options

Two main options are being discussed:

- **Option 1:** Two phases, a technical phase culminating in a political phase. The global stocktake will require a large volume of information from various sources to be synthesized, analyzed, and digested. A technical phase would respond to the demand that the global stocktake be conducted in the light of the best available science; it may be necessary in order for the global stocktake to provide Parties with a clear and reliable assessment of where they are, where they should be, and what they could do to enhance their action. For example, a technical phase could be the most appropriate space to review the adequacy and effectiveness of adaptation and support provided for adaptation as required by Article 7.14(c). A political phase would be better suited to recognize adaptation efforts of developing country Parties, as required by Article 7.14(a). Outputs from the technical phase could feed directly into the subsequent political phase (including political decision-makers rather than technical experts) through the production of summary reports or key messages. There is no distinct phase aimed at collecting and synthesizing or summarizing the inputs received. It is assumed that these activities would take place as part of the technical phase.
- **Option 2:** Three distinct phases: a preparatory or information-gathering phase supporting a technical phase, which would culminate in a political phase. In this option, the technical phase would comprise two separate phases. The preparatory phase would focus on information collection; the technical phase would focus on discussions among experts, before leading into the political phase. Three phases could be seen as unnecessary. However, a clear phase for information collection could focus attention and delineate information collection from discussion and dialogue (as long as it does not prevent key inputs that would come in after that phase from being taken into account). A different range of stakeholders could be engaged in each phase. The submission of inputs could come from a broad range of stakeholders, including UN bodies, civil society, and academic and research organizations. Discussions in the technical phase could be limited to bodies constituted under the UNFCCC.

Including three phases may overcomplicate the process without little substantive gain. It is important to ensure that a broad range of stakeholders participate across all

phases and that arbitrary distinctions are not drawn. Rather than discrete sequencing, however, the focus should remain on ensuring that there is adequate opportunity for discussion by and interaction between technical and political actors and state and nonstate actors and that the latest information is available through rounds of submissions and subsequent synthesis. All of these objectives can be achieved through a two-phase process.

Workstreams

Given the comprehensive manner with which the global stocktake is to be undertaken and the requirement to be facilitative, careful thought must go into the form the global stocktake takes. How a process is conducted plays a key role in whether it delivers particular outcomes.

Parties should consider how workstreams or working groups could be used to channel relevant inputs, provide a forum for thematic discussions, and break up the global stocktake into manageable pieces. Workstreams are distinct from phases; the two are not mutually exclusive.

Regardless of how or whether to incorporate phases into the global stocktake, there will be a need to manage the process at a more practical level and divide up pieces of the analysis, to be handled by relevant groupings or subgroupings. To do so, workstreams (or working groups) could be established. Given the implications of how the global stocktake is divided up, identifying relevant workstreams for the global stocktake should be part of the initial modalities adopted at COP24.

The identification and designation of workstreams is one of the key ways that the scope of the global stocktake can be operationalized. How the workstreams are organized will affect the inputs called for, the scope of the discussion, and the outputs generated.

Key considerations

Key considerations include the following:

- Workstreams should not create unnecessary information silos, given the interconnected nature of many of the considerations that will be part of the global stocktake process.
- Workstreams should not unduly restrict the matters for consideration under the global stocktake. They should be designed to facilitate the purpose outlined in Article 14. They should be a tool to manage the potentially diverse information submitted as inputs to the global stocktake process.

- Workstreams should create a space for more substantive dialogue among all relevant stakeholders.
- Workstreams should not duplicate existing processes or place an undue burden on the Parties or the UNFCCC system.

Options

Three options for the workstreams are possible:

- **Option 1:** Long-term goals: Organize workstreams around the long-term goals of the Paris Agreement (three workstreams in total). This structure would most clearly facilitate an assessment of progress toward these goals, ensuring that sources of input and guiding questions for each of the workstreams are tailored to the framing of each goal. Implementation of various provisions of the Agreement could be assessed as relevant to understanding progress toward each goal. For example, assessment of progress toward goal 2.1(c) could include consideration of the means of implementation and support and take into account the synergies between means of implementation and support and the consistency of broader finance flows. Pursuing this structure would require Parties to reach agreement on what the long-term goals are (whether there are long-term goals in the Agreement beyond those contained in Articles 2.1, 4.1, and 7.1) and whether an assessment of progress toward Articles 2.1(a) and (b) could include discussions of the implications in terms of loss and damage.
- **Option 2:** Thematic pillars: Organize workstreams around the three thematic pillars specified in Article 14 (mitigation, adaptation, and means of implementation and support). This approach could result in certain provisions that do not fall within these thematic pillars (e.g., loss and damage, a separate, albeit related, concept to adaptation and the elements in Article 12 related to enhancing education, training, public awareness, and access to information) not receiving adequate discussion and assessment. To remedy this problem (and on the basis of an interpretation of Article 14 not being considered exhaustive), additional thematic pillars (e.g., loss and damage under Article 8 and education, public awareness, and participation under Article 12) could be established (five workstreams in total). This approach would ensure that all substantive provisions of the Agreement are capable of assessment, but it could result in silos without adequate focus on the long-term goals. Analysis under “means of implementation and

support” would not necessarily produce the outputs or require the inputs needed to assess progress against Article 2.1(c) more broadly. This option could result in too many parallel workstreams with equal standing.

- **Option 3:** Hybrid approach. Workstreams would be established to assess progress toward the long-term goals of the Agreement (based on the three long-term goals in Article 2.1 and incorporating Articles 4.1 and 7.1). Separate cross-cutting workstreams could then be used to consider means of implementation, support, loss, damage, and Article 12 (five workstreams in total). This option could also result in too many parallel workstreams with equal standing.

The first option provides the opportunity to achieve balance between different Party positions provided that implementation of substantive provisions of the Paris Agreement, such as those in Article 8 (loss and damage) and Article 12 (education) is also adequately taken stock of when considering progress towards the long-term goals. Orienting the workstreams around long-term goals provides the opportunity for inputs to be clearly identified (on the basis of an understanding of what is required to assess progress without constraining inputs to thematic buckets). It could ensure focused discussions and dialogues while providing space for the implementation of all substantive obligations to be taken stock of (in the light of progress toward each goal) and avoiding unduly restricting the scope of the assessment. Workstreams could be established as follows:

- **Workstream A:** Assessment of progress toward the long-term temperature goal in Article 2.1(a), the long-term peaking goal in Article 4.1, and related aspects
- **Workstream B:** Assessment of progress toward the long-term adaptation goal in Article 2.1(b) and related aspects
- **Workstream C:** Assessment of progress toward the long-term financing goal in Article 2.1(c) and related aspects

Additional elements, such as loss and damage, education, and response measures, should be considered in the three workstreams, as appropriate.

Regardless of which option is taken, sub-working groups (or expert working groups) may need to be established to focus on particular tasks or elements of much larger questions. Establishing these groups could draw on the expertise of specific UNFCCC bodies, such as the Adaptation Committee or the Least Developed

Countries Expert Group, for a review of the adequacy and effectiveness of adaptation and support provided for adaptation (as required under Article 7.14(b)). The findings and recommendations from such expert groups could feed into a broader workstream (based on the long-term goal or theme). These sub-working groups or expert groups could report back to multiple workstreams as a way to address cross-cutting issues.

