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WORKING PAPER

ENHANCING NDCS BY 2020: ACHIEVING THE GOALS OF THE PARIS AGREEMENT

TARYN FRANSEN, ELIZA NORTHROP, KATHLEEN MOGELGAARD, AND KELLY LEVIN

EXECUTIVE SUMMARY

Highlights

- The window of opportunity is narrowing for closing the gap between the greenhouse gas (GHG) emissions trajectory needed to achieve the goals of the 2015 Paris Agreement and the emissions trajectory implied by Parties' current nationally determined contributions (NDCs). Early, enhanced climate action is critical to preventing the most catastrophic impacts of climate change.
- All Parties have the opportunity to communicate new or updated NDCs by 2020, informed by the outcomes of a facilitative dialogue in 2018, and incorporating key sectoral, technological, and policy developments since the NDCs were first developed in 2015.
- This paper presents a menu of options for how Parties can enhance their NDCs by 2020 as well as during future five-year cycles of NDC revision. These options are not mutually exclusive—a Party can enhance its current NDC in multiple ways.
- The menu provides options for enhancing mitigation ambition, as well as strengthening adaptation plans and actions, implementation, and the clarity, transparency and understanding of NDCs.
- Parties should review their current NDCs and consider how to enhance mitigation ambition and update other elements to bring their NDCs into closer alignment with the goals of the Paris Agreement. We recognize that some Parties may need support to enhance their NDCs.

CONTENTS

Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback and to influence ongoing debate on emerging issues. Most working papers are eventually published in another form and their content may be revised.

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Much has changed since countries first developed their NDCs ahead of the 2015 climate change negotiations. The Paris Agreement was adopted and subsequently ratified, establishing ambitious long-term goals and a clear direction of travel for all Parties; the price of renewable energy has fallen (Pathi 2017); countries are increasingly decoupling economic growth from GHG emissions (Aden 2016) and instituting strong domestic frameworks for NDC implementation;[1] and a growing number of long-term, low-GHG-emission development strategies recognize the need for transformative change to align with the Paris Agreement goals (UNFCCC 2017).

All Parties agreed to either communicate their current NDCs or submit new or updated NDCs by 2020, and to do so every five years thereafter.[2] Each successive NDC is expected to represent a progression beyond the current NDC and reflect the Party's highest possible ambition.[3] This upward spiral of ambition underpins the achievement of the goals agreed to in Paris.

The first opportunity for Parties to take stock of collective progress, including progress on their NDCs, and assess whether it aligns with the long-term goals of the Paris Agreement, is the facilitative dialogue in 2018. This will also coincide with a special report on the implications of the 1.5°C goal issued by the Intergovernmental Panel on Climate Change.[4]

Unfortunately, the ambition of the current mitigation targets, policies, and actions in NDCs falls short of what is needed to limit warming to well below 2°C or 1.5°C (UNEP 2016) and enable adaptation to the unavoidable impacts of climate change. Enhancing the level of mitigation ambition of current NDCs is thus crucial to improving our chances of limiting warming and achieving the goals of the Paris Agreement (Rogelj 2016).

In addition, there are multiple domestic reasons why countries may want to communicate new or updated NDCs by 2020. Countries may wish to do the following:

- Factor in advances in innovation and declining costs of emissions-mitigation technologies that have occurred since the NDCs were developed, and take advantage of opportunities in key sectors.
- Reflect recent shifts in the real economy and send accurate signals to the private sector to inform investment decisions.
- Align the NDC with domestic long-term goals and strategies related to climate, development, and economic objectives. Aligning the NDCs (as near-term planning instruments) with long-term plans will help avoid near-term investments and decisions that may lock in high-emission pathways.
- Factor in additional information and data that reflect changes to a Party's emissions profile or uncover new areas of cost-effective mitigation potential.
- Capture early progress toward existing targets (Höhne et al. 2017).
- Use the process to strengthen multistakeholder engagement to ensure ownership and buy in for successful implementation.

Moreover, the Paris Agreement provides new certainty and context for the development and implementation of NDCs. NDCs were first developed before the Paris Agreement, when there was little certainty regarding the rules and guidelines for the new regime. This meant that many countries were developing targets, actions, and measures in the abstract. Since then, the Paris Agreement has been adopted and has entered into force, providing more clarity, which will only increase following adoption of the modalities, procedures, and guidelines to operationalize the Paris Agreement at the 24th Conference of the Parties (COP) in 2018.

To help Parties take advantage of the opportunity to update or submit new NDCs by 2020, this paper presents a menu of options for "NDC enhancement." The phrase "NDC enhancement" is used to capture the concept of progression that is inherent in the Paris Agreement.

This menu of options offers national policymakers practical ideas for how to enhance their mitigation ambition as well as pursue additional forms of enhancement, including to update or elaborate the content of the NDC related to adaptation, add measures to strengthen implementation, and improve the communication of the NDC itself. These additional forms of enhancement do not, however, constitute enhanced ambition and should not be considered as a substitute for exploring meaningful ways to enhance the mitigation ambition of the NDC.

The options for enhancing NDCs are not mutually exclusive. In many cases, it will be appropriate and desirable for a Party to enhance its NDC across all of the categories shown in Figure ES-1, and to pursue more than one option in each category. While most of the options could also be undertaken outside the context of an NDC—for example, in domestic policy—this paper is focused on identifying options for enhancing the NDC itself, it being the document that is formally communicated by a Party to the UNFCCC as an updated or new NDC, based on the strong international and domestic reasons for doing so. These options are equally relevant for Parties in future NDC communication and review cycles.

Enhancing the mitigation ambition of current NDCs will be critical to achieving the goals of the Paris Agreement and preventing the most catastrophic impacts of climate change. An NDC with enhanced mitigation ambition is one that, if fully implemented, would result in lower cumulative emissions than the fully implemented existing NDC. Mitigation ambition can be enhanced by strengthening or adding a GHG target, strengthening or adding a sectoral non-GHG target, strengthening or adding policies and actions, and/or by aligning implementation of an existing NDC with long-term goals (Figure ES-2). The impact of any of these changes on the mitigation ambition of a particular NDC needs to be evaluated on a case-by-case basis.

The mitigation options have the potential to enhance the level of ambition of an NDC when certain conditions are in place. If the conditions are not in place, the enhancements can still strengthen implementation, for example, by sending a signal to investors in key sectors. Or they can enhance clarity, transparency, and understanding, for example, by clarifying the pathways by which a given GHG target is expected to be met (such as through renewable energy, energy efficiency standards, or reforestation).

Figure ES-1 | **Menu of Options for Enhancing Nationally Determined Contributions**

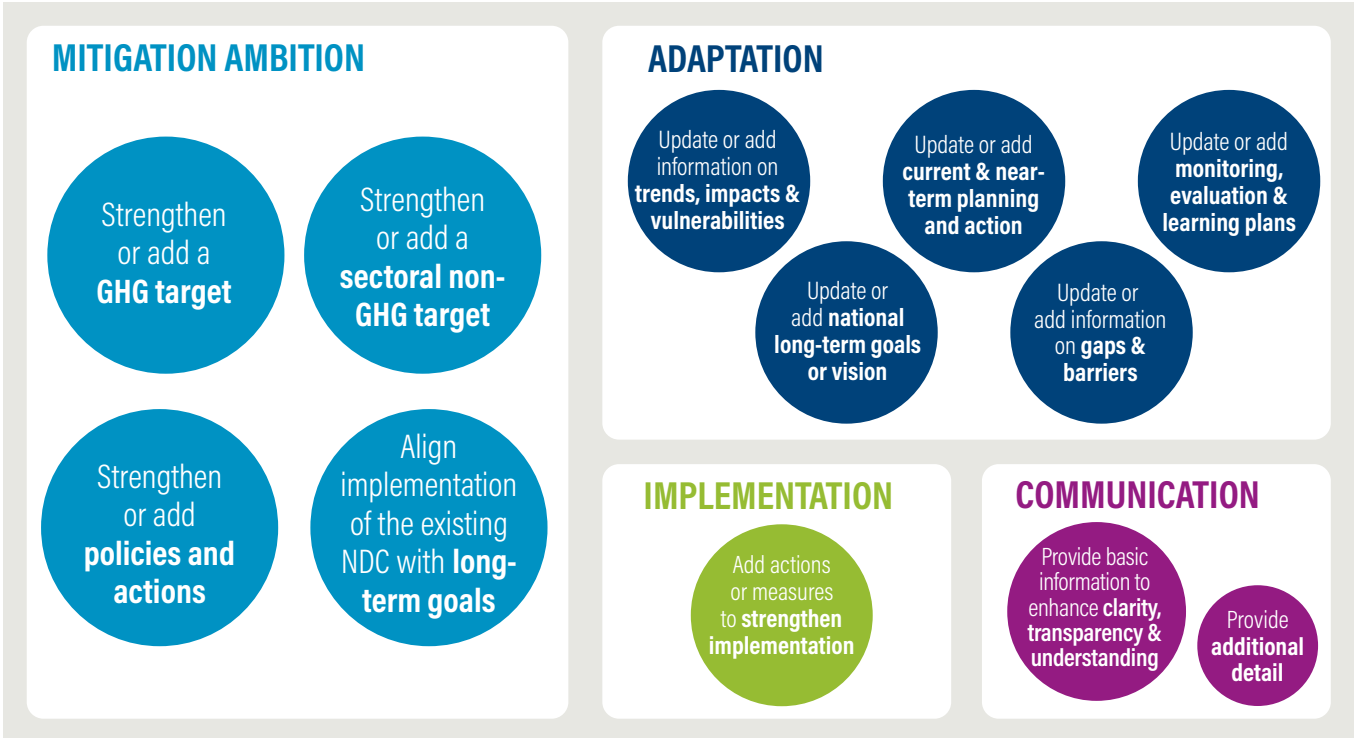
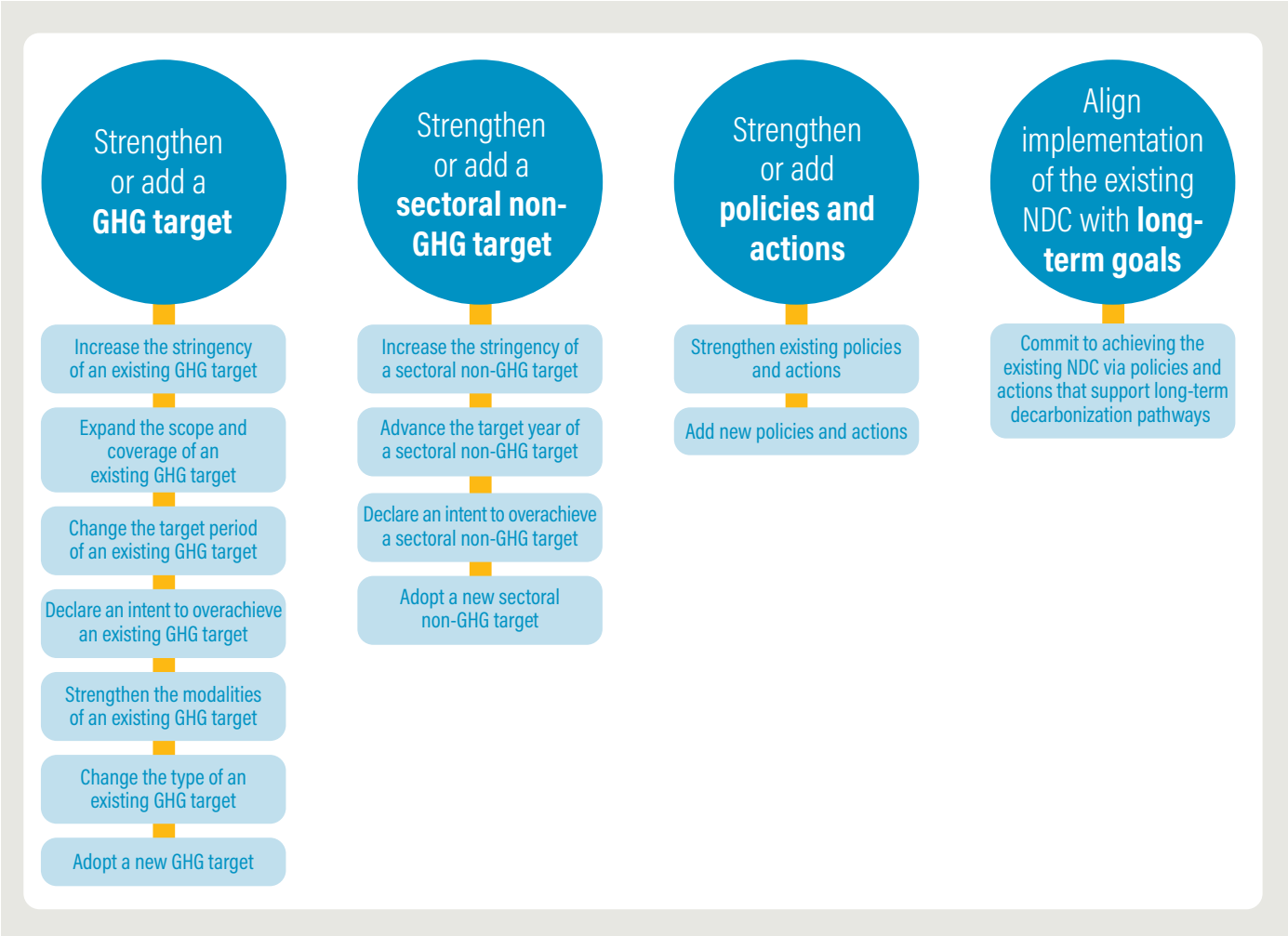
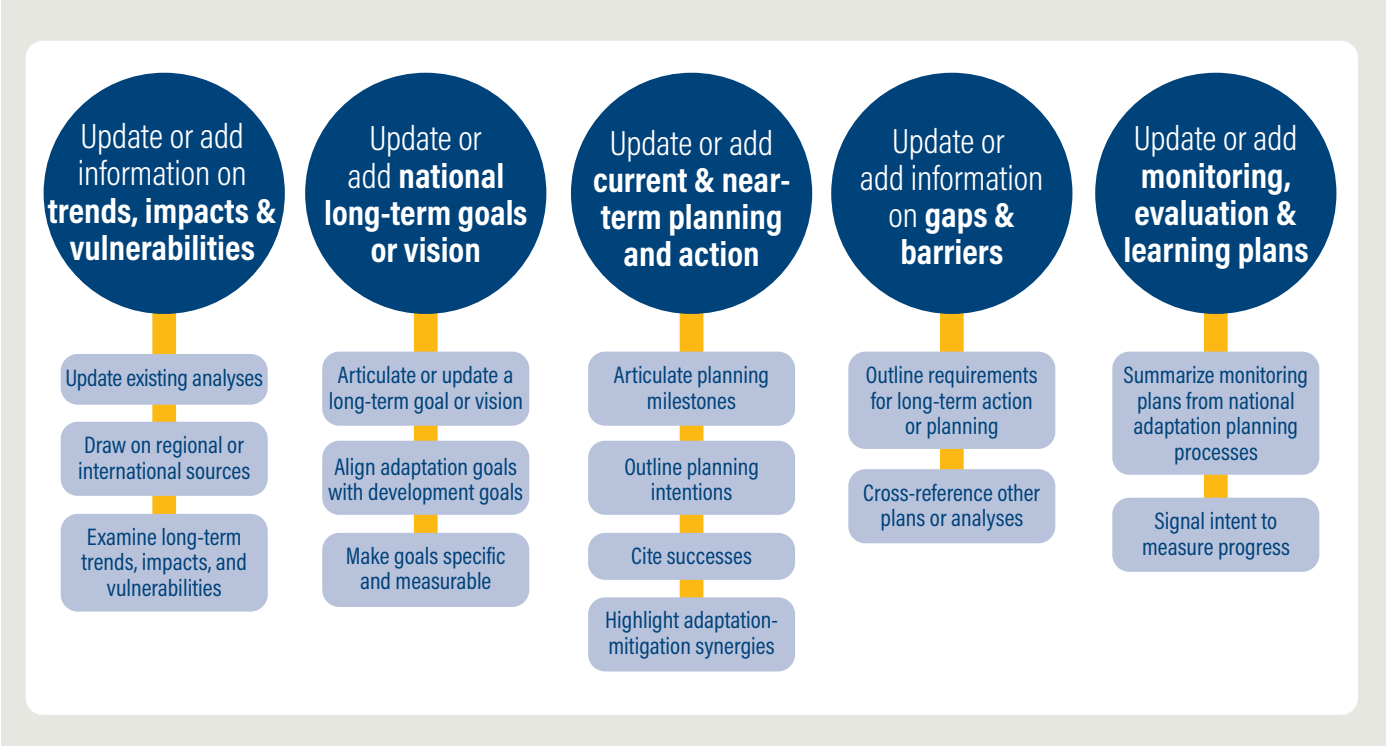


Figure ES-2 | **Options for Enhancing Mitigation Ambition**



The adaptation options shown in Figure ES-3 provide Parties with the opportunity to revisit the adaptation content of their initial NDC and consider options for strengthening and/or expanding that content. These options elaborate on World Resources Institute–United Nations Development Programme (WRI–UNDP) guidance for designing intended NDCs (Levin et al. 2015). Examples of enhancements for Parties with and without a national adaptation plan or equivalent plans and processes are provided.