Additional Guiding Questions

Identifying guiding questions that go beyond what Article 14 establishes as the purpose of the global stocktake and broad parameters could greatly enhance the effectiveness and efficiency of the global stocktake. Guiding questions in each workstream or thematic area could help ensure that the outputs produced fulfill the purpose and various tasks assigned to the global stocktake. Following the example set by the Talanoa Dialogue, it could be possible to organize the global stocktake around three core questions: where are we? where do we need to go? and how do we get there?

For each workstream or thematic area, specific guidance could be provided to shape the submission of relevant inputs and discussion during each phase. Certain guiding questions could be identified and included in the modalities adopted by COP24, with a mechanism agreed to for further relevant questions to be developed ahead of each global stocktake process. The appendix includes a list of possible questions.

Key considerations

Key considerations include the following:

- Ensuring sufficient specificity in each guiding question, in order to enable the necessary sources of input and information to be identified
- Ensuring that progress toward each long-term goal is captured, particularly for goals that are closely related, such as Articles 2.1(a) and 4.1 and Articles 2.1(b) and 7.1
- Ensuring that progress toward all goals is undertaken in a balanced manner
- Communicating findings related to each guiding question
- Ensuring that all mandates for the global stocktake are fulfilled, including mandates in Articles 7, 9, and 10 and mandated input to the global stocktake per Article 13

Options

The indicative questions listed in the appendix highlight the potential level of granularity that Parties could consider and the potential gaps in information availability that may need to be filled by identifying additional sources of inputs (or enabling the guiding questions to evolve as information availability increases).

Parties could consider three broad options:

- **Option 1:** Include guiding questions as part of the modalities to be adopted at COP24. This option would provide the greatest certainty, but adopting it would be tricky, because other elements of the modalities, such as the workstreams, would likely need to be agreed to first. Unless a review mechanism was included, this option would also provide limited flexibility if information availability or the needs of the global stocktake changed.
- **Option 2:** Have the CMA determine the guiding questions, at either COP25 or COP26. Parties could request that guiding questions be developed following adoption of the modalities at COP24, by either COP25 or COP26, taking into account development under related processes and work programs. The Subsidiary Bodies or an ad hoc working group could develop the questions. Alternatively, the CMA could develop guiding questions ahead of each global stocktake. Sufficient time would need to be left ahead of the call for submission of inputs. The exact timing would depend on the duration of the global stocktake.
- **Option 3:** Have facilitators of the working groups determine the questions ahead of each global stocktake. Through the modalities to be adopted at COP24, the facilitators of workstreams or working groups could be charged with identifying relevant guiding questions. These questions would need to be developed and submitted to the CMA well in advance of the call for submission of inputs.

Agreeing to these questions as part of the modalities adopted at COP24 offers the opportunity to increase clarity and send clear signals to the research community, but it is unlikely to be feasible to do so by COP24. Rather than focus the negotiations on this technical element, it may be better to agree to develop this guidance after COP24, by either COP25 or COP26. At COP24, Parties could agree on whether or not to use the broad framing of the Talanoa Dialogue and set a timeframe for developing guidance specific to assessment progress toward the long-term goals.

UNFCCC Bodies Involved

Article 14 provides that the CMA shall take stock of implementation of the Agreement. It offers no guidance on the potential role of the Subsidiary Bodies in the global stocktake (beyond being a source of input) or other bodies established under the UNFCCC that serve the Paris Agreement. Given the likely breadth of information the global stocktake will need to manage and the thematic expertise that a number of bodies have, various bodies could play roles in the process.

Key considerations

Key considerations include the following:

- Need to obtain and synthesize or summarize the inputs to the global stocktake, in order to focus discussion and manage the volume of information likely to be generated as part of the global stocktake
- Need for particular thematic expertise at various stages or phases of the global stocktake
- Capacity of bodies to support various aspects of the global stocktake
- Ability to bring technical experts and nonstate Parties together in particular forums

Options

A number of bodies that serve the Paris Agreement could play roles beyond providing inputs. Relevant bodies include the following:

- The UNFCCC Secretariat could summarize and synthesize the various elements for consideration by the Parties during the meeting of the Subsidiary Bodies or the CMA itself. This option would be most relevant if a short global stocktake process was determined.
- Provided their mandate is extended beyond 2020 (or a similar role is created post-2020), the Champions could summarize and synthesize submissions from non-Party stakeholders and facilitate the identification of relevant non-Party stakeholders to participation in certain phases or dialogues.
- The Subsidiary Body for Implementation and the SBSTA could convene technical discussions to synthesize and discuss the inputs to the global stocktake during the technical phase.
- Various bodies that serve the Paris Agreement could synthesize, compile, or summarize the inputs.

Given the scope of the global stocktake, it is unrealistic to expect the UNFCCC Secretariat to be the sole supporting body. The involvement of a broad range of bodies is likely to be more effective, provided each is charged with a clear role, in order to avoid duplication. These bodies could serve as a sieve for the information being inputted into the process. Bodies such as the Adaptation Committee, the Standing Committee on Finance, the Technology Executive Committee of the Technology Mechanism, and the Paris Committee on Capacity Building could be charged with initial synthesis and review of inputs according to their thematic expertise; they could produce reports that would then be taken up in workstreams under the Subsidiary Bodies. The Champions could ensure connection to outside processes driven by nonstate actors by providing inputs throughout the process or synthesis reports as required. The Secretariat could also play a role in synthesizing and/or summarizing inputs at key steps in the process and supporting the formulation of outputs.

Role of Non-Party Stakeholders

The urgency and scale of efforts required to meet the goals of the Paris Agreement do not allow for a narrow approach that would exclude efforts by wider stakeholders to help Parties understand what levels of ambition are possible and to learn from a variety of experiences regarding how to achieve those ambitions (van Asselt 2016). A significant push from non-Party stakeholders (including subnational governments, civil society, academia, the private sector, and other multilateral bodies and UN agencies) is needed to meet the Agreement's long-term goals. Their contribution to political momentum and technical knowledge are essential.

The Paris Agreement and accompanying decisions acknowledge the important role nonstate actors play and encourage engagement between Parties and them. Indeed, the involvement of subnational and nonstate actors in the Paris negotiations helped make it possible. Parties need to clarify how to leverage the contributions of these actors and make the engagement between state and non-Party stakeholders more sustainable.

Key considerations

Key considerations include the following:

- Non-Party stakeholders are a very broad and diverse group. Representatives of these groups need to be selected and involved in the process.
- Non-Party stakeholders can contribute to the global stocktake in two ways. First, they can help build political momentum by taking on ambitious climate action, showing that more can be done. They can,

for example, organize conferences and dialogues in addition to those organized under the UNFCCC. This role is fundamental to the success of the Paris Agreement. It should be leveraged to maximize the impact of the global stocktaking exercise. Second, non-Party actors can provide information on their actions (including on research and development, innovative financial mechanisms, and sectoral opportunities); analysis of the impact of their actions (particularly subnational governments, businesses, and investors); and provide direct technical input to discussions.