Figure ES-3 | **Options for Enhancing Adaptation Content**



NDCs can also be enhanced by adding measures and actions aimed at strengthening implementation or clarifying how the NDC will be implemented. These include but are not limited to strengthened governance arrangements, more inclusive decision-making processes, robust monitoring and evaluation progress, and open and accessible data. Including certain measures and actions or commitments could also support greater alignment with a country's sustainable development objectives under the 2030 Agenda for Sustainable Development.

Finally, NDCs can be enhanced by improved clarity, transparency, and understanding, recognizing that these elements are an obligation under Article 4.8 of the Paris Agreement. The initial round of INDCs left many gaps in transparency (Damassa et al. 2015). While the guidance on information to be provided to enhance clarity, transparency, and understanding of NDCs is still forthcoming, countries can still assess gaps in the information provided in their NDC and try to strengthen it. This includes information provided on scope and coverage, assumptions and methodological approaches (e.g., for land-sector emissions and use of internationally transferred mitigation outcomes), and assumptions regarding the reference point, especially for baseline scenario targets and intensity targets.

It is important to note the need for international support for NDCs that has been expressed by many developing country Parties. The ability of the international community to mobilize such support is an important factor in NDC enhancement.

NDC enhancement aligns with the Paris Agreement's premise that climate action must be progressively enhanced in a virtuous cycle of ambition. All Parties have the opportunity to demonstrate their commitment to the goals in the Paris Agreement by enhancing the level of mitigation ambition of their current NDCs by 2020 and bringing collective efforts closer to what is needed to avoid the most catastrophic impacts of climate change. In so doing, Parties can take into consideration early progress on NDC implementation; new technological advances and additional information and data; sustainable development objectives and the efforts of business, cities, and non-state actors. Enhanced NDCs can send a strong signal to all stakeholders, engaging a broader constituency for implementation and setting a course for a low-carbon and climate-resilient development pathway.

INTRODUCTION

To achieve its ambitious long-term goals,[5] the Paris Agreement introduces a number of new mechanisms and processes to the international climate change regime. Key among these is the five-year cycle of pledge-and-review designed to increase the ambition of climate action over time. The starting point for this "ambition mechanism" is a Party's nationally determined contribution (NDC) submitted to the United Nations Framework Climate Change Convention (UNFCCC), which pledges certain types of actions to reduce emissions and strengthen resilience and adaptive capacity to climate change impacts.[6]

More than 190 Parties submitted intended NDCs in 2015 before the Paris Agreement was adopted at the 21st Conference of the Parties (COP21) in Paris.[7] Reflecting each country's diverse national circumstances and capabilities, this first round of NDCs offered a variety of approaches to reducing emissions and building resilience and adaptive capacity.[8] Box 1 summarizes the current state of NDCs.

Each Party is required to prepare and communicate a successive NDC every five years under Article 4 of the Paris Agreement. Each successive NDC must represent a progression beyond the Party's current NDC and reflect its highest possible ambition, "as well as its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." Following each NDC, Parties are required to pursue domestic measures to achieve their mitigation objectives.[9] While most of the NDCs submitted have contained adaptation components, they are not required. Parties are invited to submit and periodically update adaptation communications, which may describe adaptation priorities, implementation and support needs, plans and actions (Article 7) through NDCs or any other communication or document (including national adaptation plans [NAPs] or national communications).[10] In this paper, references to NDCs include both their mitigation and adaptation components.

Box 1 | Summary of Current Nationally Determined Contributions

- As of late 2017, 165 NDCs had been submitted by 192 countries, covering 87.6 percent of global emissions and representing approximately 3.3 Gt of CO_2 equivalent emissions reduction by 2030 compared to business as usual.
- Of these NDCs, 87 percent include actions on adaptation to climate change.[a]
- Mitigation contributions (proposed actions to mitigate GHGs) include GHG targets, policies, and actions. Almost 80 percent of Parties advanced a GHG-reduction target, and 25 percent put forward a non-GHG target. A small number of countries submitted policies and actions only; namely, small island developing states (SIDS) or least developed countries (LDCs).[b]
- Adaptation contributions (proposed actions to adapt to climate change) include broad visions, qualitative and quantitative goals, specific measures, and the identification of needs to improve adaptive capacity and address vulnerabilities to climate impacts.
- Contributions put forward by many developing countries were conditional in whole or in part on receiving support for implementation. Most specified which part of their contribution (targets, policies, or actions) was conditional.
- The climate targets and actions communicated in the NDCs align with at least 154 of the 169 targets of the 2030 Agenda for Sustainable Development (Northrop et al. 2016).
- Forty percent of the NDCs made at least one reference to gender equality or to women. The highest number of references is to the role of women in adaptation; only 18 NDCs explicitly recognized the role of women in mitigation efforts.[c]

Notes: a. Climate Watch, http://climatewatchdata.org.
b. Paragraph 11 of the Lima Call for Climate Action enabled least developed countries and small island developing states to communicate information on strategies, plans, and actions for low GHG emissions development, reflecting their special circumstances in the context of intended NDCs.
c. United Nations Development Programme, Gender Equality in National Climate Action Planning for Gender. http://www.undp.org/content/undp/en/home/librarypage/womens-empowerment/gender-equality-in-national-climate-action--planning-for-gender-.html.

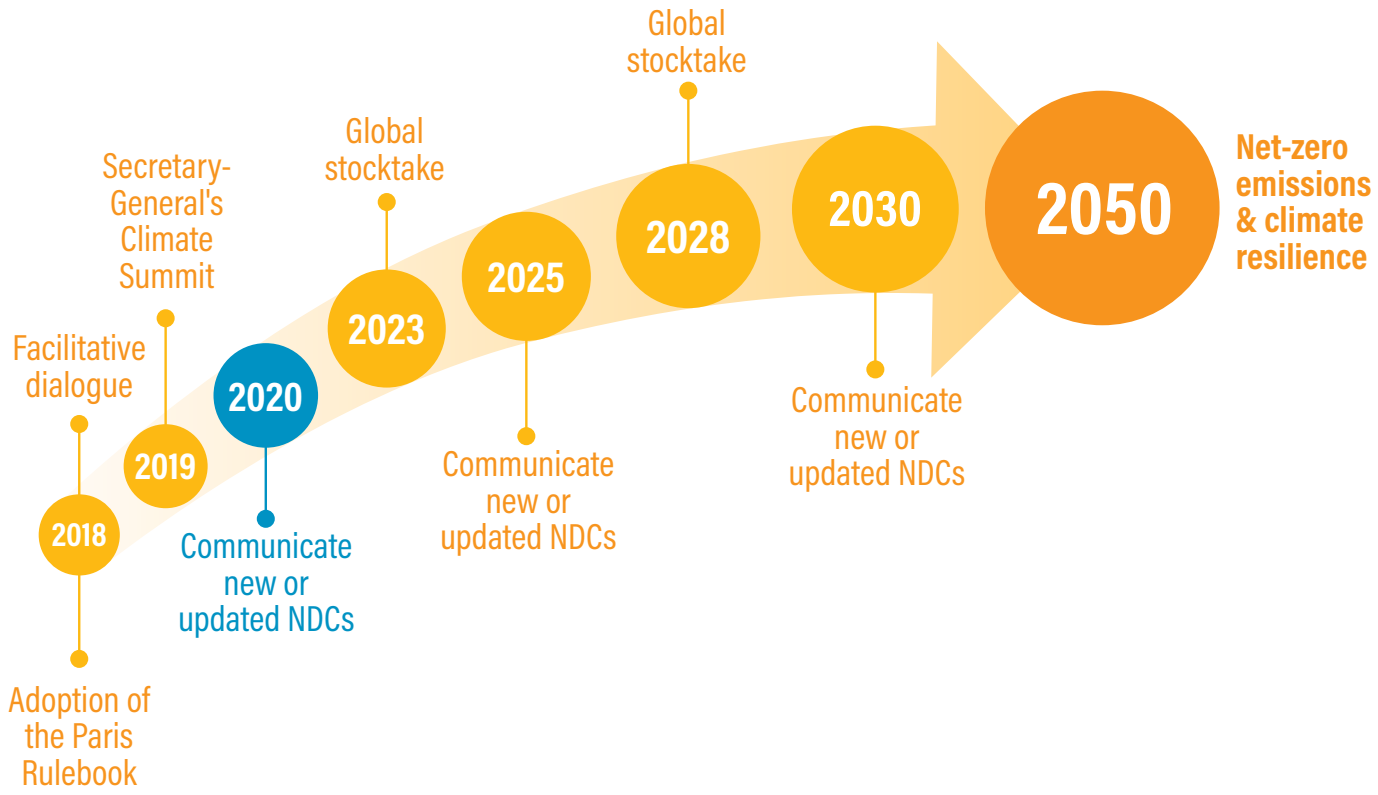
Source: This box is based on UNDP, UNEP, UNEP DTU, UNFCCC and WRI. Forthcoming. "Implementing NDCs."

The Paris Agreement establishes opportunities to assess collective progress toward achieving the purpose of the Agreement and its long-term goals every five years (Figure 1). These "global stocktakes" begin in 2023, ahead of a requirement to communicate the next round of NDCs. The outcome of the stocktakes will inform this next round of NDCs by ensuring that Parties have information to enhance the ambition of their NDCs and further collective progress toward the long-term goals.

Reflecting the urgency of early action and the fact that the first global stocktake will not be until 2023, Parties agreed at COP21 to communicate a new NDC (for those with a 2025 target)[11] or either communicate or update their existing NDC (for those with a 2030 target) by 2020.[12] This will follow a "facilitative dialogue" among Parties in 2018 to "take stock of the collective efforts of Parties in relation to progress towards the long-term goal referred to in Article 4, paragraph 1, of the Agreement and to inform the preparation of nationally determined contributions pursuant to Article 4, paragraph 8, of the Agreement."[13] It will also coincide with a special report on the implications of the 1.5°C goal, to be issued by the Intergovernmental Panel on Climate Change (IPCC) in September 2018.

Each cycle of NDC communication offers Parties the opportunity to assess whether their mitigation contributions reflect their "highest possible ambition" and whether they could do more to contribute to collective efforts toward achieving the purpose and long-term goals of the Paris Agreement (in accordance with equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances; see Box 2). In addition to enhancing the mitigation ambition of current NDCs, Parties can also consider enhancing the adaptation component of their NDC. Specific commitments to implementation and the clarity, transparency, and understanding of their NDC will also contribute to improving achievement of stated targets.

Figure 1 | **Key Steps to Enhance Ambition**



Box 2 | **Progression and Ambition under the Paris Agreement**

The Paris Agreement is premised on the expectation that the global response to the threat of climate change will be strengthened over time, in accordance with equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

This expectation is established through multiple provisions of the Paris Agreement. Under the preamble, Parties recognize the "need for an effective and progressive response to the urgent threat of climate change"[a]; Article 2 establishes the direction of travel with the aim to limit global average temperature increase to well below 2°C and pursue efforts to limit to 1.5°C,[b] and Article 3 further articulates the expectation that "the efforts of all Parties will represent a progression over time."[c]

Article 4 sets a clear expectation that each successive NDC is required to represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, as well as its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.[d] Article 4.11 echoes the expectation of progression and enhancement of ambition through successive NDCs. It recognizes that Parties may adjust their NDCs at any time outside the regular five-year cycle established under Article 4.9 "with a view to enhancing its level of ambition."[e]

The Paris Agreement and its related decisions provide little guidance on what might constitute such progression. It does suggest that developed country Parties should continue taking the lead by undertaking economy-wide absolute emissions reduction targets and that developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time toward economy-wide emissions reduction or limitation targets in the light of their different national circumstances.[f]

Notes: a. Recital 4 of the preamble.
b. Paris Agreement, Article 2.1(c).
c. Paris Agreement, Article 3.
d. Paris Agreement, Article 4.11. The exact language is: "A Party may at any time adjust its existing nationally determined contribution with a view to enhancing its level of ambition, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement."
e. Paris Agreement, Article 4.10.
f. Paris Agreement, Article 4.3.

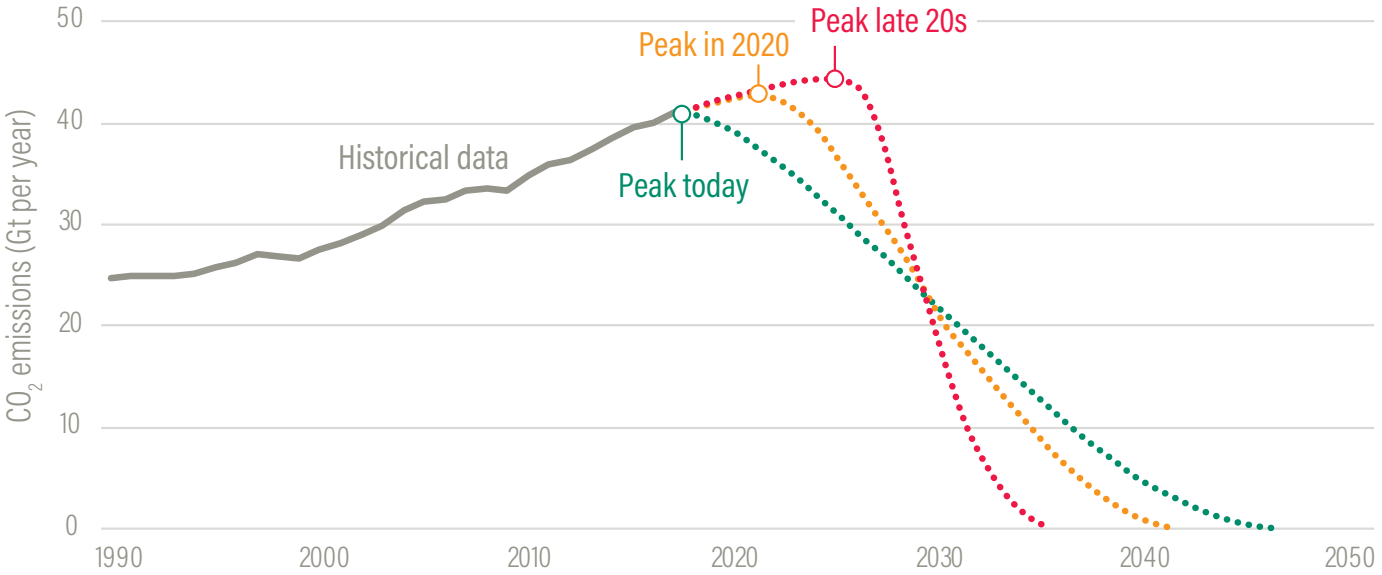
Many developing country Parties have expressed the need for finance, technology, and capacity building support to implement their NDCs. Over two-thirds of NDCs note that they are fully or partially conditional on a range of factors, primarily though not exclusively on financial support and other means of implementation.[14] In a survey of developing country Parties, UNDP identified the key priorities needed for NDC implementation as mobilizing resources for implementation, developing implementation plans, developing and improving the information base and monitoring systems, and building institutional structures and coordination mechanisms (UNDP 2016). Respondents also emphasized the relevance of technical assistance for revisiting their NDCs based on the Paris Agreement. There is also demand for international technology support. In a review of NDCs by the UNFCCC, more than 100 non–Annex I Parties said they needed international support for technology development and transfer to implement their NDC (UNFCCC 2016b). Nearly one-third of the non–Annex I Parties mentioned specific climate technology needs, and one-quarter highlighted specific technology costs. In light of the expressed need for support to implement current NDCs, it stands to reason that NDC enhancement may also require support. Should it succeed in mobilizing this support, the international community stands to unleash important benefits, as described below.

Why Communicate New or Updated NDCs by 2020?

The mitigation targets, actions, and plans in current NDCs are estimated to result in emissions levels in 2025 and 2030 that are higher than those consistent with a likely chance of limiting warming to well below 2°C or 1.5°C (Rogelj et al. 2016). There is a rapidly closing window of opportunity if we are to achieve the objectives and long-term goals of the Paris Agreement (Rockstrom et al. 2017).

The rate of decarbonization required to meet a given temperature goal increases as action is delayed. Figure 2 shows three alternatives for when emissions might peak: 2016 (green), 2020 (blue), and 2025 (red). Note that the longer the delay in peaking, the steeper the decline in emissions required to meet the target within a 600 $GtCO_2$ emissions budget.[15] Delay will necessitate unprecedented rates of emissions reductions, require reliance on unproved technologies, and risk overshooting the carbon budget (see dotted line in Figure 2). Early enhanced action is crucial to improving our chances of limiting such warming and achieving the goals of the Paris Agreement (UNEP 2016).

Figure 2 | **Achieving the Paris Agreement's Temperature Goals**



Note: This figure illustrates three scenarios for spending the same carbon budget of 600 $GtCO_2$ (corresponding to the midpoint for 1.5–2°C [Peters 2017]), with emissions peaking in 2016 (green), 2020 (blue), and 2025 (red).

Source: Mission 2020 2017.

Given the wide range of annual emissions among Parties—the 10 highest-emitting Parties account for more than two-thirds of global emissions—the efforts of some will have a greater impact than those of others in achieving global temperature goals. All Parties, however, have the opportunity to benefit from the transition to a cleaner economy and demonstrate leadership internationally through NDC enhancement. Moreover, the targets, actions, and measures that Parties communicate internationally through their NDCs can help drive the necessary scale and type of innovation and investment. Thus, it is crucial that the NDCs accurately reflect the most ambitious and up-to-date level of commitment feasible.

Enhanced NDCs also offer domestic benefits, such as the following:

- *Factoring in advances in innovation, declining costs of emissions mitigation technologies, and opportunities in key sectors.* In the space of a few years, modeling assumptions can change because of new information on the pace and costs of new technologies (Leaton and Sussams 2017). A prime example is the rapid transformation in solar energy. The pace of installed renewable energy capacity has consistently exceeded projections by the International Energy Agency (IEA) *World Energy Outlook* (Metayer et al. 2015). Likewise, growth in electric vehicles alone could displace 2 million barrels of oil per day by 2025 (Leaton and Sussams 2017).
- *Reflecting shifts already occurring in the real economy and sending accurate signals to the private sector to inform investment decisions.* NDCs can be a powerful tool to drive the domestic agenda toward a low-carbon and climate-resilient pathway with significant economic and development benefits. For example, the worldwide coal power capacity under development saw a dramatic drop in 2016, mainly due to shifting policies and economic conditions in China and India (Shearer et al. 2017).[16]
- *Aligning the NDC with long-term domestic goals and strategies.* Since first formulating the NDCs in 2015, many countries have developed long-term plans and strategies related to climate, development, and economic objectives. These include the long-term strategies under Article 4.19

of the Paris Agreement, but could also include new development plans and green growth strategies. Aligning the NDCs (as short-term planning instruments) with long-term plans can avoid locking in high-emission pathways (e.g., through building fossil-fuel infrastructure), exacerbating climate vulnerabilities, or missing economic opportunities. For instance, nearly 50 countries have now committed to use only renewable power by 2050 (Payton 2016).

- *Factoring in additional information and data.* Sound planning and future projections of what may be achievable rest on having the most up-to-date climate data available. Not only have data changed since NDCs were first developed, but the availability of some data has increased, which may have changed the emissions profile of a country or uncovered new areas of mitigation potential.
- *Capturing early progress toward existing targets.* Many countries have already made substantial progress and are set to overachieve their existing targets.
- *Strengthening multistakeholder engagement in NDC development and implementation.* NDCs can be an opportunity to rally support for climate action, strengthen public participation, and ensure that a strategic vision is cocreated with relevant stakeholders. Many NDCs were developed in short time frames, sometimes by external consultants, and without clarity on what the Paris Agreement would contain. The opportunity to review and update the NDCs by 2020 enables Parties to learn from their initial experience and identify ways to engage a broader range of stakeholders to access new information and enhance ownership of the NDC both within and outside government. Enhancing engagement with nonstate actors, as well as subnational governments, could also reveal additional mitigation potential or innovations that provide the impetus for enhanced ambition.

Finally, there is now much greater clarity in the international regime. NDCs were first developed in 2015, before the Paris Agreement, when there was little certainty about the rules and guidelines of the Agreement. This meant that many countries developed targets, actions, and measures without a clear framework. Since then, the Paris Agreement has been adopted and rapidly entered into force, demonstrating the universal political commitment to climate action. Clarity will only increase following adoption of the modalities, procedures, and guidelines under the Paris Agreement at COP24 in 2018.

Following the adoption of the Paris Agreement, a number of Parties submitted NDCs that were enhanced relative to their initial intended nationally determined contributions, communicated prior to the Paris Agreement. Morocco, for instance, strengthened its unconditional and conditional greenhouse gas (GHG) targets as well as its renewable energy target. Mali adopted an unconditional GHG target in addition to its existing conditional target. Some countries made improvements to the clarity of their contributions and/or outlined in greater detail the policies that would underpin them.

A Menu of Options for NDC Enhancement

This paper proposes a menu of options for NDC enhancement. First, it unpacks the concept of NDC enhancement and offers national policymakers practical ideas for how to enhance their mitigation ambition as well as pursue actions to strengthen their adaptation component, support implementation of existing targets and measures, and improve the clarity of the NDC itself. The options presented are not mutually exclusive—in many cases, a Party should consider options across all aspects of enhancement, and implement multiple options within each aspect.

Second, this paper proposes a definition of "enhanced mitigation ambition" and outlines the conditions and technical considerations needed for policymakers to implement NDC enhancements in a manner that does in fact enhance the mitigation ambition of an NDC. The menu of options, together with this definition, can be used by analysts, civil society, and others to assess whether a new or updated NDC enhances its level of mitigation ambition.

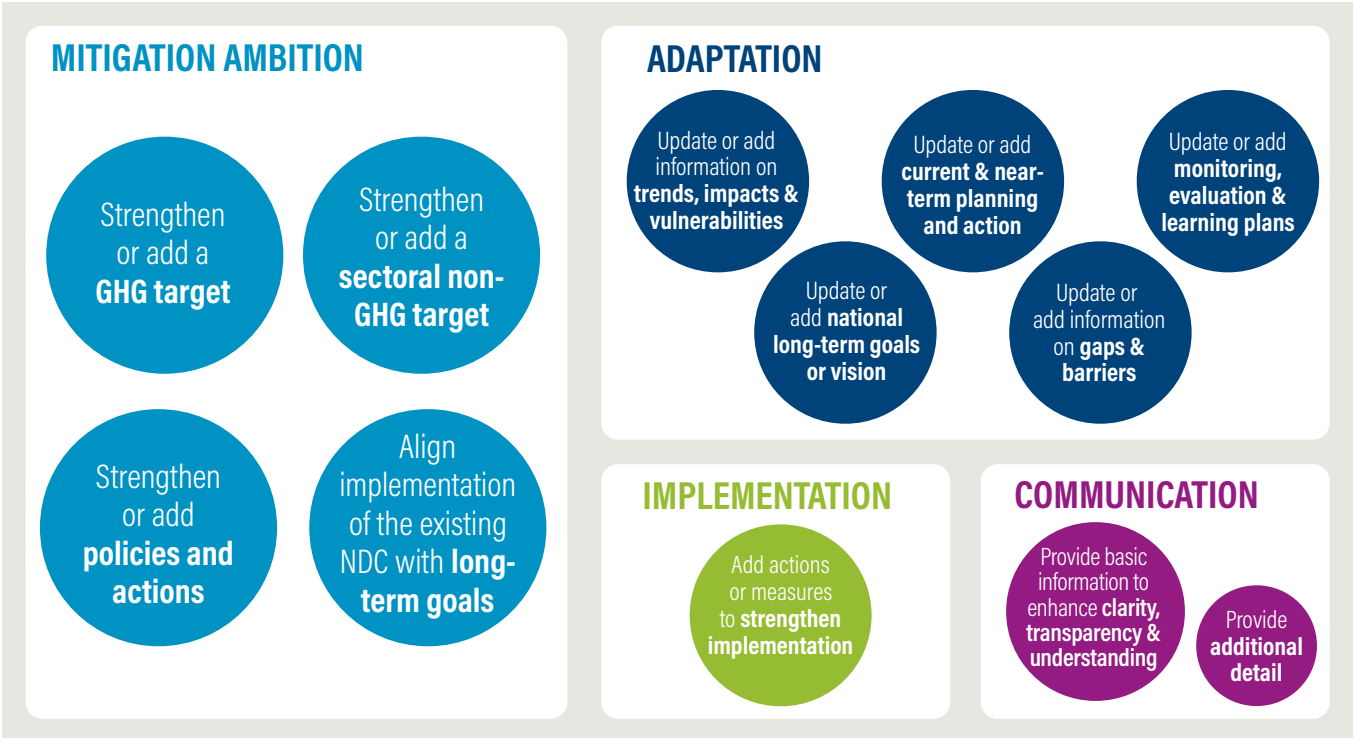
While this paper is oriented toward the urgency of enhancing mitigation ambition in the pre-2020 period to close the gap between the current GHG emissions trajectory and one that is consistent with the goals of the Paris Agreement, the menu of options will be equally relevant for Parties in future NDC communication cycles. The authors recognize that significant additional support will need to be mobilized and leveraged to enable all Parties to enhance their actions over time. Because commitments to mobilize support have been

made via channels other than NDCs, this paper does not identify "enhanced support" (e.g., the inclusion of commitments regarding finance, capacity building, or technology transfer) as a mode of "NDC enhancement."

Finally, the authors recognize that negotiations are still under way to finalize the details of the modalities, procedures, and guidelines that will underpin implementation of the Paris Agreement. The options identified in this paper are not intended to inform, influence, or prejudge the outcome of these negotiations in any way.

Section 1 outlines options with the potential to enhance the mitigation ambition of an NDC, highlighting relevant examples and the conditions under which ambition would be enhanced. Sections 2 through 4 present options for updating the adaptation, implementation, and communication components of an NDC. Section 5 provides guidance on using the menu.

Figure 3 | **Menu of Options for Enhancing Nationally Determined Contributions**



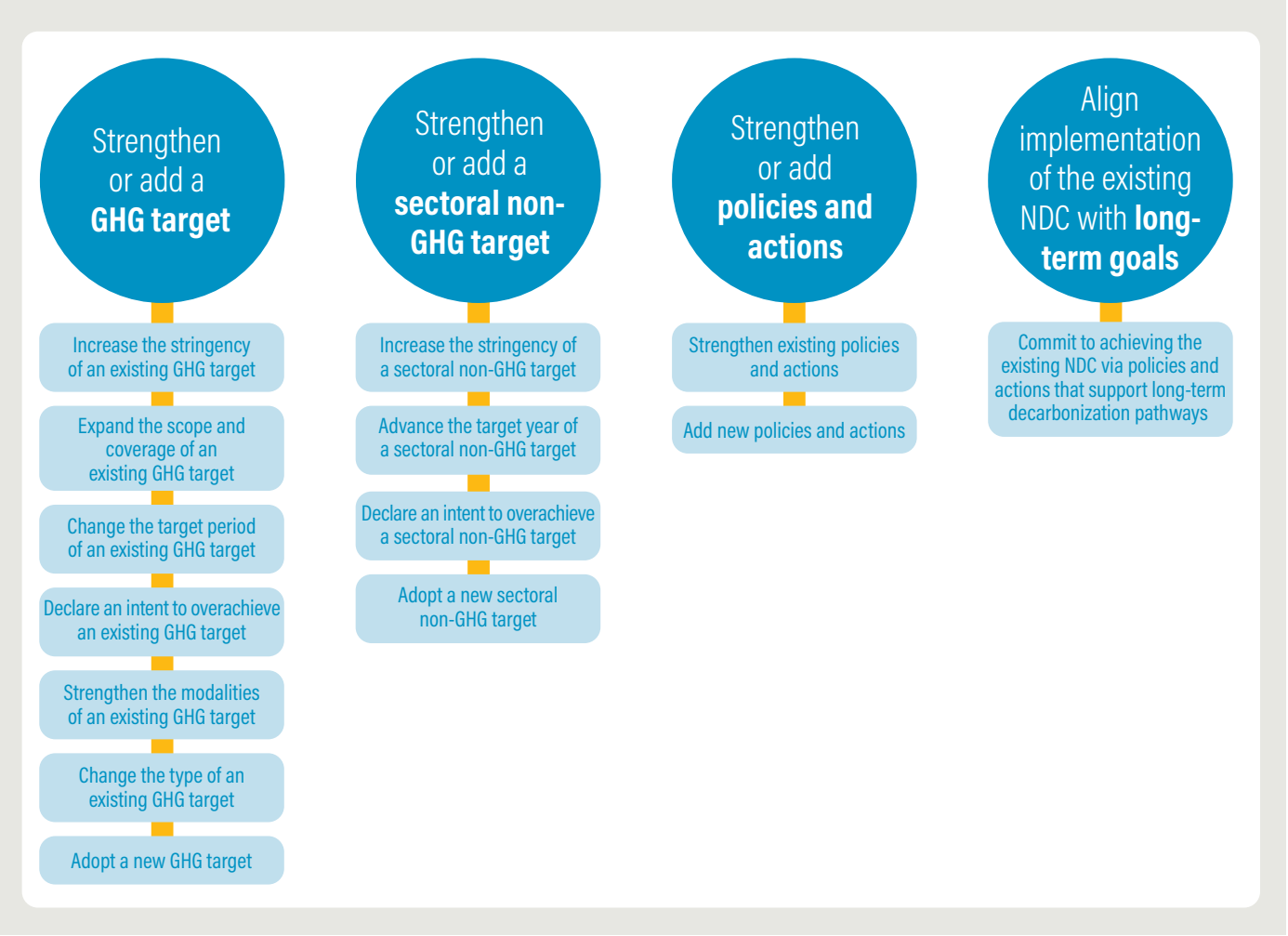
SECTION 1: OPTIONS FOR ENHANCING MITIGATION AMBITION

What Enhancement Means for Mitigation in NDCs

To bring Parties' commitments into line with the Paris Agreement goal to limit warming to well below 2°C or 1.5°C, it is critical to enhance the mitigation ambition of NDCs. For the purposes of this menu, an NDC with enhanced mitigation ambition is one that, if fully implemented, would result in lower cumulative emissions[17] than the fully implemented existing NDC. The baseline for determining this is the complete set of mitigation target(s) and/or action(s) articulated in the original NDC. In determining the effect on mitigation ambition, it is important to consider the cumulative impact of all changes to the NDC, including the extent to which they overlap with each other as well as the targets, policies, and measures in the existing NDC.[18]

The menu described in this section presents options for enhancing mitigation ambition by strengthening or adding GHG targets, non-GHG targets, and policies and actions, as well as by improving alignment between the NDC and the long-term goals in the Paris Agreement (Figure 4). Neither the categories nor the individual options are mutually exclusive—it may be appropriate to pursue multiple approaches for enhancing mitigation ambition.