Options

The participation or contribution of non-Party stakeholders in the global stocktake could be made in three (not mutually exclusive) ways:

- **Option 1:** Capturing the political momentum of ambitious climate action by providing input information. Inputs of ambitious actions are already captured in a registry such as the Non-State Actor Zone for Climate Action (NAZCA) or in compilation and synthesis documents prepared by the UNFCCC Secretariat or Champions and posted on the web. A key input could be to show examples in which actions by nonstate and subnational actors go beyond the ambition level of aggregated NDCs, possibly at a sectoral level. Doing so would identify options for increasing ambition.
- **Option 2:** Organizing regional or thematic dialogues. Non-Party stakeholders can organize regional or sector dialogues or workshops in preparation of the global stocktake. Regional dialogues are currently being organized in preparation for the Talanoa Dialogue.
- **Option 3:** Participating in preparatory or technical phases. Non-Party stakeholders can demonstrate the transformation under way and make the case for further and faster actions through structured workshops, panel discussions, and dialogues. Their involvement could motivate or stimulate more effective involvement in the implementation and enhancement of NDCs by national governments.

The role of non-Party stakeholders has increased in recent years and is likely to intensify. Their participation or input into the process may need to be reviewed periodically. As early as COP24, Parties should acknowledge the important role these stakeholders could play in implementing NDCs and increasing the level of ambition. Their participation in structured dialogues should be facilitated.

Conducting the Global Stocktake “in the Light of Equity”

Article 14.1 states that the global stocktake has to be undertaken “in the light of equity.” This formulation leaves wide room for interpretation. As equity is a matter of perspective or interpretation, views differ substantially on what a fair contribution for individual countries could be.

The Paris Agreement asks Parties to report on how their NDC is equitable. The APA is charged with providing guidance on such information (UNFCCC 2015a, paragraph 28). Article 14.3 stipulates the notion of “nationally determined” (UNFCCC 2015a, paragraph 28).

Key considerations

Key considerations include the following:

- Reporting of information on equity in NDCs is scarce (Winkler et al. 2018) every country was invited to submit an intended nationally determined contribution (INDC). To explain why their contribution is fair, countries most frequently mention their vulnerability, followed by the fact that their contribution to greenhouse gas emissions is small (Winkler et al. 2018) every country was invited to submit an intended nationally determined contribution (INDC). Very few countries have translated what a specific indicator and value would mean for their actions. No country has provided information on what the argument they apply for themselves would mean for others (Winkler et al. 2018). Doing so would be very useful, because an individual contribution to a global goal can be judged to be fair only if the individual contributions of all others are known. Reporting on equity in NDCs needs to be enhanced before the global stocktake can consider such information. Elements of equity will become very prominent in considering the question of how to get there (e.g., when there are suggestions to do more in certain regions or sectors or more support is needed). Countries have not reported on this forward-looking element, and there is no commonly agreed guidance or yardstick against which it could be judged, as NDCs are nationally determined. Good practices and common denominators could emerge from the bottom up over time through reporting. IPCC reports will address issues related to equity. Earlier proposals to develop an “equity reference framework” did not make it into the Paris Agreement (Ngwadla and Rajamani 2014).
- There is an inherent conflict in the requirement not to single out individual countries in the global

stocktake (a notion that was very prominent in the negotiations) while at the same time implementing the global stocktake “in the light of equity,” which is about the distribution of impacts across countries. Some observers have suggested that this conflict would be resolved by analyzing groups of countries, not individual countries. It could also be viewed in the context of sharing global benefits (Holz and Ngwadla 2016).

Options

Proposals on how to undertake the global stocktake “in the light of equity” have been scarce. Parties could consider three generic options:

- **Option 1:** Make no additional explicit reference to equity, leaving the interpretation to Parties implementing it.
- **Option 2:** Analyze how countries have reported on equity in their NDCs. The global stocktake could be mandated to analyze how countries report on the equity of their NDCs. This option seems uncontroversial, because it follows the bottom-up logic of the Paris Agreement. A first review based on information available today would be very shallow, as countries have provided only limited information (see Winkler et al. 2018). Review of the information could be used to improve reporting in the next round of NDCs, however, increasing the common understanding of equity.
- **Option 3:** Analyze studies that propose equitable actions for countries. A far-reaching approach would be to use information from studies on equitable actions of countries and equity/distributional aspects of implemented actions. For example, the IPCC’s Fifth Assessment Report summarized studies with mitigation targets that could be considered fair from various perspectives. On adaptation and finance, studies are rare; no comprehensive overview exists.

Option 3 may take longer to be operational and require organizations such as the Subsidiary Bodies and the IPCC to be mandated to come up with further guidelines. A hybrid approach could be to move ahead with option 2 while commissioning relevant bodies to undertake additional research per option 3.

Outputs

Modalities should operationalize the global stocktake so that it is clear what its scope is, how it will be undertaken, who will undertake and participate in it, and when it will take place. The modalities should

also identify what outputs the global stocktake will produce to serve the functions and achieve the outcomes identified in the Paris Agreement.

Outputs are distinct from outcomes; they support achievement of the outcomes expected from the global stocktake. Outputs are what the global stocktake process produces; outcomes are the effect that the global stocktake has (e.g., enhanced action or cooperation as envisaged by Article 14.3).

Potential outputs to help deliver or achieve these outcomes could include a CMA decision, reports from the Secretariat and the Subsidiary Bodies, workstreams and political declarations, and the number of dialogues or participants in the process. Outputs could summarize the technical analysis undertaken through the global stocktake, provide recommendations, and identify lessons learned.

Key considerations

Key considerations for determining what outputs could be produced from the global stocktake, who could produce them, and when they would need to be produced include the following:

- Who the intended audience for the information arising from the global stocktake is; who needs to receive recommendations, key messages, or technical information; and what the format should be
- The need/benefit/opportunity of communicating key messages or recommendations to a wide audience
- How best to communicate beyond the individuals participating in the global stocktake process
- How to summarize or synthesize technical information in a manner that resonates with various audiences (political, general public, multilateral) and is accepted by Parties
- Avoiding placing an undue burden on the UNFCCC Secretariat and the Subsidiary Bodies that may be responsible for producing various inputs
- Where the information comes from to generate these outputs (inputs generated from a broad range of stakeholders generally create greater ownership and engagement in the process and its outcome)
- The source, content, and number of inputs, which could change on the basis of the availability and systematization of some information (flexibility should therefore be preserved in the type of inputs and resulting outputs)

Options

The following possibilities emerge on how to consider the production of outputs:

- **Dialogue only:** A CMA decision could take note of the global stocktake having happened. This option is the simplest, but it would not satisfy the expectations of stakeholders who want to see concrete recommendations and actions as a result of the global stocktake. It would not enable the information and discussions conducted through the process to be communicated to external stakeholders; only people in the rooms would have the benefit of the discussions. This option would be unlikely to support the achievement of the outcomes of the global stocktake.
- **High-level political messages:** High-level political messages could be contained in a summary report from the co-chairs of working groups or roundtables. A final CMA decision could take note of and annex these summary points. This option would be simple, and it would enable key messages to be generated and communicated to a wider audience. It could strengthen international cooperation, but without reports and recommendations aimed at enhancing action and support, it is difficult to see how the outcomes of the global stocktake would be achieved.
- **Detailed technical summary of options and identification of best practice and recommendations:** Most Parties expect some sort of synthesized recommendations from the global stocktake. Providing a detailed technical summary of options and identifying best practice and recommendations could serve as an output from the technical phase to the political phase. It could also take the form of a final set of recommendations from the political discussions. It is likely that this option would need to accompany a set of high-level political messages.
- **CMA decisions:** In addition to a CMA decision to “take note of” any summary reports from the global stocktake, there could be more substantive CMA decisions to take action, depending on other outputs from the global stocktake. For example, specific recommendations that emerge from the technical phase could be taken up in the political phase in the form of a CMA decision request to Parties to take specific action. These decisions could also take the form of invitations to the IPCC and Subsidiary Bodies to prepare special reports or convene research dialogues to help inform the next global stocktake and fill knowledge gaps identified through the current global stocktake.

IDENTIFYING SOURCES OF INPUT

The purpose of identifying inputs to the global stocktake is to ensure that the stocktaking process will have the information needed to achieve its purpose, deliver the expected outcomes, and perform the various tasks discussed in section 2. The need to implement the global stocktake “in the light of . . . the best available science” has implications for the selection of input sources. Articles 7.14(b), 9.6, 10.6, 13.5, and 13.6 specify inputs or information that must be considered by the global stocktake. The COP also requested the APA to identify sources of input for the global stocktake. These sources were to include, but not be limited to, three categories of inputs identified by the COP in paragraph 99 of decision 1/CP.21 (UNFCCC 2015a):

- (a) Information on:
 - i. the overall effect of the nationally determined contributions communicated by Parties
 - ii. the state of adaptation efforts, support, experiences and priorities from the communications referred to in Article 7, paragraphs 10 and 11, of the Agreement, and reports referred to in Article 13, paragraph 8, of the Agreement
 - iii. the mobilization and provision of support
- (b) The latest reports of the Intergovernmental Panel on Climate Change
- (c) Reports of the Subsidiary Bodies

As part of the mandate to the APA, Parties are considering additional sources of input to the global stocktake, building on paragraph 99 of decision 1/CP.21. To do so, it is useful to understand what information may already be covered by the sources listed in paragraph 99.

Inputs relevant to providing the information required under paragraph 99(a)(i) should include the NDCs referred to in Article 4 and reports from the UNFCCC Secretariat and UN bodies. Inputs relevant to paragraph 99(a)(ii) are clear from the text itself. They include the adaptation communications and national reports submitted under the transparency framework for action and support.

However, in terms of paragraph 99(a)(iii), sources are not immediately clear from the text and could benefit from further clarification. Sources of input should include national reports on support provided and mobilized referred to in Article 13, paragraph 9, of the Agreement and any reports from the Standing Committee on Finance (namely, the Biennial Assessment and Overview of Climate Finance Flows).¹⁸ It may also be useful to include information on “support needed and received,” which will be reported by developing country Parties in accordance with Article 13.10.¹⁹ In terms of information on finance flows (beyond support provided and mobilized) in relation to Article 2.1(c), some information may be available in the Biennial Assessment of the Standing Committee on Finance. Other sources of inputs may be necessary to fully assess progress on Article 2.1(c).

In addition to providing additional clarification for the sources identified in Articles 7, 9, 10, and 13 of the Agreement and paragraph 99 of decision 1/CP.21, there is an increasingly large volume of information generated outside the UNFCCC. One of the key questions to be resolved is whether or not submission of such information is subject to criteria, filters, or verification (addressed below).

Table 3 provides a proposed list of additional sources of input to complement those identified in paragraph 99 of decision 1/CP.21 that could be adopted at COP24 (using the language contained in the first column). For each additional source of information, the sources captured within that description are identified, the information likely to be covered by the source is outlined, and the relevance to assess progress is identified.

Not all additional sources of input will be identified at COP24. New sources will likely emerge over time or be needed as the global stocktake evolves. Therefore, in addition to identifying additional new categories of sources of input, it may be necessary to agree on a process for identifying additional sources of inputs over time. This process can be agreed to as part of the package on inputs adopted at COP24.

Four main options have emerged for identifying additional sources of input ahead of each global stocktake. These mechanisms will help ensure that the global stocktake is responsive to changing information needs and availability over time:

- **Option 1:** Have CMA identify the sources ahead of each global stocktake. A process could be established through a working group under the CMA or delegated to the SBSTA to identify additional or new sources of input before each global stocktake. The body charged with this task could make a recommendation for adoption by the CMA at least two years before the relevant global stocktake, to allow time to generate the data and information.
- **Option 2:** Have the cofacilitators of relevant workstreams identify the sources. Determination would need to be made well in advance of the global stocktake.
- **Option 3:** Set criteria for sources. Parties could agree to criteria or a process for selecting and including new sources of information. The criteria could be agreed to in the modalities to be adopted at COP24, subject to revision ahead of each global stocktake (this option runs the risk of opening up the negotiations every five years).
- **Option 4:** Have UNFCCC bodies identify the sources. Some UNFCCC bodies, such as the Standing Committee on Finance, have expertise in screening, compiling, and synthesizing information from non-Party organizations and producing timely reports based on it. Thematic bodies (such as the Adaptation Committee, the Paris Committee on Capacity Building, and the Technology Executive Committee) could be mobilized to undertake such tasks and make recommendations to the CMA.

These options are not mutually exclusive. Parties could combine various elements to ensure the right balance between predictability and flexibility. Option 1 may be the most politically feasible and achievable as part of the COP24 package. The CMA could agree to discuss sources of input, on the basis of recommendations from the SBSTA, at the meeting of the CMA that falls two years before each global stocktake.