Figure 4 | **Options for Enhancing Mitigation Ambition**



Box 3 | Challenges in Determining the Effect of an Option on Mitigation

Determining whether a new option will enhance a Party's level of ambition can be challenging. Consider, for example, an NDC that contains both a GHG intensity target and a renewable energy target. Say the GHG intensity target is close to current projections of GHG intensity, but the renewable energy target vastly exceeds current projections of renewable energy capacity. In this case, the renewable energy target is the key driver of ambition, and raising it will likely enhance overall ambition. Conversely, if the GHG intensity target is more aggressive and the renewable energy target less aggressive relative to current projections, raising the renewable energy target may not raise the overall ceiling on ambition.

While this menu establishes criteria for determining whether a given category of enhancement improves ambition, in practice, determining whether these criteria are fulfilled can be an analytically intensive exercise. The GHG Protocol Mitigation Goal Standard and Policy and Action Standard provide guidance for tackling this challenge.[a]

Note: a. For more information, see GHG Protocol (2014) and GHG Protocol (2015).

For each option, we provide a description and illustrative examples of the enhancement type, clarify the types of NDCs for which the option is relevant, and outline the circumstances under which it would enhance ambition (Box 3). Even if the ambition criteria are not met, the enhancements outlined in this menu can still facilitate implementation—for example, by sending a signal to investors in key sectors—or enhance clarity, transparency, and understanding—for example, by clarifying the pathways by which a given target is expected to be met. Options for additional enhancements to facilitate implementation and improve clarity, transparency, and understanding are addressed in Section 2.

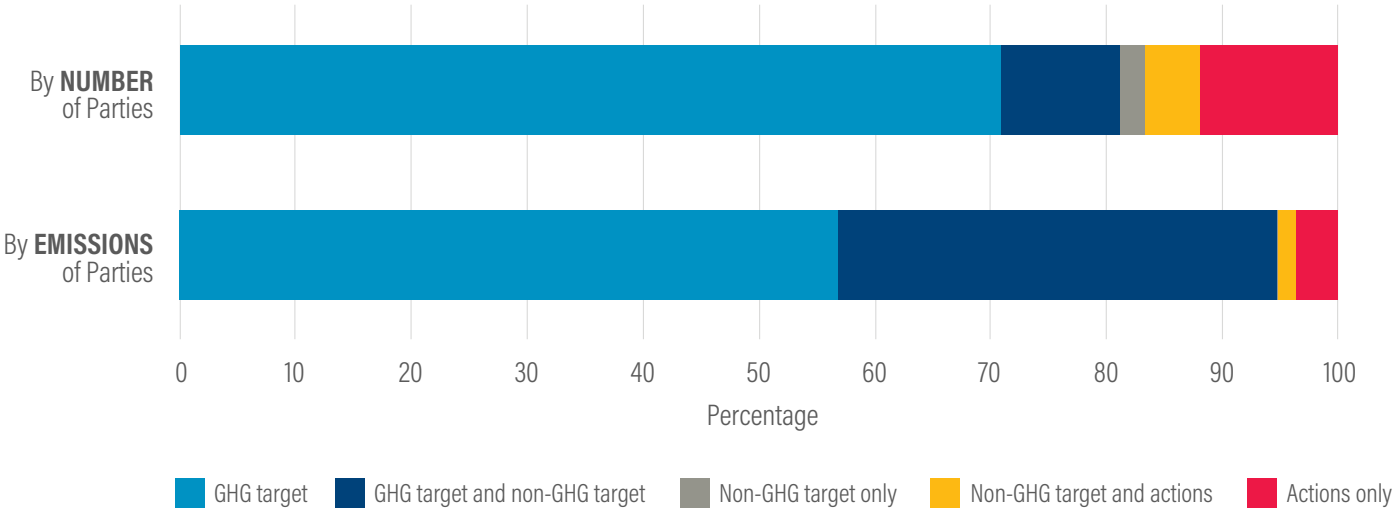
Menu of Options for Enhancing Mitigation

The options shown in Figure 4 are detailed below.

Strengthen or add a GHG target

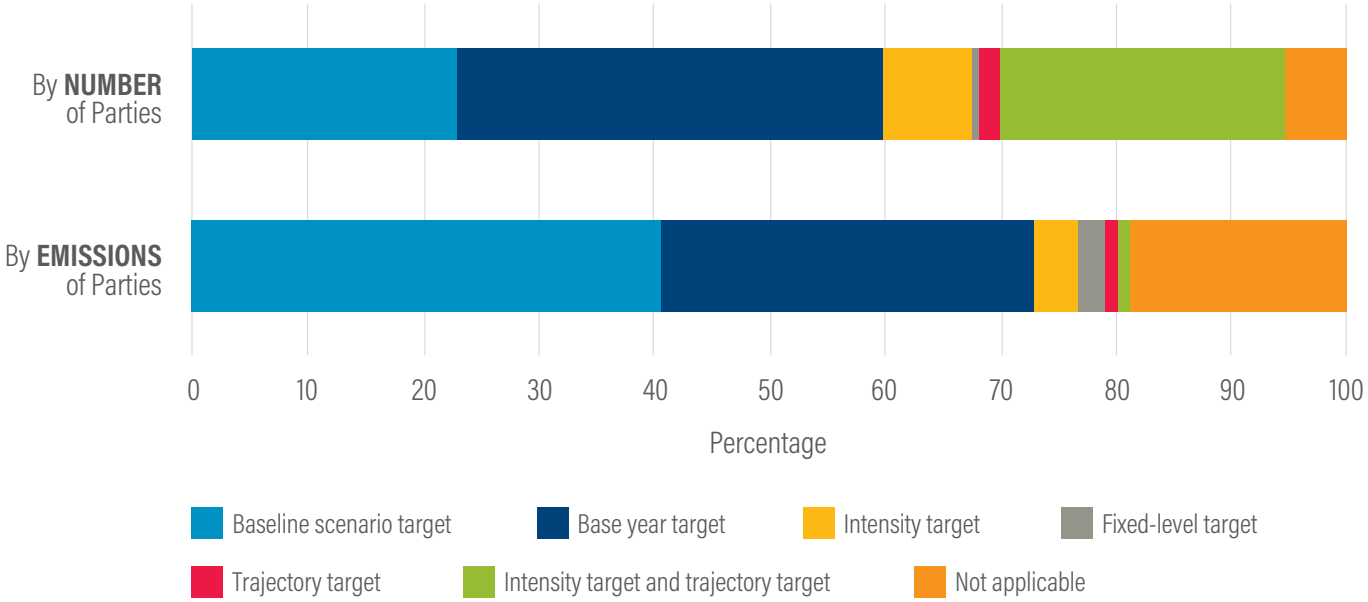
Eighty-one percent of Parties responsible for 95 percent of 2014 global emissions communicated a GHG mitigation target in their NDC (Figure 5). GHG mitigation targets can be expressed in a variety of ways (Figure 6), with associated strengths and weaknesses (Box 4). Parties whose NDCs already include a GHG target can strengthen their target; Parties whose NDCs do not yet include a GHG target can adopt one. Whether strengthening or adopting a GHG target enhances

Figure 5 | Share of Parties with GHG Targets as a Primary Component of Their NDCs



Source: WRI, CAIT Climate Data Explorer 2016; emissions based on 2014 data.

Figure 6 | Types of GHG Targets in NDCs



Source: WRI, CAIT Climate Data Explorer 2016; emissions based on 2014 data.

Box 4 | Types of GHG Reduction Targets

GHG reduction targets can be expressed in a variety of ways and have associated advantages and disadvantages.

TYPE	DEFINITION	CHARACTERISTICS
Base year emissions target	A commitment to reduce or control the increase of emissions by a specified quantity relative to a historical base year. For example, a 25% reduction from 1990 levels by 2020. These are sometimes referred to as "absolute" targets. Example: United States' pledge to reduce emissions 17% below 2005 levels by 2020.	Relatively simple to account for and track progress; more certain and more transparent than base year intensity targets and baseline scenario targets, because expected emissions in the target year(s) can easily be calculated at the beginning of the target period.
Fixed-level target	A commitment to reduce or control the increase of emissions to a specified quantity in a target year/period. Fixed-level targets include carbon neutrality targets or phase-out targets, which aim to reach zero net emissions by a specified date; for example, zero net emissions by 2050. Example: Costa Rica's pledge of a "long-term economy-wide transformational effort to enable carbon-neutrality."	Relatively simple to account for and track progress; more certain and more transparent than base year intensity targets and baseline scenario targets, because expected emissions in the target year(s) can easily be calculated at the beginning of the target period.
Base year intensity target	A commitment to reduce emissions intensity (emissions per unit of another variable, typically GDP) by a specified quantity relative to a historical base year; for example, a 40% reduction below 1990 base year intensity by 2020. Example: China's pledge to reduce CO_2 emissions per unit of GDP 40–45 percent by 2020 compared with the 2005 level.	Introduces uncertainty because expected emissions in the target year are unknown and the level of output (such as GDP) in the target year is unknown and must be projected.

TYPE	DEFINITION	CHARACTERISTICS
Baseline scenario target	A commitment to reduce emissions by a specified quantity relative to a projected emissions baseline scenario. A baseline scenario is a reference case that represents future events or conditions most likely to occur in the absence of activities taken to meet the mitigation target; for example, a 30% reduction from baseline scenario emissions in 2020. These are sometimes referred to as business-as-usual (BAU) targets. Example: Brazil's pledge to reduce emissions 36.1–38.9 percent below projected emissions in 2020.	The most difficult to implement and assess; requires a large amount of data, advanced modeling techniques, specialized technical capacity, and assumptions about the likely development of various emissions drivers. Static baseline scenarios are fixed and are not recalculated over time; dynamic baseline scenarios may be recalculated on the basis of changes in emissions drivers such as GDP or energy prices. Static baseline scenario goals provide more certainty and transparency regarding future emissions than dynamic baseline scenario goals, and also introduce fewer practical challenges.
Trajectory target	A commitment to reduce or control the increase of emissions to specified emissions quantities in multiple target years or periods over a long time frame (such as targets for 2020, 2030, and 2040 over the period 2020–2050). Trajectory targets also include "peak-and-decline" targets, such as emissions peaking at a specified level in 2025 and declining thereafter, or a "peak, plateau, and decline" target, which also specifies that emissions will remain constant for a period after peaking and before declining. Example: South Africa's emissions by 2025 and 2030 will be between 398 and 614 $MtCO_2e$.	Can accommodate short-term increases in emissions by specifying a target year in which emissions peak and a subsequent target year in which emission decline.

Note: The target type is independent of the target's level of ambition and associated GHG reductions. Any target type could lead to emissions increases or decreases over the target period.

Source: Adapted from Levin et al. 2015.

ambition depends on whether the strengthened or new GHG target results in mitigation impacts that exceed those achieved by any non-GHG targets, policies, and actions in the NDC. These considerations are discussed in more detail below.

Increase the stringency of an existing GHG target

Parties with an existing GHG target of any type can increase the stringency of that target. For example:

- An existing target to reduce economy-wide GHG emissions by 30 percent (relative to a defined base year or a defined business-as-usual level) by 2030 could be increased to 40 percent by 2030.
- An existing target to peak emissions by 2025 at 500 million metric tons of CO_2 equivalent is revised to peak at 400 million metric tons of CO_2 equivalent.

This option is relevant for Parties with NDCs that include one or more GHG targets (81 percent of Parties responsible for 95 percent of 2014 global emissions; see Figure 5).

Whether increasing the stringency of an existing GHG target constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then the increased stringency constitutes enhanced ambition, provided that the scope, base year or baseline emissions, and modalities of the target are held constant. If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether the increased stringency reduces cumulative emissions more than would be accomplished by the non-GHG targets, policies, and actions.

Expand the scope and coverage of an existing GHG target

Parties with an existing GHG target can increase the scope and coverage (in terms of sectors, gases, or geographic area) of that target. For example:

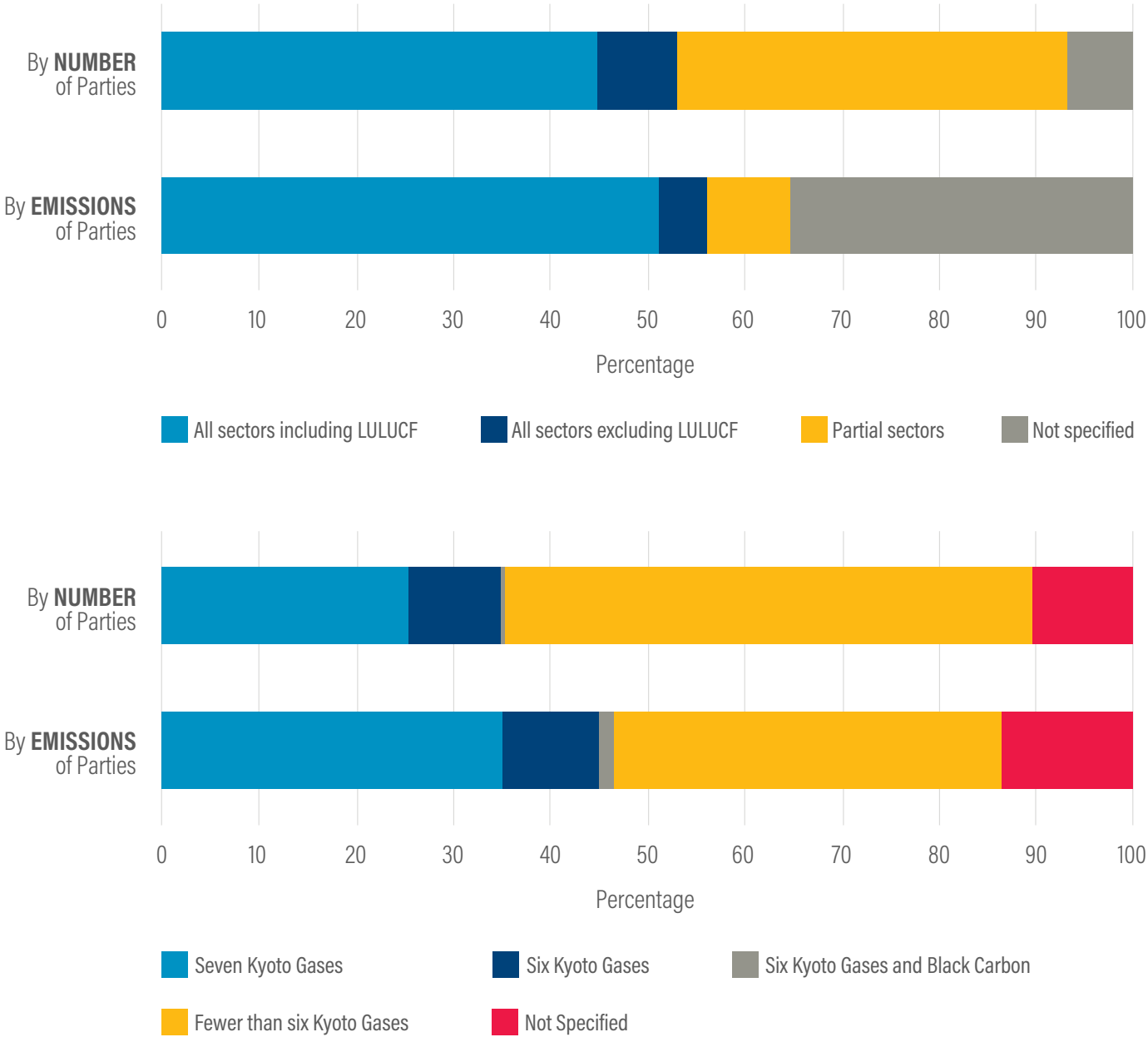
- An NDC target to reduce energy-sector emissions by 30 percent by 2030 from 2005 levels is expanded to reduce economy-wide emissions by 30 percent by 2030 from 2005 levels.

- An NDC target that currently covers three GHGs (e.g., carbon dioxide, methane, and nitrous oxide) is expanded to also include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

These options are relevant for Parties with NDCs that include one or more targets that are not economy-wide.

At least 40 percent of Parties (responsible for 13 percent of 2014 global emissions) do not include all sectors in their NDCs; at least 54 percent of Parties (responsible for 40 percent of 2014 global emissions) do not include all gases (Figure 7). Targets that do not cover all gases often exclude hydrofluorocarbons and (less often) methane. These are short-lived climate pollutants that, along with other GHGs, play an important role in limiting warming (Box 5).

Figure 7 | **Sector and Gas Coverage of NDCs**



Source: WRI, CAIT Climate Data Explorer 2016; emissions based on 2014 data.

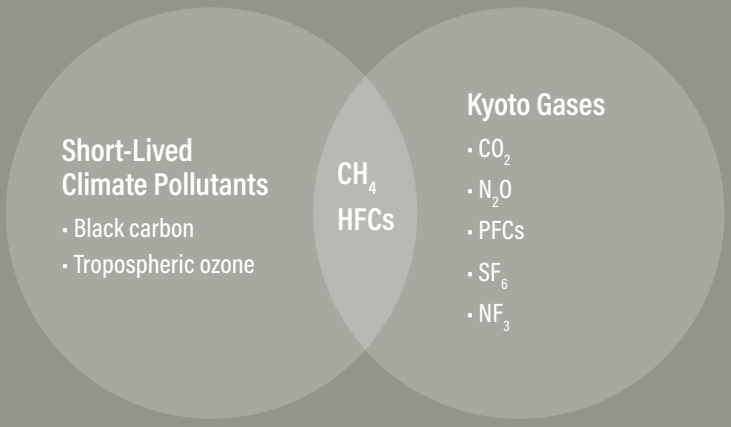
Box 5 | Short-Lived Climate Pollutants

Dramatic cuts in long-lived GHGs, such as CO_2, are urgently needed to achieve the Paris Agreement mitigation goals. Complementary cuts in short-lived climate pollutants (SLCPs) are also needed to achieve the Paris goals, with the potential to reduce warming by about 0.4°C through 2040 (UNEP 2011), and are attractive to many stakeholders because of their positive implications for health and other development objectives. Reducing black carbon and ozone precursors such as methane directly reduces air pollution, and can also offer indirect health benefits by, for example, improving agricultural productivity and food security for poor people (Scovronick et al. 2015).

Not all short-lived climate pollutants are included in the Kyoto basket of gases (see Figure B5.1). Specifically, black carbon and tropospheric ozone are not Kyoto gases (although ozone is a GHG). For accounting purposes, Kyoto gases and non-Kyoto SLCPs should be treated separately in NDC goals and targets. In other words, economy-wide GHG goals should include only Kyoto gases, even if SLCPs are addressed separately.

Many NDCs do not yet include all Kyoto gases and/or do not yet explicitly address short-lived climate pollutants, offering an opportunity to enhance ambition and implementation while capturing health benefits by including these substances. In this paper, enhancements involving GHG targets refer to targets covering Kyoto gases.

FIGURE B5.1 | THE RELATIONSHIP BETWEEN SLCPs AND KYOTO GASES



Note: NF_3 was added to the Kyoto basket of gases for the second commitment period of the Kyoto Protocol by Decision 4/CMP.7, adopted by the 17th Conference of the Parties to the UNFCCC.

Whether expanding the scope and coverage of an existing GHG target constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then the expanded scope and coverage constitutes enhanced ambition provided that the new sectors, gases, and/or geographic areas included under the expanded scope would not already have been limited to at least the same extent as those under the original scope (due to market forces, structural change, or other factors), and that the base year or baseline and modalities are held constant. If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether the expanded scope and coverage reduces cumulative emissions more than could be accomplished by the non-GHG targets, policies, and actions.

Change the target period of an existing GHG target

Parties with an existing GHG target can commit to achieve that target (e.g., to reduce or peak emissions) earlier than planned in the original NDC and/or to commit to a multiyear rather than a single-year target period.[19] Single-year targets aim to reduce emissions by a single target year, whereas multiyear targets aim to reduce emissions over a period of consecutive years. For example:

- A target to reduce emissions by 30 percent by 2030 could be advanced to reduce emissions by the same amount by 2025.
- A target to peak emissions by 2027 could be advanced to peak emissions by 2023.

- A target to reduce emissions by 30 percent by 2030 could be extended to reduce emissions by 30 percent for the period 2028–32.
- A commitment to implement the Kigali Amendment ahead of schedule (see Box 6).

This option is relevant for all Parties with a GHG target (81 percent of Parties responsible for 95 percent of 2014 global emissions; see Figure 5).

Whether changing the target period constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then advancing the target year constitutes enhanced ambition provided that cumulative emissions would decline rather than increase under the existing target, and that the allowable emissions in the target year, coverage, and modalities of the target are held constant.

Likewise, changing from a single-year to a multiyear target period can help limit cumulative emissions and enhance ambition in cases where emissions might otherwise have spiked during nontarget years. Establishing milestones en route to a single-year target can have a similar effect to establishing a multiyear target.

Box 6 | Advancing Kigali Amendment Implementation

The Kigali Amendment to the Montreal Protocol establishes a schedule for phasing down the production and use of hydrofluorocarbons (HFCs), a potent category of GHG used in air-conditioning and refrigeration. The amendment establishes three categories of phase-out schedules:

- The world's richest countries will phase out production and use of HFCs by 2019
- Most other countries will phase out HFC use by 2024
- The world's warmest countries will have until 2028 to phase out HFC use.

These schedules have been established for broad categories of countries. Some Parties may be in a position to phase out HFCs more rapidly. Using a nationally determined contribution to commit to phase out HFCs at an earlier date than reflected in the Kigali Amendment could enhance ambition, if such a phase-out did not overlap with other commitments already made.

If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether advancing the target year or changing from a single-year to a multiyear target reduces cumulative emissions more than already accomplished by the non-GHG targets, policies, and actions.

Declare an intent to overachieve an existing GHG target

Parties with an existing GHG target can declare their intent to overachieve the target by achieving the target level earlier than the target year (similar to advancing the target year of an existing target, but without specifying a new year) or by achieving greater emissions reductions than specified in the target year (similar to increasing the stringency of an existing GHG target, but without specifying a new level). For example:

- A Party with a target to reduce emissions by 40 percent relative to 1990 levels by 2030 could declare that it will achieve reductions of greater than 40 percent.
- A Party with a target to peak emissions by 2030 could declare that it will peak emissions earlier than 2030.
- A Party with an unconditional target and a conditional target could declare that it will overachieve its unconditional target and move toward its conditional target.[20]

This option is relevant for all Parties with a GHG target (78 percent of Parties; see Figure 5.)

Whether declaring an intent to overachieve an existing target constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then the overachievement constitutes enhanced ambition, provided that the scope, base year or baseline emissions, and modalities of the target are held constant. If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether the overachievement reduces cumulative emissions more than already accomplished by the non-GHG targets, policies, and actions.

Strengthen the modalities of an existing GHG target

Modalities that could be strengthened include the treatment of the land sector and the use of market mechanisms. Strong modalities for land-sector

accounting ensure that accounting represents mitigation additional to that which would have occurred in the absence of a goal, captures anthropogenic emissions and removals "seen" by the atmosphere, and comprehensively covers emissions and removals. Strong modalities for market mechanisms specify that any internationally transferred mitigation outcomes (ITMOs) or other credits applied toward NDC goals are real, additional, permanent, transparent, verified, and owned unambiguously; that they address leakage; and that any allowances come from systems that have rigorous monitoring and verification protocols, transparent tracking and reporting of units, and stringent caps.[21] For example:

- A Party whose NDC allows the use of ITMOs could set a stringent cap on ITMOs and commit to meeting strong quality criteria.[22]
- A Party could cancel purchased ITMOs so they are not retired for use toward an NDC.
- A Party that has historically excluded certain land-use categories or suites of activities from its accounting practices could commit to including all land-use categories and suites of activities in accounting.

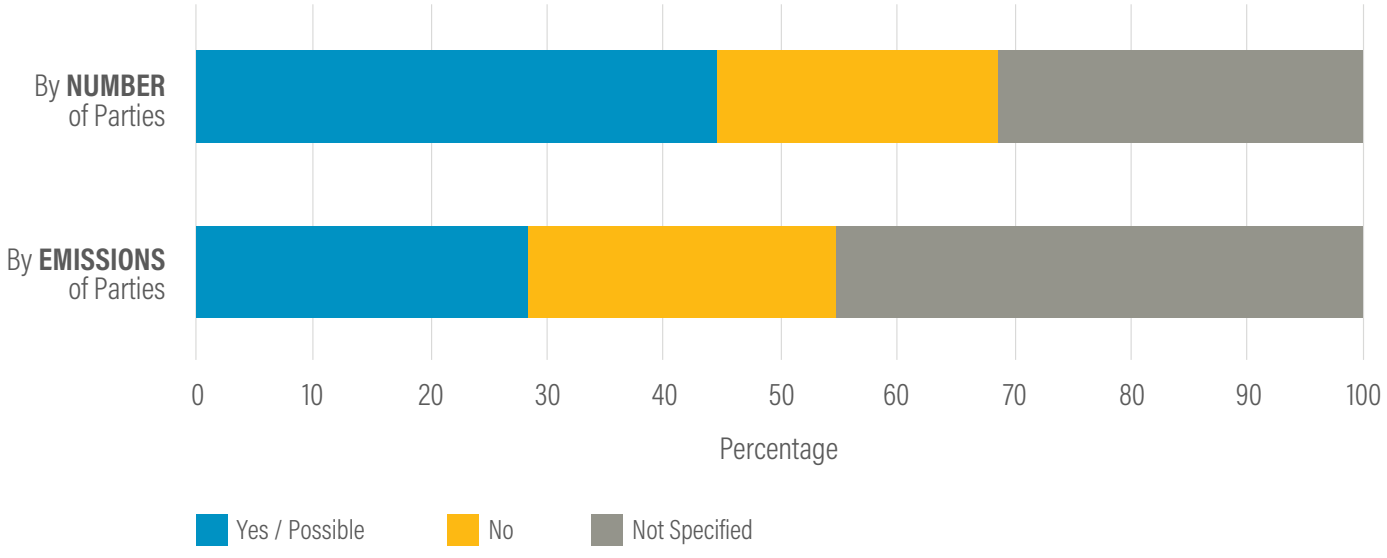
These options are relevant for Parties that have not excluded the use of ITMOs or other credits (76 percent of Parties responsible for 74 percent of 2014 global emissions; see Figure 8) and Parties with targets that include the land sector in the target (45 percent of Parties responsible for 51 percent of 2014 global emissions; see Figure 7).

Whether changing the modalities of an existing GHG target constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then any improvement in modalities constitutes enhanced ambition, provided that the scope, base year or baseline emissions, and other modalities of the target are held constant. If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether the change in modalities reduces cumulative emissions more than already accomplished by the non-GHG targets, policies, and actions.

For the land sector, ambition is enhanced when the land sector modalities result in lower cumulative emissions under the enhanced NDC than under the original NDC. For a Party whose existing NDC does not specify its treatment of the land sector, specifying such treatment will result in enhanced clarity, but the effect on ambition cannot be determined. Accounting guidance is forthcoming for NDCs, but it is voluntary to apply the guidance to the first NDCs.

For ITMOs, it is important to consider both domestic and global emissions. If a Party switches from a target intended to use ITMOs to a target that does not rely

Figure 8 | **Share of NDCs That Allow the Use of Internationally Transferred Mitigation Outcomes**



Source: WRI, CAIT Climate Data Explorer 2016; emissions based on 2014 data.

on ITMOs, or the NDC places a limit on ITMO use, domestic ambition will be enhanced, because more reductions will be achieved within the Party's borders.

This is important given that that Parties must phase out net GHG emissions in the second half of the century to limit dangerous warming, and all efforts to decarbonize sectors will make this transition easier and less costly. However, it is not guaranteed that global ambition would be enhanced, as the selling Party may not pursue such reductions without the finance from the sale of ITMOs. Regarding the quality of ITMOs, ambition is enhanced when the quality of ITMOs under the enhanced NDC result in lower cumulative emissions than the ITMO quality under the original NDC. That being said, accounting guidelines will be created for ITMOs under the UNFCCC that, presumably, will ensure that ITMO quality meets the principles of the agreement, including avoiding double counting and ensuring environmental integrity. As for the land sector treatment, if a Party whose existing NDC does not specify its treatment of ITMOs, specifying such treatment will result in enhanced clarity, but the effect on ambition cannot be determined.

Change the type of an existing GHG target

Parties with an existing GHG target that does not specify an emissions level in the target year could change the type of GHG target to one that does. (Target types that specify an emissions level in the target year are base year targets with a defined base year, static baseline scenario targets with a defined baseline, and trajectory targets with a defined target-year emissions level.) For example:

- A target to reduce emissions 25 percent relative to a dynamic baseline by 2025 could be changed to reduce emissions 25 percent relative to a static baseline by 2025.
- A target to reduce emissions intensity by 25 percent relative to 2000 by 2025 could be changed to reduce absolute emissions by 25 percent relative to 2000 by 2025.

This option is relevant for all Parties with GHG targets that do not specify an emissions level in the target year (see Figure 6).

Whether changing the target type constitutes enhanced ambition depends in part on the other content in the NDC. If the GHG target is the sole element of the NDC, then changing the target type constitutes enhanced ambition, provided that allowed emissions in the target year under the new target type are lower than under the original target type. This can be difficult to determine because of the uncertainty associated with intensity and dynamic baseline scenario targets (see Box 4). If the NDC also contains non-GHG targets and/or policies and actions, then the effect on ambition also depends on whether the change in target type reduces cumulative emissions more than already accomplished by the non-GHG targets, policies, and actions. (Even if changing the target type does not result in enhanced ambition, it can still be helpful to efforts such as the global stocktake if it enhances clarity regarding allowed emissions in the target year.)

Adopt a new GHG target

Parties without existing GHG targets can add GHG targets. Parties with an existing GHG target can add a new type of GHG target. For example:

- A Party with an existing NDC that comprises only policies and actions could add a target to reduce GHG emissions.
- A Party with a conditional GHG target could add an unconditional GHG target.
- A Party with an existing target to reduce GHG intensity by 50 percent by 2030 from 2000 levels could add a target to peak absolute emissions by 2030.

In theory, this option could be implemented by any Party that does not yet have all types of GHG targets. In practice, establishing multiple types of GHG targets can create challenges for monitoring progress and quantifying GHG impact, particularly if consistency between the targets cannot be ensured. Conversely, Parties may find it procedurally easier to adopt a new type of target that enhances ambition and/or clarity relative to an existing target than to replace an existing target.

If the new target results in lower cumulative emissions than the combined impact of targets, policies, and measures under the existing NDC, it enhances ambition. In determining this, it is important to consider whether the new target overlaps with existing policies and targets, as the extent of such overlap would limit impact on ambition. Likewise, if the new target is merely a way of characterizing the GHG impact of the targets, policies, and measures under the existing NDC (for example, if the targets, policies, and measures of the existing NDC would result in a 20 percent GHG reduction, and the NDC is "enhanced" to include a 20 percent GHG reduction target), it may facilitate implementation by clarifying expectations for specific sectors, and enhance

communication about how the NDC will be achieved, without enhancing ambition.

Strengthen or add a sectoral non-GHG target

More than half of Parties communicated a sectoral non-GHG target in their NDC. These targets include renewable energy targets, energy efficiency targets, and forestry targets (see Figure 9). Parties whose NDCs include a non-GHG target can strengthen their target; Parties whose NDCs do not yet include a non-GHG target can adopt one. Whether strengthening or adopting a non-GHG target enhances ambition depends on whether the strengthened or new non-GHG target results in mitigation impacts that exceed those caused by any GHG targets, policies, and actions in the NDC. These considerations are discussed in more detail below.