Table 3 | Proposed Additional Sources of Input to the Global Stocktake

ITEM	INFORMATION COVERED	ARTICLES 2.1(A) AND 4.1	ARTICLES 2.1(B) AND 7.1	ARTICLE 2.1(C)	OTHER
SUBMISSION FROM PARTIES					
Parties	Best practice, challenges, opportunities, and gaps.	✓	✓	✓	✓
INFORMATION ON EFFORTS BY NON-PARTY STAKEHOLDERS					
Yearbook of Climate Action (or comparable future reports)	Summary and compilation of state of action by nonstate actors and multistakeholder initiatives that are part of the Marrakesh Partnership.	✓	✓	✓	✓
Submissions from non-Party stakeholders	Action and initiatives not covered under the Yearbook of Climate Action. Potential opportunities for enhanced action at national level and policy asks.	✓	✓	✓	✓
REPORTS FROM UN SPECIALIZED AGENCIES					
Food and Agriculture Organization (FAO)	Data on trends in food security, agricultural advances. Projections at the global and regional level.		✓		✓
International Civil Aviation Organization (ICAO)	Efforts and opportunities to reduce emissions in the aviation sector.	✓			
International Maritime Organization (IMO)	Efforts and opportunities to reduce emissions in the maritime sector.	✓			
United Nations Development Programme (UNDP) Human Development Reports	Human Development Index data; progress/data relevant to Sendai Framework for Disaster Risk Reduction.		✓		✓
United Nations Department of Economic and Social Affairs (UNDESA) and UNDP status of progress on the 2030 Agenda for Sustainable Development	Opportunities for alignment between climate and sustainable development objectives.	✓	✓		✓
United Nations Environment Programme (UNEP) Adaptation Gap Reports	Adaptation finance needed, provided, and received; gaps in adaptation knowledge and technology.		✓	✓	
UNEP Emissions Gap Reports	Emission pathways that are consistent with long-term temperature goal, estimated global greenhouse gas emissions gap, and projected increase in global average temperatures above preindustrial levels based on current progress.	✓			
UNEP Finance Initiative Reports	Finance flows in relation to Article 2.1(c).			✓	
United Nations Office for Disaster Risk Reduction (UNISDR)	Progress/data relevant to the Sendai Framework for Disaster Risk Reduction.		✓		✓
World Meteorological Organization Status of the Global Climate	Meteorological data.	✓	✓		✓

Table 3 | Proposed Additional Sources of Input to the Global Stocktake (Cont.)

ITEM	INFORMATION COVERED	ARTICLES 2.1(A) AND 4.1	ARTICLES 2.1(B) AND 7.1	ARTICLE 2.1(C)	OTHER
REPORTS FROM UN TREATY BODIES AND PROCESSES					
Reports produced under the Convention on Biological Diversity, such as the Global Biodiversity Outlook and Ocean Acidification	Projections and information on impacts of climate change on biodiversity and ocean acidification.		✓		✓
Global Land Outlook, produced under the Convention to Combat Desertification	Projections and information on impacts of climate change.		✓		✓
Summary reports produced under the Montreal Protocol	Efforts, opportunities, and projections.	✓			
REPORTS FROM INTERGOVERNMENTAL ORGANIZATIONS					
Arctic Monitoring and Assessment Programme (relevant data and projections)	Information and assessments on climate impacts and emissions.	✓	✓		
Financial Stability Board reports on climate-related financial risk	Finance flows in relation to Article 2.1(c).			✓	
International Development Finance Club Green Finance Mapping reports	Finance provided and mobilized through bilateral, regional, and other channels.			✓	
International Energy Agency (IEA) World Energy Outlook Reports	Trends and opportunities for enhanced action.	✓		✓	
IEA World Energy Investment Reports	Finance flows in relation to Article 2.1(c).			✓	
Outcome of International Labour Organization (ILO) World of Work Summit	Trends in job creation.		✓		✓
International Monetary Fund (IMF) World Economic Outlook	Finance flows in relation to Article 2.1(c).			✓	
International Renewable Energy Agency (IRENA) renewable energy and capacity statistics	Trends and opportunities for enhanced action.	✓			
Multilateral development banks' joint climate finance reports	Finance provided and mobilized through some multilateral channels.			✓	
Renewable Policy Energy Network (REN21) Renewables Global Status Report	Trends, and opportunities for enhanced action.	✓		✓	
PEER-REVIEWED SCIENTIFIC CONTENT					
Journal articles and research papers	Scientific analysis, policy analysis, analysis of pathways consistent with long-term goals, modeling, and identification of new technologies or approaches.	✓	✓	✓	✓

CONCLUSIONS

The global stocktake is a building block in raising the ambition of collective actions over time to meet the global long-term goals of the Paris Agreement. This paper identifies the key decisions for developing modalities and identifying sources of input for the global stocktake, with a focus on ensuring that it is designed to fulfill its purpose and function. Form should follow function. At COP24, Parties need to establish the foundations of the ambition mechanism and agree on the minimum requirements and provisions for the duration, scope, phases, format, participation, inputs, and outputs to build confidence in the international process.

The design of the global stocktake should not be locked in in December 2018. Parties should take account of upcoming decisions in relation to interlinkages to processes and work programs that will provide input to the global stocktake and on the question of agreeing

on common timeframes for NDCs. Parties should build on lessons learned from the Talanoa Dialogue and each global stocktake to make the next stocktake more impactful. A certain degree of flexibility should therefore be built in to ensure that the mechanism can evolve over time. Parties could consider factoring in a future review period for the modalities adopted at COP24. Decisions regarding the modalities must also be made with future global stocktakes, not just the first global stocktake, in mind.

Table 4 summarizes the core elements of the modalities explored in this paper. It identifies the key considerations for the development of each and suggests a possible landing zone based on analysis of the options currently under discussion.

For mitigation, the stocktake will most likely reiterate the well-established and well-researched gap between national actions and the actions needed to meet the

Table 4 | Options for Modalities for the Global Stocktake

ELEMENT	CONSIDERATIONS	SUGGESTIONS
Length	<ul style="list-style-type: none"> Ensure adequate time for synthesizing and considering inputs. Avoid placing undue burden on Parties and the UNFCCC system. Incorporate lessons from the Talanoa Dialogue and the 2013–15 review of the long-term goals. 	<p>The main decision point is how long the process leading up to the CMA needs to be. Options reflected in the informal note by the cofacilitators include 6, 12, 18, and 24 months. Twelve months could provide a compromise between allowing sufficient time for consideration of inputs by a broad range of stakeholders and a longer process that requires many iterations of key inputs to account for information changes. Given the opportunity to learn from the Talanoa Dialogue, Parties should consider building in some flexibility, by either agreeing to a range, with the final length adopted by COP25, or agreeing to a length for the first global stocktake in 2023, to be reviewed ahead of 2028.</p>
Timing of inputs	<ul style="list-style-type: none"> Ensure that the global stocktake is undertaken "in the light of the best available science." Take into consideration the timing of reports by the Intergovernmental Panel on Climate Change (IPCC). Take into consideration the timing of national reports submitted under Article 13 (including biennial reports, which will be determined under Article 13 negotiations). Provide adequate time after submission for consideration of the inputs, by Parties themselves or UNFCCC bodies tasked with synthesizing or summarizing the inputs. 	<p>Options include a single predetermined deadline ahead of the start of the global stocktake, multiple predetermined deadlines for submission of inputs within the global stocktake process, and one predetermined deadline for submission with a mechanism for identifying additional inputs. These options are closely linked to the length of the global stocktake as a whole. Having two predetermined deadlines provides the necessary balance between clarity and flexibility without overcomplicating the process. The initial submission round could occur at the start of the process, with a later round to update information (reports, additional synthesis summary materials).</p>

Table 4 | Options for Modalities for the Global Stocktake (Cont.)