Increase the stringency of a sectoral non-GHG target

Parties with an existing non-GHG target can increase the stringency of that target. For example:

- An existing target to achieve 30 percent renewable energy by 2030 could be increased to 40 percent renewable energy by 2030.
- An existing target to reduce deforestation by 25 percent from 2000 levels by 2025 could be increased to 30 percent by 2025.

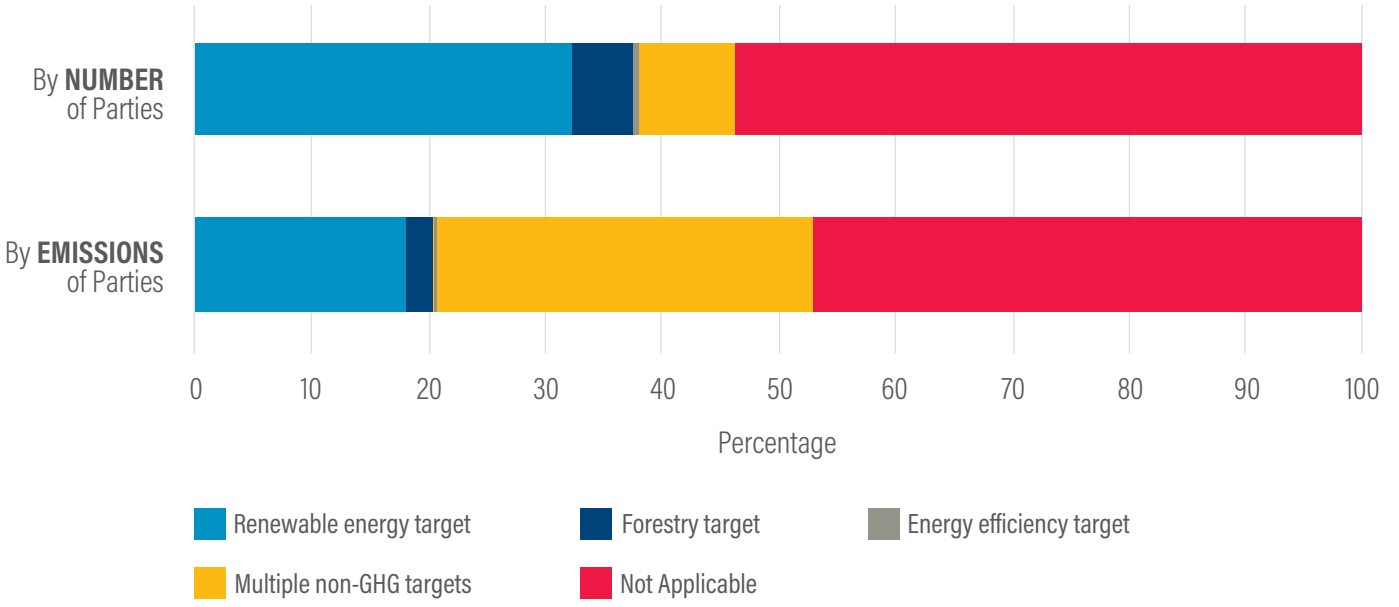
This option is relevant for the 46 percent of Parties responsible for 53 percent of 2014 global emissions with NDCs that include one or more non-GHG targets (see Figure 9).

Whether increasing the stringency of an existing non-GHG target constitutes enhanced ambition depends in part on the other content in the NDC. If the non-GHG target is the sole element of the NDC, then the increased stringency constitutes enhanced ambition, provided that the scope and modalities of the target are held constant. If the NDC also contains GHG targets and/or policies and actions, then the effect on ambition also depends on whether the increased stringency reduces cumulative emissions more than already accomplished by the GHG targets, policies, and actions.

Advance the target year of a sectoral non-GHG target

Parties with an existing non-GHG target can commit to achieve that target earlier than planned in the original NDC. For example:

Figure 9 | **Types of Sectoral Non-GHG Targets in NDCs**



Note: In contrast to Figure 5, which shows that 17 percent of countries include non-GHG targets as a primary or "headline" element of an NDC, this figure shows countries that include any mention of a non-GHG target anywhere in the NDC, even if not as a "headline" element.

Source: WRI, CAIT Climate Data Explorer 2016; emissions based on 2014 data.

- A target to achieve 50 percent renewable energy by 2030 could be advanced to achieve 50 percent renewable energy by 2025.

This option is relevant for all Parties with a non-GHG target (see Figure 9).

Whether the advanced target year constitutes enhanced ambition depends on the other content in the NDC. If the non-GHG target is the sole element of the NDC, then any advance in the target year constitutes enhanced ambition, provided that the scope and modalities of the target are held constant. If the NDC also contains GHG targets and/or policies and actions, then the effect on ambition depends on whether the advance in the target year reduces cumulative emissions more than already accomplished by the GHG targets, policies, and actions.

Declare an intent to overachieve a sectoral non-GHG target

Parties with an existing non-GHG target can declare their intent to overachieve the target by achieving the target level earlier than the target year (similar to advancing the target year of an existing non-GHG target, but without specifying a new year) or by achieving a greater outcome (e.g., a greater share of renewable energy) than specified in the target year (similar to increasing the stringency of an existing non-GHG target, but without specifying a new level). For example:

- A Party with a target to achieve 50 percent renewable energy by 2030 could declare it will achieve greater than 50 percent renewable energy by 2030.
- A Party with a target to achieve 50 percent renewable energy by 2030 could declare it will achieve greater than 50 percent renewable energy earlier than 2030.

This option is relevant for all Parties with a non-GHG target (see Figure 9).

Whether overachieving the target constitutes enhanced ambition depends on the other content in the NDC. If the non-GHG target is the sole element of the NDC, then any overachievement constitutes enhanced ambition, provided that the scope and modalities of the target are held constant. If the NDC also contains GHG targets and/or policies and actions, then the effect on ambition depends on whether the overachievement reduces cumulative emissions more than already accomplished by the GHG targets, policies, and actions.

Adopt a new sectoral non-GHG target

Regardless of whether they have a non-GHG target, Parties can add new types of targets, such as renewable energy targets or targets to reduce deforestation. For example:

- A Party could adopt a new target to halt net deforestation by 2025.
- A Party could adopt a new target to achieve 50 percent renewable energy by 2030.
- A Party could commit to halve per capita food waste by 2030.

This option is relevant for all Parties.

If the new target results in lower cumulative emissions than the combined impact of targets, policies, and measures under the existing NDC, it enhances ambition. In determining this, it is important to consider whether the new target overlaps with existing policies and targets, as the extent to which such an overlap exists would limit impact on ambition. Likewise, if the new target merely adds clarity regarding how an existing target will be achieved (e.g., an economy-wide GHG target could be achieved in part through increasing renewable energy in line with the new target), it does not enhance ambition. In such cases, it may enhance implementation by establishing expectations for specific sectors, in addition to enhancing clarity.

Strengthen or add policies and actions

Fourteen percent of Parties communicated only policies and actions in their NDCs, and many more included policies and actions in addition to either GHG or non-GHG targets. A variety of policies and actions have been developed (see Table 1). Parties whose NDCs already include policies and actions can strengthen them; Parties whose NDCs do not include policies and actions can adopt them. Whether strengthening or adopting policies and actions enhances ambition depends on whether the strengthened or new policies and actions result in mitigation impacts that exceed those caused by any GHG targets, non-GHG targets, policies, and actions already contained in the NDC. These considerations are discussed in more detail below.

Table 1 | **Types of Policy Instruments**

TYPE OF POLICY INSTRUMENT	DESCRIPTION
Regulations and standards	Regulations or standards that specify abatement technologies (technology standards) or minimum requirements for energy efficiency, pollution output, or other activities (performance standards). They typically include penalties for noncompliance.
Taxes and charges	A levy imposed on each unit of activity by a source, such as a fuel tax, carbon tax, traffic congestion charge, or import or export tax.
Subsidies and incentives	Direct payments, tax reductions, or price supports from a government for implementing a specified practice or performing a specified action.
Emissions trading programs	A program that establishes a limit on aggregate emissions from specified sources, requires sources to hold permits, allowances, or other units equal to their actual emissions, and allows permits to be traded among sources. These programs may be referred to as emissions trading systems (ETS) or cap-and-trade programs.
Voluntary agreements or measures	An agreement, commitment, or measure undertaken voluntarily by public or private sector actors, either unilaterally or jointly in a negotiated agreement. Some voluntary agreements include rewards or penalties associated with participating in the agreement or achieving the commitments.
Information instruments	Requirements for public disclosure of information. These include labeling programs, emissions reporting programs, rating and certification systems, benchmarking, and information or education campaigns aimed at changing behavior by increasing awareness.
Research, development, and deployment (RD&D) policies	Policies aimed at supporting technological advancement, through direct government funding or investment, or facilitation of investment, in technology research, development, demonstration, and deployment activities.
Public procurement policies	Policies requiring that specific attributes (such as GHG emissions) are considered as part of public procurement processes.
Infrastructure programs	Provision of (or granting a government permit for) infrastructure, such as roads, water, urban services, and high-speed rail.
Implementation of new technologies, processes, or practices	Implementation of new technologies, processes, or practices at a broad scale (for example, those that reduce emissions compared to existing technologies, processes, or practices).
Financing and investment	Public sector grants or private sector grants or loans (for example, those supporting development strategies or policies).

Source: Adapted from Gupta et al. 2007.

Box 7 | **Phasing Out Fossil Fuel Subsidies**

Fossil fuel subsidies accounted for 6.5 percent of global GDP in 2015, or about $5.3 trillion (IMF 2016). In 2015, approximately 13 percent of global energy-related CO_2 emissions were from subsidized fossil fuels (IEA 2015). In 2009, the G20 committed to gradually phasing out inefficient subsidies. In 2011, the Asia-Pacific Economic Cooperation leaders followed suit. The G7 went further still in 2016 urging all countries to eliminate inefficient subsidies by no later than 2025. Many countries are already implementing reform agendas, including Morocco, Angola, Ecuador, India, and Kuwait),[a] but there remains scope to go further in terms of the fuels covered and the timetables for such phase-outs.

Fossil fuel subsidy reform has economic, environmental, and health benefits and supports the objectives of the Paris Agreement and 2030 Agenda for Sustainable Development. For example, Indonesia has recently begun to make major progress in the removal of energy subsidies for both transport fuels and electricity supply. In 2015, government subsidies for gasoline were abolished, and in 2016 those for diesel were fixed at IDR 500 (US$0.04) per liter. In 2015 alone, removal of subsidies generated savings of IDR 120 trillion (US$9 billion) to the government (IEA 2017a). Reducing or abolishing subsidies incentivizes transport users to switch to more efficient modes of transport; the abolition of gasoline subsidies reduces the average payback period for more efficient gasoline vehicles by 30 percent (to around two years).[b]

Notes: a. IEA. 2016. "Recent Developments 2016." https://www.iea.org/media/statistics/Recentdevelopments2016.pdf. b. IEA. 2017. "Energy Efficiency 2017." Market Series Report. http://www.iea.org/publications/freepublications/publication/Energy_Efficiency_2017.pdf .

The policy of phasing out fossil fuel subsidies is among the key policies that can reduce energy consumption and emissions (see Box 7).

Strengthen existing policies and actions

Parties whose existing NDCs include policies and actions can strengthen those policies and actions. For example:

- A Party whose existing NDC includes national carbon pricing could commit to a higher carbon price or one that covers more sources.
- A Party whose existing NDC commits to phasing out fossil fuel subsidies by 2040 could strengthen this policy by committing to phasing out fossil fuel subsidies by 2030.

This option is relevant for all Parties whose existing NDCs include policies and actions.

If the strengthened policies and actions result in lower cumulative emissions than the combined impact of targets, policies, and actions under the existing NDC, they enhance ambition. In determining this, it is important to consider whether the new policies overlap with existing policies and targets, as the extent of such overlap would limit ambition.[23] If the strengthened policies merely add clarity regarding how an existing target will be achieved (e.g., an existing economy-wide GHG target could be achieved in part through strengthening existing energy efficiency standards), they do not enhance ambition. In such cases, they may enhance implementation by establishing expectations for specific sectors, in addition to enhancing clarity.

Add new policies and actions

Regardless of whether they have GHG and/or non-GHG targets, Parties can add new policies and measures to their NDC. For example:

- Introduction of national carbon pricing through carbon taxes or emissions trading programs.
- Phase out of fossil fuel subsidies by 2030.
- Introduction of energy-efficiency standards for vehicles, appliances, or buildings.
- Development of a solid waste mitigation strategy; for example, to reduce methane emissions.
- Development of a comprehensive plan for emission reductions in the livestock subsector for implementation between 2020 and 2030.
- Commitment to promote the adoption of appropriate processing technologies to convert biomass from waste, forestry, agriculture, and microbial production into food, feed, fiber, chemicals, and energy (electricity, heat, and biofuels).

This option is relevant for all Parties, but particularly for Parties whose existing NDC comprises only or mainly policies and actions (see Figure 5).

If the new policies and actions result in lower cumulative emissions than the combined impact of targets, policies, and actions under the existing NDC, they enhance ambition. In determining this, it is important to consider whether the new policies overlap with existing policies and targets, as the extent of such overlap would limit ambition.[24] If the new policies merely add clarity regarding how an existing target will be achieved (e.g., an existing economy-wide GHG target could be achieved in part through implementing a new, or newly specified, energy efficiency standard), they do not enhance ambition. However, they may enhance

Box 8 | Reducing Food Loss and Waste: Aligning Climate Action with Sustainable Development[a]

About one-third of all food produced for human consumption is lost or wasted, resulting in approximately $940 billion per year in economic losses, food insecurity, and an estimated 8 percent of global GHG emissions.[b]

Target 12.3 of the Sustainable Development Goals (SDGs) aims to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses, by 2030.[c]

Sixteen countries have included explicit commitments in their NDCs that could contribute to the achievement of Target 12.3. Countries could consider making these links more specific or adding new commitments aimed at achieving and/or capturing the mitigation impact of reducing food loss and waste along the value chain. Examples of additional commitments include:

- Development of a comprehensive plan to halve per capita food waste at the consumer level by 2030
- Introduction of incentives directed at the retail market to reduce food waste
- Promotion of innovations in post-harvest storage and food processing

Notes: a. Ranganathan et al. 2016.
b. See http://www.fao.org/docrep/014/mb060e/mb060e.pdf and https://champions123.org/target-12-3/.
c. See http://www.un.org/sustainabledevelopment/sustainable-consumption-production/.

implementation by establishing expectations for specific sectors, in addition to enhancing clarity.