ELEMENT	CONSIDERATIONS	SUGGESTIONS
Phases	<ul style="list-style-type: none"> ■ Agree on the length of the global stocktake. ■ Ensure that the process is simple. ■ Provide signals to external audiences. ■ Engage different stakeholders at different stages. ■ Produce outputs for different audiences. 	<p>The process could include three phases: preparatory, technical, and political. Two options are being discussed: all three phases or just the technical and political phases. There seems to be little practical difference between the two options. There could be a benefit in clearly delineating the phase for submission of inputs, although there are strong reasons for providing multiple opportunities for submitting inputs within a single global stocktake cycle. A technical phase that incorporates both submission of inputs and technical dialogues could be preferable and address the relevant considerations.</p>
Workstreams	<ul style="list-style-type: none"> ■ Avoid information silos. ■ Avoid unnecessary restriction of scope. ■ Avoid placing undue burden on Parties or the UNFCCC system. ■ Consider both progress toward Article 2.1(c) (shifting financial flows) and means of implementation and support. ■ Ensure a balanced exercise that considers implementation of all substantive thematic provisions. 	<p>Options include organizing around the long-term goals; the thematic pillars listed in Article 14 (mitigation, adaptation, means of implementation and support); or a combination of both. Workstreams should be used to manage the flow of information, hold inclusive dialogues, and ultimately result in outputs that assess collective progress toward the long-term goals. Establishing workstreams oriented around the long-term goals but bringing in important cross-cutting issues would balance different Parties' positions. Orienting the workstreams around the long-term goals provides the opportunity to clearly identify inputs on the basis of an understanding of what is required to assess progress. It could facilitate focused discussions and dialogues, provide space for implementation of all substantive obligations to be taken stock of (in the light of progress toward each goal), avoid addressing loss and damage within a thematic adaptation workstream, and avoid unduly restricting the scope of the assessment undertaken.</p> <p>Workstreams could be established as follows:</p> <ul style="list-style-type: none"> ■ Workstream A: Assessment of progress toward the long-term temperature goal in Article 2.1 (a), the long-term peaking goal in Article 4.1, and related aspects. ■ Workstream B: Assessment of progress toward the long-term adaptation goal in Article 2.1 (b) and related aspects. ■ Workstream C: Assessment of progress toward the long-term financing goal in Article 2.1 (c) and related aspects. <p>Additional elements, such as loss and damage, education, and response measures, could be considered in the three workstreams as appropriate.</p>
Guidances	<ul style="list-style-type: none"> ■ Provide sufficient specificity to guide inputs and discussion. ■ Fulfill mandates. ■ Clarify responsibility for conducting and preparing the inputs to the phases of the global stocktake. ■ Distinguish between different analytical tasks. ■ Provide signals to the research community to ensure that information and data are available to address core questions. 	<p>Options include identifying guiding questions as part of the modalities to be adopted at COP24 or in a separate process following COP24, either by the CMA or by facilitators of workstreams or working groups. The purpose of more specific guiding questions (potentially in addition to the three broad questions of where are we? where do we need to go? and how do we get there?) is to ensure that discussions remain focused, relevant sources of input are identified, and outputs are useful to achieving the purpose of the global stocktake.</p> <p>Agreeing to the questions as part of the modalities adopted at COP24 may be too politically difficult. A process should be agreed on at COP24 to elaborate on these questions by COP25, in order to ensure significant clarity and send clear signals to the research community well ahead of the first global stocktake in 2023.</p>

Table 4 | Options for Modalities for the Global Stocktake (Cont.)

ELEMENT	CONSIDERATIONS	SUGGESTIONS
UNFCCC bodies involved	<ul style="list-style-type: none"> Manage the volume of information. Ensure that thematic expertise is utilized. Manage the capacity of UNFCCC bodies. Harness the ability of different UNFCCC bodies to bring technical experts and nonstate Parties together. 	Options include the COP Presidency, the UNFCCC Secretariat, the Subsidiary Bodies, other bodies established under or serving the Paris Agreement (such as the Adaptation Committee), and the Champions. Given the volume of information and the highly thematic nature of taking stock of implementation of the Agreement, it may be beneficial to draw on the expertise and experience in synthesizing information of a number of bodies serving the Paris Agreement. Different bodies could play different roles at various stages of the global stocktake process.
Participation of non-Party stakeholders	<ul style="list-style-type: none"> Engage a broad range of stakeholders. Build political momentum at all levels. Recognize that all Parties cannot deliver all information necessary to the process. Stimulate implementation. 	Options include capturing the momentum of climate action through the provision of inputs and direct participation in any technical or preparatory phases (not mutually exclusive). Parties should explore ways to ensure that non-Party stakeholders are engaged throughout the process.
Equity	<ul style="list-style-type: none"> Address the current scarcity of reporting information related to equity. Recognize the inherent conflict created by the fact that the global stocktake is a collective, not an individual, assessment of progress. 	Options include no additional explicit reference to equity, analysis of how countries have reported on equity in their NDCs, and analysis of studies that propose equitable action for countries. The second option seems to strike the best balance. It follows the bottom-up logic of the Paris Agreement. Review of the information could be used to improve the reporting of countries in the next round of NDCs, increasing the common understanding of equity.
Outputs	<ul style="list-style-type: none"> Share information and opportunities for enhanced action with a diverse range of external stakeholders. Communicate information that resonates with various audiences (political, general public, multilateral). Avoid placing an undue burden on the UNFCCC Secretariat and the Subsidiary Bodies. 	Options include no written outputs (the dialogue itself being an output); high-level political messages; and detailed technical summary of options, best practices, recommendations, and CMA decisions. A combination of these options will likely be necessary to strike the necessary balance and inform action by a broad range of stakeholders (in addition to informing action and support, the global stocktake must also enhance international cooperation). The global stocktake alone (as a UNFCCC process) will not be sufficient to enhance ambition. It must catalyze efforts by a broad range of stakeholders, both within and outside the UNFCCC. The outputs generated should therefore be able to speak to and inform the actions and decisions of these stakeholders.

long-term goals. Information on how to close the gap is diverse, as opinions diverge on how to accomplish the long-term goal and how to distribute the burden of doing so across sectors, countries, and time. The preparatory analysis and the global stocktake itself need to synthesize this information, make it actionable for countries, and identify information gaps that can be filled before the next global stocktake.

For adaptation, it will be critical for Parties to agree on what it means to assess progress toward the global goal on adaptation and whether that assessment requires quantitative or qualitative measures. If the adaptation-specific tasks are intended to directly support the adaptation-specific outcome of the stocktake (to

enhance the implementation of adaptation action), Parties should consider how the tasks can contribute to that outcome. Such decisions will have implications for inputs (including the as yet unspecified content of adaptation communications and Article 13.8 reports) and outputs.

For financial flows and means of implementation, it will be important to assess both progress toward the commitments set out in Articles 9, 10, and 11 (on finance, technology, and capacity building) and the broader overarching goal in Article 2.1(c) of “making finance flows consistent with a pathway toward low greenhouse gas emissions and climate resilient development.” Just as it is vital to assess global

emissions, it will be necessary to examine global investment flows. In both cases the focus can be on governmental actions, over which Parties can exert the most control, while being cognizant of how government action can enable or constrain private investments, which must also be brought into alignment with climate and sustainable development goals.

How Parties take stock of implementation of other aspects of the Paris Agreement remains to be determined. It is a key first step ahead of elaborating the modalities and identifying what additional sources of input are required to answer the questions posed by the stocktake.

In all aspects of the global stocktake, Parties should consider how to ensure the inclusion and engagement of a broad range of stakeholders. The global stocktake is part of a much broader theory of change in which collective climate ambition is progressively enhanced over time. Although the global stocktake is critical to this effort, many other activities within and outside the UNFCCC must come together to make this ambition cycle work. Parties should explore how to enable the global stocktake to deliver momentum through greater political and public awareness and support, promote international cooperation and greater awareness of climate change in all forums, and foster new partnerships and greater cooperation between governments and non-Party stakeholders (namely, subnational governments, the private sector, civil society, and academia). Such transformational approaches will help mobilize the political will and action needed to achieve the goals of the Paris Agreement.

APPENDIX: POSSIBLE GUIDING QUESTIONS FOR THE GLOBAL STOCKTAKE

This appendix provides possible guiding questions.²⁰ A selection of the questions can be used to define the scope of the global stocktake. The final list of questions should be adjusted once the scope is agreed upon.

Mitigation

Where are we?

- Are all Parties preparing, communicating, and maintaining successive NDCs? (Article 4.2)
- Are all Parties pursuing domestic mitigation measures, with the aim of achieving the objectives of such contributions? (Article 4.2)
- Are all Parties providing the information necessary for clarity, transparency, and understanding, in accordance with decision 1/CP.21 and other relevant decisions? (Article 4.8)
- Are Parties accounting for their NDCs in the manner outlined in Article 4.13?
- How have long-term low greenhouse gas emission development strategies been formulated? (Article 4.19)
- Are sinks and reservoirs of sinks and reservoirs of greenhouse gases being conserved and enhanced (as appropriate)? (Article 5.1)
- Is the use of internationally transferred mitigation outcomes toward NDCs promoting sustainable development and ensuring environmental integrity and transparency, including in governance, and applying robust accounting to ensure, inter alia, the avoidance of double counting? (Article 6.2)
- Is the mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development established and effective? (Article 6.4)
- Is the framework for nonmarket approaches to sustainable development established and effective? (Article 6.9)
- To what extent are Parties providing and receiving international support, and how effective is it?
- What is the aggregated impact of subnational and nonstate actions on the implementation of mitigation actions and ultimately on future global greenhouse gas emissions?
- What are the aggregated projected greenhouse gas emissions that result from all actions?
- When will emissions peak?
- When do carbon dioxide emissions need to reach net zero?
- When do noncarbon dioxide greenhouse gas emissions need to reach net zero?
- When do total greenhouse gas emissions need to reach net zero?
- Based on current progress, what is the projected increase in global average temperatures above preindustrial levels?

Where do we need to be?

- What global emission pathways are consistent with the long-term temperature goal, and what are the associated assumptions?
- Is the estimated global greenhouse gas emissions gap or the temperature gap between current progress and scenarios consistent with the long-term temperature goal?

How do we get there?

- What are the barriers for implementation of further actions, and how can Parties be supported in overcoming them?
- What projects, programs, policies, and institutions are available to close the gap between where we are and where we need to be on a regional,

- country, sector, and organization level?
- What are the costs (e.g., mitigation costs, compromises on food and water availability) and benefits (e.g., lower air pollution and better health, energy security, and innovation) of achieving additional reductions at the regional, country, sector, and organization level?

Adaptation

Where are we?

- To what extent has adaptive capacity been enhanced, resilience strengthened, and vulnerability reduced? (Article 7.1)
- How do these advances contribute to sustainable development? (Article 7.1)
- What data and information have been gathered, synthesized, and shared to recognize the adaptation efforts of developing countries? (Article 7.3 and 7.14(a))
- To what extent is adaptation action incorporating the principles outlined in Article 7.5?
- What evidence exists to indicate that Parties are strengthening their cooperation on enhancing action on adaptation? (Article 7.7)

Where do we need to be?

- What does the temperature goal in Article 2 require in terms of an “adequate” adaptation response? (Article 7.1)
- How adequate and effective is adaptation and support provided for adaptation? (Article 7.14(c))

How do we get there?

- What are the barriers to adaptation planning, and how can Parties overcome, and be supported to overcome, them? (Article 7.8)
- What is needed to support broader incorporation/application of the principles outlined in Article 7.5?
- In what ways can Parties continue to build on the Cancun Adaptation Framework to strengthen cooperation on enhancing action on adaptation? (Article 7.7)
- What outputs are needed to enhance the implementation of adaptation action? (Article 7.14[b])

Finance Flows, Support, and Means of Implementation

Where are we?

- To what extent are current finance flows consistent with compatible pathways toward low greenhouse gas emissions and climate-resilient development? (Article 2.1[c])
- What projects, programs, policies, and institutions are being used to make finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development, and how effective are they? (Article 2.1[c])
- Are developed country Parties providing financial resources to assist developing country Parties in continuation of their existing obligations under the Convention? (Article 9.1)
- Are other Parties providing support voluntarily? (Article 9.2)
- Is the mobilization of climate finance taking into account the needs and priorities of developing country Parties and a progression beyond previous efforts? (Article 9.3)

- Is the provision of scaled-up financial resources achieving a balance between adaptation and mitigation? (Article 9.4)
- Are the institutions serving the Agreement ensuring efficient access to financial resources through simplified approval procedures and enhanced readiness support for developing country Parties, in particular for the least developed countries and small island developing states? (Article 9.9)
- What support is being provided to developing country Parties for technology development and transfer, including for strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation? (Article 10.6)
- Are Parties cooperating to enhance the capacity of developing country Parties to implement this Agreement? Are developed country Parties enhancing support for capacity-building actions in developing country Parties? (Article 11.3)

Where do we need to be?

- What would it take to make finance flows consistent with compatible pathways toward low greenhouse gas emissions and climate-resilient development, in accordance with the goals set out in Articles 2.1(a) and (b), 4.1, and 7.1? (Article 2.1[c])
- Which projects, programs, policies, and institutions are consistent with low greenhouse gas emissions and climate-resilient development pathways, and which projects, programs, policies, and institutions are not consistent with such pathways?
- What are the needs and priorities of developing country Parties? (Article 9.3)
- How large is the gap between the financial resources provided for adaptation and the financial resources provided for mitigation? (Article 9.4)

How do we get there?

- How can support provided and mobilized be more effective in meeting the long-term goals of the Agreement?
- What projects, programs, policies, and institutions are necessary to make finance flows consistent with a pathway toward low greenhouse gas emissions and climate-resilient development, and how could they enable an increase in ambition? (Article 2.1[c])
- What policies, investments, and institutional reforms are required to scale up the mobilization of finance, achieve a balance between adaptation and mitigation financial resources, and ensure efficient access to finance? (Articles 9.4 and 9.9)

Additional Questions Arising from Implementation of the Agreement

Debate is ongoing over whether the following questions fall under the mandate of the global stocktake.

Where are we?

- To what extent have Parties enhanced understanding, action, and support with respect to the loss and damage associated with the adverse effects of climate change? (Article 8.3)
- To what extent have Parties cooperated to enhance climate change education, training, public awareness, public participation, and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement? (Article 12)
- To what extent have Parties implemented Article 13, including the provision of information under paragraphs 7, 8, 9, and 10 and the review process under paragraphs 11 and 12?