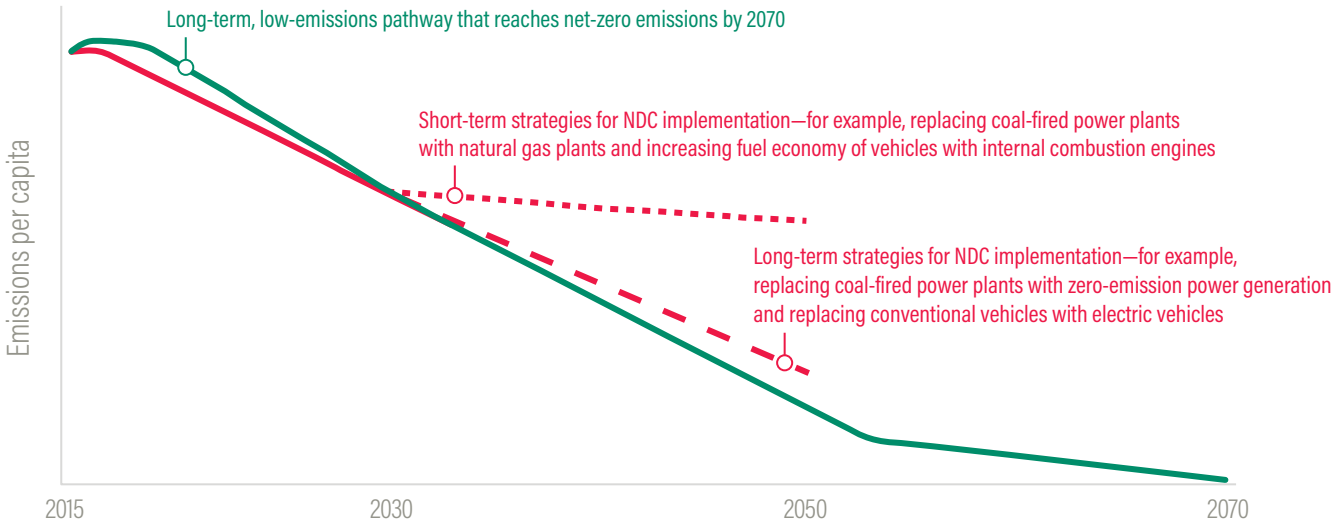
Policies to reduce food waste are an example of how policies can both reduce emissions and deliver other development benefits, such as saving money (see Box 8).

Align implementation of the existing NDC with long-term goals

The same midterm target can be achieved via multiple implementation pathways, some of which will align more closely with limiting cumulative emissions in the long term (see Figure 10). Parties should commit to NDC implementation pathways that align with the long-term goals of the Paris Agreement. For example:

- Making a faster transition to renewables.
- Electrifying key sectors of the economy, such as transportation and industry (see Box 9).
- Phasing out fossil fuel infrastructure and avoiding locking in outdated technology.

Figure 10 | Different Pathways to Achieving the Same NDC Target



Note: All strategies achieve the same 2030 emissions, but only the long-term strategies set the course for long-term emissions neutrality in the second half of the century.

Source: Adapted from Sachs et al. 2016.

This option is relevant for all Parties. Parties that have developed "long-term, low–greenhouse gas emissions development strategies" per Article 4.19 of the Paris Agreement, which align with the Agreement's long-term goals, may find this option more practical to implement.

To demonstrate enhanced ambition, the enhancement would need to set the country up to achieve increased mitigation over the long term (not necessarily during the term of the NDC). This means that the plans to implement a target, or a given policy or action, would need to more closely align with long-term decarbonization than with the plans to implement the target, or a given policy or action, in the original NDC.

Box 9 | **Electric Vehicle Targets**

A growing number of countries are setting targets to electrify their vehicle fleets.

- China has set targets for electric vehicle production beginning in 2019.
- France announced in July 2017 that it would phase out sales of gas- and diesel-powered vehicles by 2040.
- The Indian government announced in May 2017 that every vehicle sold in the country should be electric by 2030.
- Norway's transportation plan establishes that all new passenger cars and vans sold in the country should be zero-emissions vehicles by 2025.
- The United Kingdom announced in July 2017 that it would phase out sales of new gasoline and diesel cars by 2040.

According to the International Energy Agency, 14 countries had some form of electric vehicle target in place as of 2016 (IEA 2017b).

Electrifying transport is a key element of decarbonizing the global economy in line with the goals established in the Paris Agreement. While gas- and diesel-powered vehicles can be made more efficient over time, only electrification, combined with carbon-free electricity, can eliminate emissions. The timing of the transition is important, however. In places where the power grid is still relatively carbon-intensive, an early uptick in vehicle electrification could cause emissions to rise in the near term. Therefore, commitments to transition to electric vehicles must go hand-in-hand with a commitment to accelerate decarbonization of the grid. Bearing this in mind, a commitment in NDCs to accelerate vehicle electrification could better align the implementation of existing NDC targets with long-term goals.

SECTION 2: OPTIONS FOR ENHANCING ADAPTATION CONTENT

The 2014 Lima Call for Climate Action invited "all Parties to consider communicating their undertakings in adaptation planning or consider including an adaptation component in their intended nationally determined contributions" (1/CP.20, para 12). The majority of NDCs contain adaptation components, though their form and content vary widely (UNFCCC 2016c). Most do not contain quantitative targets analogous to the mitigation components of NDCs. Many Parties have used NDCs to communicate adaptation goals, actions, priorities, needs, and commitments to initiate adaptation planning or other processes. While the term "ambition" has not generally been applied in the context of adaptation, there is an opportunity for Parties, as they enhance their NDCs, to update, strengthen, and/or elaborate their adaptation content.

The Paris Agreement indicates that NDCs can be a vehicle for the adaptation communications called for in Article 7 (the guidance for which is forthcoming).[25] In this context, Parties continue to retain flexibility in the adaptation information they choose to include in NDCs, and how existing content can be enhanced—though the forthcoming guidance will likely prescribe elements to include in the NDC for Parties that choose to use NDCs as the vehicle for adaptation communications.

The design and content of an NDC adaptation component, and its enhancement, should reflect a Party's rationale for using the NDC to communicate adaptation information. Inclusion of adaptation in an NDC can enable a Party to do the following:

- Strengthen, streamline, and raise the profile of adaptation policies, planning, action, and needs at the national level.
- Articulate a long-term vision of nationally appropriate climate-resilient development.
- Advance adaptation planning by outlining goals, objectives, activities, or a timeline to achieve the vision, which may be based upon a NAP or equivalent national planning process.
- Use the domestic political momentum associated with the NDC process to outline a process and timeline for developing a long-term vision and associated planning efforts, in cases where a process has not been established.
- Gain international recognition for existing national actions and investments on adaptation.

- Explicitly consider links between mitigation actions/objectives and adaptation actions/objectives.
- Contribute to a platform for sharing lessons learned, addressing shared challenges, and documenting progress toward the Paris Agreement's long-term adaptation goal (Levin et al. 2015).

As Parties communicate or update their NDCs, they have an opportunity to consider again their objectives for including an adaptation component and to reflect on how the adaptation information they include can help to advance those objectives.

The decisions a Party makes regarding whether and how to enhance the adaptation component of its NDC may depend on the nature and extent of adaptation planning under way in the country. For Parties that have begun a NAP or equivalent process, much of the information for an enhanced NDC can be drawn from progress in that process. Drawing from the NAP or equivalent process offers Parties several benefits. By building on existing efforts, Parties can minimize the need for additional analysis, planning, and coordination, and the inclusion of NAP elements in a high-profile document such as the NDC can bring greater attention, domestically and internationally, to the value and importance of national adaptation efforts.

For Parties that do not have a NAP or equivalent process, NDC enhancement offers an opportunity to lay the groundwork for such a process. This could mean outlining a planning process, choosing a planning timeline, synthesizing existing climate vulnerability and risk analyses, reviewing adaptation activities under way in the country, or otherwise taking early steps toward planning. Drawing from documentation of adaptation-related policies, actions, and measures outside of national adaptation planning processes may also be a possibility. This could include actions in climate-sensitive sectors (e.g., agriculture, health, tourism) that result in outcomes that reduce vulnerability and build resilience to climate risks.

An enhanced NDC could reflect:

- new information on climate change trends, impacts, and vulnerabilities;
- new or elaborated adaptation goals;
- new commitments to planning and action;
- updated assessments of gaps and barriers to planning and implementation; and
- a description of monitoring, evaluation, and learning plans.

Figure 11 | **Options for Enhancing Adaptation Content**

Guidance developed by WRI and UNDP (Levin et al. 2015) for shaping NDC content in these general categories could be applied as Parties assess opportunities for enhancement.

Options for enhancing adaptation content

Five options for enhancing adaptation are listed in Figure 11 and described in detail in this section.

Update or add information on trends, impacts, and vulnerabilities

A Party can enhance its NDC by providing an updated summary of current and projected climate change threats and impacts and their effects on vulnerable groups and sectors. In the case of Parties with a NAP or equivalent process, analysis of trends, impacts, and vulnerable sectors and groups has likely taken place. Options for further strengthening information on trends, impacts, and vulnerabilities in an NDC are suggested here:

- *Update existing analyses.* An enhanced NDC could update or summarize existing analyses or emphasize specific findings that link to goals, priorities, actions, and plans communicated in the NDC.
- *Draw on regional or international sources.* If detailed data on specific trends, impacts, and vulnerabilities have not yet been collected, Parties can draw on regional or international sources to provide general information. In this case, Parties may also want to describe the lack of capacity and resources to collect such information as a gap or barrier to adaptation planning and action (see below).
- *Examine long-term trends, impacts, and vulnerabilities.* Decision-making on effective adaptation options will be strengthened when information-gathering processes identify thresholds in natural, social, and human-built systems, especially thresholds with long-term irreversible consequences, such as the disappearance of glaciers or major shifts in economic systems or ecosystems. Understanding where such changes may take place can help generate adaptation options to transform economic and livelihood strategies, safeguard the delivery of public services, and protect lives.

Update or add national long-term goals or vision

NAPs or equivalent processes usually include a vision statement and/or sectoral goals and objectives. These could be included in the NDC, or could be further refined or prioritized as described below. For countries without a national adaptation planning process, the NDC could include a process-oriented goal that outlines those intentions. Potential enhancements include the following:

- *Articulate or update a long-term goal or vision.* A Party can enhance its NDC by including an outline and justification of the national vision for enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change, including a description of nationally determined needs, options, and priorities for vulnerable communities, regions, or sectors.
- *Align adaptation goals with development goals.* NDC enhancement offers an opportunity for countries to consider the alignment of national adaptation goals with broader development objectives, including the Sustainable Development Goals (SDGs). Well-designed policies and actions to enhance resilience to climate impacts can provide broader sustainable development benefits. In a global analysis, particularly strong alignments were identified between NDCs and SDG targets related to poverty alleviation, agriculture and land use, forestry, infrastructure, and cities and human settlements (Northrop et al. 2016). An enhanced NDC can identify these alignments and lay the groundwork to capitalize on synergies by bringing together institutions and developing an integrated approach to planning, budgetary, and monitoring processes. In addition, resulting coordination in implementation can maximize scarce resources, catalyze information-sharing and technology development, and enhance capacities and skills (Levin et al. 2015).
- *Make goals specific and measurable.* An NDC can be enhanced by ensuring that goals are stated in ways that are specific and measurable, and linked to quantitative and/or qualitative measures of progress. There are many ways of expressing a vision, and the goals may focus on outcomes, processes, or needs. In cases where countries have not yet established evidence-based goals, a clear vision statement can help guide further adaptation planning and action.

Update or add current and near-term planning and action

A Party can enhance its NDC by demonstrating the scale of its domestic engagement in building resilience to a changing climate. Domestic engagement

includes ongoing and planned actions (changes in institutions, modified policies and measures, major projects/programs, planning processes, and financial investments). Such information can include a description of recently completed, ongoing, and planned domestic adaptation efforts and national investments, as well as other contributions to their implementation. The description can also include domestic support for regional activities that enhance climate resilience. Potential enhancements include the following:

- *Articulate planning milestones*. For Parties with a NAP or equivalent planning process, enhancements in this category can draw on activities under way by highlighting major planning milestones, expected outputs, and major projects planned or under implementation.
- *Outline planning intentions*. Parties without such a process or plan in place could articulate elements of an intended planning process, including timeline, focal areas, ministries and stakeholders to engage, and an outline of the process. Alternatively, Parties could include a description of more general development activities under way that are expected to reduce climate risks/vulnerabilities.
- *Cite successes*. Where planning is advanced, Parties could cite significant sectoral investments, innovations, and other successes, including examples where adaptation has been mainstreamed into budget cycles or sectoral planning processes.
- *Highlight adaptation-mitigation synergies*. As Parties review adaptation priorities in the context of their NDCs, they have an opportunity to highlight and/or prioritize adaptation actions that contribute to mitigation targets, or mitigation actions that have taken climate risks into consideration. For example, water conservation efforts among farmers could result in energy savings from reduced pumping or desalinating; combating desertification as an adaptation effort could include tree-planting, which could increase carbon sinks. Another example is integrated landscape management, which can provide both adaptation and mitigation benefits.

Update or add information on gaps and barriers

A Party can enhance its NDC by including a description of gaps and barriers to adaptation action or planning. In the case of Parties with a NAP or equivalent planning process, this information might be included in planning documents; it could also be elaborated through stakeholder engagement or interviews. Potential enhancements include the following:

- *Outline requirements for long-term action or planning*. This can include an assessment of the needs (e.g., information, capacity, technology) to carry out planned actions, as well as to achieve the integration of adaptation in development planning. In cases where the analysis includes an assessment of financial costs for specific activities, Parties may wish to include a brief description of the core assumptions and methods used to identify and prioritize various options for action.
- *Cross-reference other plans or analyses*. For Parties without a NAP or equivalent process, the absence of a plan may itself be described as a gap; or specific gaps might be identified in sector-, project-, or location-specific studies.

Update or add monitoring, evaluation, and learning plans

Adaptation planning is an iterative process, gradually growing in scope and learning from the monitoring and review of ongoing adaptation actions. Therefore, a description of how adaptation progress will be nationally monitored, reviewed, updated, and reported can be an important element in an enhanced NDC. This information can also be useful in Parties' adaptation communications as a means of measuring progress toward the Paris Agreement's long-term goal on adaptation. Potential enhancements include the following:

- *Summarize monitoring plans from national adaptation planning processes*. For Parties with a NAP or equivalent process, information about monitoring may be included in the plan. A monitoring plan also could be tailored specifically to the information included in the NDC.
- *Signal intent to measure progress*. Parties without a NAP may describe a basic plan for monitoring progress toward the goal/vision outlined in the NDC, such as identification of key milestones in a future NAP process. They could also link to other monitoring or reporting mechanisms, such as the UNFCCC National Communications or SDG tracking systems.

SECTION 3: OPTIONS FOR ENHANCING IMPLEMENTATION CONTENT

NDCs can be used to send important signals regarding how targets, measures, and actions will be implemented, helping to drive investment, action by subnational actors and civil society, and the opening up of new areas for research and innovation. Parties can include new actions or measures in their NDCs designed to strengthen implementation, such as strengthened governance arrangements, more inclusive processes, or the introduction of mechanisms aimed at mobilizing finance for NDC implementation.[26]

Including certain measures and actions could also support greater alignment with a country's sustainable development objectives under the 2030 Agenda for Sustainable Development.

The following is an indicative, but nonexhaustive list of options that countries could consider including in their NDCs:

- Establishment and/or alignment of national regulatory frameworks (including legal instruments) with the long-term goals of the Paris Agreement.
- Introduction of robust domestic accountability mechanisms (e.g., access to justice, anticorruption measures, freedom of information, financial disclosure).
- Establishment of coordination mechanisms for NDC implementation, including coordination among ministries and with local governments to ensure that climate action is aligned and integrated into decision-making.
- Establishment of a national climate change fund to support implementation of the NDC.
- Commitment to align sectoral investment plans and budgets with the NDC and implementation of associated review mechanisms.
- Establishment of comprehensive mandates, systems, and plans to collect data and transparently report on progress toward achieving the targets, measures, and actions in the NDC (e.g., mandates for data sharing; enhanced systems for data collection and dissemination; development of a monitoring plan which will be adhered to on a regular, ongoing basis; ensuring open and accessible data to stakeholders outside of government).
- Commitment to promote greater inclusion and participation in decision-making and implementation of climate policy, particularly by those most vulnerable to climate change. Including such a commitment in an NDC offers the opportunity to further align with SDG 5 (Gender Inequality) and 10 (Reduced Inequalities).[27]
- Commitment to identify and/or prioritize actions that support both mitigation and adaptation outcomes. Ensuring that mitigation actions support the achievement of longer-term climate resilience, or at least do not exacerbate vulnerabilities, or quantifying the mitigation potential of adaptation activities (e.g., avoiding water shortages from the construction of hydroelectric power plants, or prioritization of reforestation or afforestation policies in regions currently experiencing soil degradation or salinization issues).