Where do we need to be?

- What is required for Parties to avert, minimize, and address the loss and damage associated with the adverse effects of climate change, including extreme weather events and slow-onset events? (Article 8.1)
- What is required for enhanced cooperation on education, training, public awareness, public participation, and public access to information? (Article 12)
- What reporting and review requirements would be compatible with the long-term goals of the Agreement?

How do we get there?

- In what ways can sustainable development reduce the risk of loss and damage? (Article 8.1)
- Has the Warsaw International Mechanism collaborated with existing bodies and expert groups under the Agreement as well as relevant organizations and expert bodies outside the Agreement? (Article 8.5)
- What lessons have been learned about enhancing education, training, public awareness, public participation, and public access to information on climate change? How can they be scaled up? What opportunities are there for additional cooperation? (Article 12)
- How could the barriers for reporting and review requirements that would be compatible with the long-term goals of the Agreement be overcome?

ABBREVIATIONS

AC-LEG	Adaptation Committee and Least Developed Countries Expert Group
APA	Ad Hoc Working Group on the Paris Agreement
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
ICAO	International Civil Aviation Organization
IEA	International Energy Agency
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
NDC	Nationally Determined Contribution
SBSTA	Subsidiary Body for Scientific and Technological Advice
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

ENDNOTES

1. For more information on the Talanoa Dialogue, visit <https://talanoadialogue.com/>.
2. A common timeframe would include the same target year, period of implementation, and schedule for the update and recording of NDCs.
3. See paragraph 20 of 1/CP.21. The Talanoa Dialogue was originally known as the facilitative dialogue. It was renamed as part of its launch at COP23.
4. See Müller (2016) for a discussion of the history and intent of the ambition mechanism under the Paris Agreement and the role of the global stocktake in it.
5. At COP20, in Lima, Parties agreed that the assessments would look only at collective implementation and not include any assessment of implementation by individual countries. The term *collective progress* was therefore included in Article 14.1. Individual review will occur under the enhanced transparency framework for action and support. It could be included as an input into the global stocktake. According to Articles 13.5 and 13.6, part of the purpose of the transparency framework is to inform the global stocktake; see also UNFCCC (2015a, paragraph 99[a]).
6. Subsuming considerations of loss and damage under adaptation would likely not be consistent with the outcome reflected in the Agreement.
7. Article 2 provides that the Agreement aim to “strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty.”
8. See references in Article 3 and Article 4.1 explicitly acknowledging that the purpose of the Agreement is set out in Article 2, which also sets out the Agreement’s long-term temperature goal.
9. See Article 4.1, which states, “In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.”
10. See Article 7.1 of the Agreement, which states, “Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.”
11. See in particular the submission by the Federal Democratic Republic of Ethiopia on behalf of the least developed countries group on possible elements of textual outline for the identification of the sources of input to and development of the modalities for the global stocktake ahead of COP23 under APA Agenda Item 6.
12. The UNFCCC has used the phrase “anthropogenic emissions by sources and removals by sinks of greenhouse gas emissions” in the context of national inventories. Therefore, it could be viewed as pertaining to anthropogenic greenhouse gas emissions and anthropogenic removals that are covered by national inventories (i.e., the six or seven greenhouse gases and a set of activities linked to land use, land use change, and forestry). Accordingly, emissions will be sequestered by removals that occur as a result of human activities that enhance sinks, as opposed to natural sinks. Technologies that

simply alter the energy balance but do not reduce emissions or enhance sinks (such as solar radiation management) would not be viable for meeting such a balance (see Levin et al. 2015). If the world is to have a likely chance of meeting the 2°C goal, global greenhouse gas emissions need to peak no later than 2020 in about 85 percent of scenarios in the Intergovernmental Panel on Climate Change (IPCC) scenario database and in all regions by 2020 (see Clarke et al. 2014).

13. For example, a multilateral development bank may argue that financing natural gas is compatible with low-emissions and climate-resilient development pathways. If, however, other financial actors also invest heavily in natural gas, the associated emissions are likely to exceed the global emissions budget (see Christianson et al. 2017).
14. "Read in the light of Article 4.9, therefore, the term 'to inform Parties' must entail some kind of action on the part of the Parties receiving that information. This would suggest that the global stocktake outcome would play at least some role in the domestic planning processes. At a minimum, Parties would have to consider the outcomes—be it information, any recommendations or other forms of results from the global stocktake—in their planning. This wider interpretation is in accordance with the purpose of the global stocktake to facilitate a dynamic of ambition toward achieving the Agreement's objectives. If nothing was expected to happen with the outcomes from the global stocktake, then the ability of the global stocktake to enable and assist Parties to collectively move to the ambition levels needed would be limited" (Friedrich 2017).
15. The UNFCCC process cannot require action by non-Party stakeholders (such as other UN bodies or initiatives or intergovernmental organizations), but it can provide a space in which opportunities may surface or hold discussions that may inform action by non-Party stakeholders.
16. A third adaptation task for the global stocktake is articulated by Art. 7.14(d): "review the overall progress made in achieving the global goal on adaptation."
17. During this cycle, the Panel will produce three special reports, a methodology report on national greenhouse gas inventories, and the Sixth Assessment Report (AR6). The three working group reports of the AR6 (Working Group I, on the physical science basis; Working Group II, on impacts, adaptation, and vulnerability; and Working Group III, on mitigation of climate change) will be relevant for the global stocktake; they are scheduled to be approved in 2021. The 43rd session of the IPCC, held in April 2016, agreed that AR6 would be finalized in 2022, in time for the first global stocktake. It is not yet clear exactly when during the year the synthesis report will be published, but the current IPCC schedule aims for approval of the report in April 2022.
18. Paragraph 99(a)(iii) refers only to information on support provided and mobilized as a source of input. Additional useful information may be found in the biennial reports from developing country Parties, which provide information on support needed and received. Given that these reports clearly fall within the scope of sources of inputs necessary to provide information to fulfill paragraph 99(a)(i) and (ii), relevant information on support contained within them could be identified as an additional source of input for 99(a)(iii).
19. If information on support from developing country Parties' biennial reports is not determined to be a source of input covered by 99(a)(iii), it will need to be specified as an additional source of input.
20. The appendix is from Northrop et al. (2018).

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ABOUT THE AUTHORS

Eliza Northrop is an associate at the International Climate Action Initiative of the World Resources Institute.

Contact: enorthrop@wri.org

Yamide Dagnet is a senior associate at the International Climate Action Initiative of the World Resources Institute and project director on UNFCCC issues.

Contact: ydagnet@wri.org

Niklas Höhne is a founding partner of the NewClimate Institute and special professor for mitigation of greenhouse gas emissions at Wageningen University, the Netherlands.

Contact: n.hoehne@newclimate.org

Joe Thwaites is an associate at the Sustainable Finance Center of the World Resources Institute.

Contact: jthwaites@wri.org

Kathleen Mogelgaard is an associate at the Climate Resilience Practice and International Climate Action Initiative of the World Resources Institute.

Contact: kmogelgaard@wri.org

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