SECTION 4: OPTIONS FOR ENHANCING COMMUNICATION

Parties to the Paris Agreement are to communicate NDCs and provide information necessary for clarity, transparency, and understanding (CTU) in accordance with accompanying decision 1/CP.21 and any relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.[28] The Ad Hoc Working Group on the Paris Agreement is requested to develop further guidance for the information to be provided by Parties to facilitate CTU.[29]

While Parties do not raise ambition by enhancing CTU, they will enhance other critical aspects of their NDC. Information to facilitate CTU of NDCs can contribute to fulfilling several purposes, including holding Parties accountable to their contributions, enabling an assessment of global emissions, providing context for a Party's NDC, understanding plans and actions for implementation, sharing needs associated with the achievement of the NDC, and enabling an assessment of individual effort.

Parties can enhance CTU in several ways as explored below and further elaborated in Appendix A.

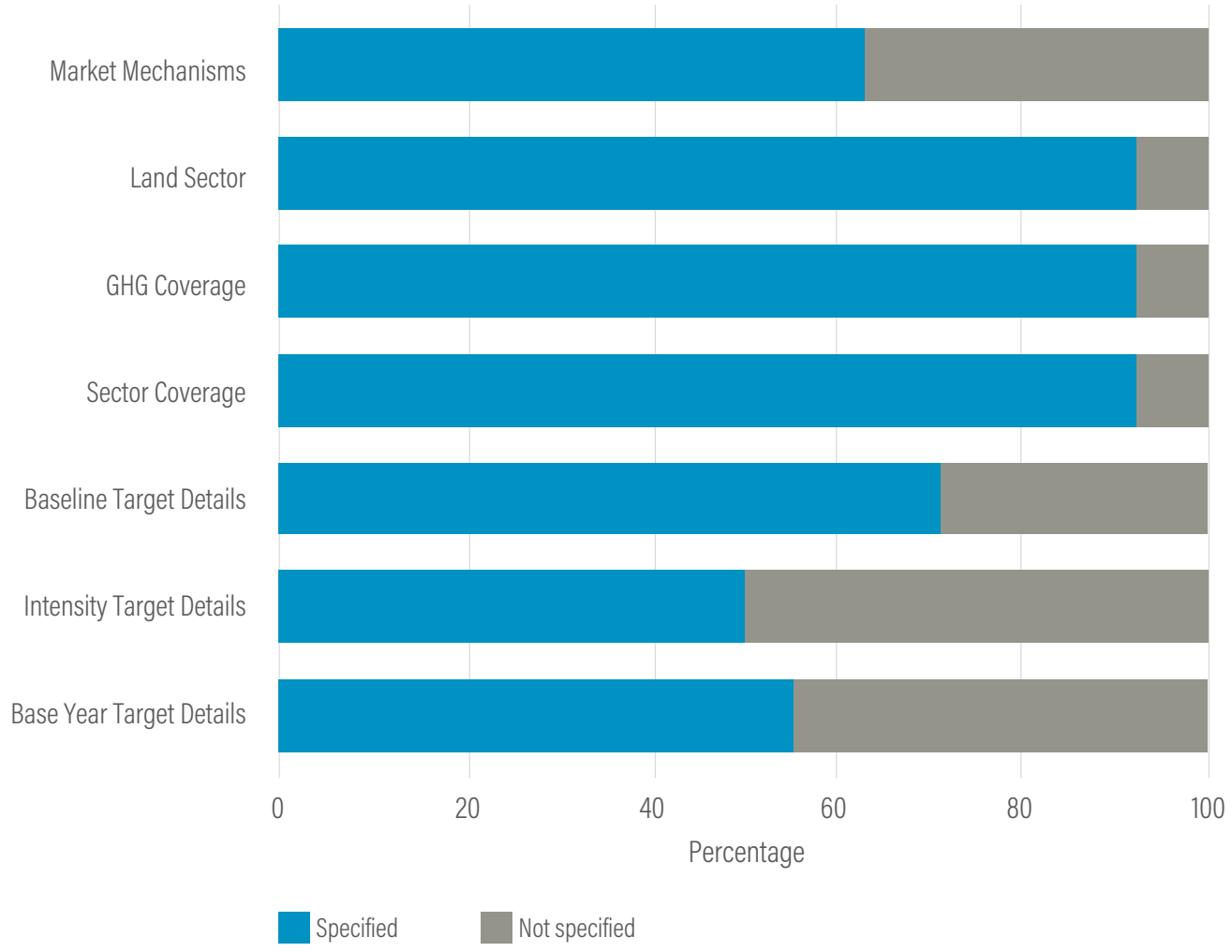
At a minimum, Parties can meet the basic information provided under paragraph 27 of Decision 1/CP.21 and any subsequent COP decisions, as relevant to their NDC. The information set indicated in paragraph 27 is the same as the one that Parties used to prepare their INDCs, per paragraph 14 of the Lima Call for Climate Action. This information set includes the following:

- quantifiable information on the reference point (including, as appropriate, a base year);
- time frames and/or periods for implementation;
- scope and coverage;
- planning processes;
- assumptions and methodological approaches, including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals;
- how the Party considers that its NDC is fair and ambitious, in the light of its national circumstances; and
- how it contributes toward achieving the objective of the Convention as set out in its Article 2.

Given that it was not mandatory to provide all of the information provisions, the current NDCs do not uniformly include even this basic set of information (Damassa et al. 2015; see Figure 12). For example, 8 percent of countries did not specify their sectoral coverage, and 12 percent of countries did not specify their GHG coverage.

Even if Parties have provided some information for each of these elements, there is often room for more detail. For example, 35 percent of NDCs did not specify assumptions related to the planned use of market mechanisms (and even among those that indicated a possible use, very little information was provided) and about one-quarter of NDCs did not specify conditionalities for NDC achievement (Damassa et al. 2015; see Figure 12).

Figure 12 | **Transparency of Key Elements in Intended Nationally Determined Contributions**



Source: Based on 125 intended nationally determined contributions submitted as of October 21, 2015; adapted from Damassa et al. 2015.

Appendix A provides the full set of detailed information regarding each element in paragraph 27 (Decision 1/CP.21) in line with which NDCs can be further elaborated to enhance CTU.[30]

SECTION 5: USING THE MENU OF OPTIONS FOR NDC ENHANCEMENT

The menu presented in this paper is intended to help Parties identify options to consider in the preparation of new or updated NDCs, in accordance with the requirements and expectations of the Paris Agreement. Parties will have the opportunity to do so by 2020, as well as every five years thereafter, informed by the outcomes of the global stocktakes under Article 14 of the Paris Agreement. It is also envisaged that this menu can assist Parties, civil society, and academia to assess whether a new or updated NDC has in fact been enhanced in terms of its level of mitigation ambition.

The following questions can help Parties identify opportunities to enhance their NDCs in accordance with the options outlined in Sections 1 through 4. As inputs to the NDC enhancement process, Parties may also wish to consider NDC enhancement through the lens of related processes such as the Sustainable Development Goals, as well as action by subnational entities and the private sector, which may highlight the relevance of particular options.

Mitigation Ambition

Review GHG targets

- Do the GHG targets cover all sectors, gases, and geographic areas? If not, could new sectors, gases, and/or geographic areas be added to the target in a way that would result in enhanced ambition?
- Have national circumstances, political climate, available resources, or market conditions changed since the target was set? For example, have prices of key technologies fallen faster than previously anticipated? Is implementation of key policies delivering results? If so, is there scope to commit to achieve the target earlier than anticipated, to commit to achieve deeper reductions in the target year, or to overachieve the lower end of the target range and move toward the upper end of the target range?
- What are the modalities for the existing target? Are the modalities surrounding land use, land-use change and forestry, and internationally transferred mitigation outcomes as robust as they could be? If not, is there scope to strengthen them?
- Has the Party set a target to peak emissions by a certain year or to reach net zero emissions by a certain year? If not, is there scope to set such a goal in a way that would enhance ambition?
- If the original NDC does not contain a GHG target, is there scope to set one that would enhance overall ambition?

Review non-GHG targets

- Is there scope to add targets for key sectors (e.g., a renewable energy target) in a way that would raise overall ambition (not just identify how existing GHG targets will be implemented)?
- Are non-GHG targets in the existing NDC fully aligned with any long-term strategy and the long-term goals of the Paris Agreement? Do they help the Party avoid locking in emissions-intensive infrastructure? Could new or stronger non-GHG targets support this?
- Do non-GHG targets in the existing NDC maximize potential synergies with the Sustainable Development Goals and targets under the 2030 Agenda for Sustainable Development, as well as the Party's own development goals? Would additional non-GHG targets support implementation of the Sustainable Development Goals, or the Party's development goals, in a manner that also enhances mitigation ambition?

Review policies and actions

- Do the policies in the existing NDC address all appropriate sectors, gases, and geographic areas?
- Are the policies and actions in the existing NDC fully aligned with any long-term strategy and the long-term goals of the Paris Agreement? Do they help the Party avoid locking in emissions-intensive infrastructure? Could new or stronger policies and actions better support this?
- Do the policies and actions in the existing NDC maximize potential synergies with the Sustainable Development Goals and targets under the 2030 Agenda for Sustainable Development, as well as the Party's own development goals? Would additional policies and actions better support implementation of the Sustainable Development Goals, or the Party's development goals, in a manner that also enhances mitigation ambition?

Review alignment with long-term strategies and goals

- Has the Party put forward a long-term strategy since communicating its first NDC? Is the country willing and able to set a target that aligns with long-term goals to help smooth the transition? If the country has not yet put forward a long-term strategy, is there scope to strengthen the GHG target to align with the Paris Agreement goals and the Party's own long-term development priorities?
- Is there scope to better align plans to implement the NDC with a long-term strategy, and/or with the Paris Agreement goals and the need to avoid lock-in?

Adaptation Content

Review information in the current NDC on climate change trends, impacts, and vulnerabilities

- Is this information still current? Is there scope to update or include more specific information on climate change trends, impacts, and vulnerabilities?
- What information can be included on long-term trends, impacts, and vulnerabilities?

Review the current NDC's national long-term goals or vision

- Is there scope to expand or elaborate these goals to reflect current adaptation plans or policies?
- Do the goals align with development goals?
- Can the goals be made more specific and measurable?

Review current and near-term planning and action

- Is this information still current? Is there scope to update this section?
- What planning milestones can be highlighted?
- What significant sectoral investments, innovations, and other successes can be described?

Review adaptation gaps and barriers to planning and implementation

- Is this information still current?
- Are there barriers to long-term action or planning that can be outlined?
- Is there information on gaps and barriers in other plans or analyses that can be referenced?

Review monitoring, evaluation, and learning plans for the adaptation actions in the NDC

- Are these plans referenced in the NDC?
- Is there scope to strengthen these plans based on early experiences in implementation or improvements that could be reflected in the NDC?

Implementation Content

Review enabling environment for implementation of the NDC

- Is there scope to include additional actions or measures in the NDC that would strengthen the domestic enabling environment for implementation?
- Is there scope to include additional commitments in the NDC to clarify how the NDC will be implemented?
- Is there scope to include additional actions and measures in the NDC that would support alignment with national objectives under the 2030 Agenda for Sustainable Development?

Communication

Review communication of the NDC

- Does the NDC meet the minimum provisions of the Paris Agreement and its relevant decisions?
- Is there scope to elaborate on each of the elements in paragraph 27 (Decision 1/CP.21)?

SUMMARY AND CONCLUSIONS

The Paris Agreement is built on the premise that climate action must be progressively enhanced in continuous cycles of ambition if we are to collectively limit global warming to levels that enable our economies and societies to thrive. All Parties have the opportunity to demonstrate their commitment to the targets agreed in the Paris Agreement by enhancing the level of mitigation ambition of their current NDCs by 2020 and bringing collective efforts closer to what is needed to avoid the most catastrophic impacts of climate change.

The menu presented in this paper lays out approaches that all Parties can take to identify where and how they can enhance their NDCs in line with their national circumstances and capabilities and aligned with their development priorities. This paper recognizes the importance of enhancing the level of ambition of mitigation targets, policies, and actions. The options for enhancing mitigation ambition go far beyond simply increasing the stringency of top-line GHG targets, though such increases offer a clear signal of enhanced ambition. These include options for expanding the scope and coverage of the NDC to sectors and gases not previously targeted, aligning NDCs with long-term decarbonization, and more. Increasing ambition can be challenging; Parties therefore need to explore different options that will resonate in the context of their national circumstances and priorities. The menu proposed in this paper seeks to offer viable paths for Parties to increase ambition in the context of this first cycle in the Paris Agreement.

The menu also outlines additional enhancement options for Parties to consider, including those that would make the adaptation component of their NDC more robust and comprehensive, strengthen their ability to implement their NDCs, and communicate their proposed actions clearly and transparently.

When updating their NDCs by 2020 (and beyond), Parties should consider changes in the real economy and the domestic progress made toward NDC implementation and ask: Do their NDCs adequately reflect these advancements? Do they adequately leverage the role of the private sector in implementation and mobilize additional domestic or international public finance toward achieving national priorities? And do they align with countries' long-term development objectives? Addressing these questions may provide entry points for a range of actors to engage in NDCs and uncover new opportunities for enhancement.

While Parties have achieved much in the first round of NDCs, enhanced action cannot wait if we are to meet the goals of the Paris Agreement. Delay will render these goals increasingly difficult, and soon impossible, to reach. This makes 2020 a critical moment and a test of the ability of the Paris Agreement to deliver enhanced ambition over time. Parties can help ensure this test is passed by making every effort to explore a wide range of options to enhance their NDCs and, as appropriate, support other Parties to do the same. Enhanced NDCs can send a strong signal to all stakeholders, engaging a broader constituency for implementation and setting a course for a low-carbon and climate-resilient development pathway.

Appendix A: Detailed Information to Enhance Clarity, Transparency, and Understanding

While official guidance on communicating NDCs is forthcoming, the following list provides some ideas on how Parties can expand upon the information in paragraph 27 of Decision 1/CP.21 to enhance clarity, transparency, and understanding in their updated or newly communicated NDCs.

The reference point (including, as appropriate, a base year)
Base year(s)/period, if relevant (e.g., 2005)
Base year/period emissions, base year/period emissions intensity, or projected baseline scenario emissions, as relevant (e.g., base year emissions of 500,000 $MtCO_2e$ in 2005)
Time frames and/or periods for implementation
For targets/outcomes: target year(s)/period and peaking year, if applicable (e.g., 2025 or 2030 for a single year target; 2021–30 for a multiyear target)
For actions: date actions come into effect and date of completion, if applicable (e.g., 2020 with no end date)
Scope and coverage
Sectors covered (e.g., all Intergovernmental Panel on Climate Change (IPCC) sectors covered in national GHG inventory, or all economic sectors as defined by national sector classification)
Greenhouse gases covered (e.g., CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3)
Planning processes
Planning processes for preparation of the INDC (such as stakeholder engagement and public consultation; process, data, and analysis for prioritizing sectors, actions, etc.; and decision-making processes)
If known, planning processes for implementation of the INDC (such as government processes to plan and implement actions, and if known, a list of existing or planned actions that will be implemented to achieve the NDC, their legal status, and the implementing entity/entities)
If known, planning processes for tracking implementation of the INDC (such as any domestic monitoring, reporting, and verification [MRV] systems in place or planned)
Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals
Assumed IPCC inventory methodologies and global warming potential (GWP) values to be used to track progress (e.g., 2006 IPCC Guidelines for National Greenhouse Gas Inventories; AR4 GWP values)
Related to international market mechanisms:
Whether the Party intends to use or transfer internationally transferred mitigation outcomes (ITMOs)
If ITMOs are to be used, any limit on the percentage of emission reductions that may be achieved through the use of ITMOs
If ITMOs are to be used, the policy on which ITMOs are eligible
Related to accounting assumptions for emissions and removals from the land sector:
Treatment of land sector (included as part of the broader target, treated as a separate sectoral target, used to offset emissions within the target boundary, or not included in a target)
If the land sector is included, coverage of the land sector (net emissions and removals from land-use activities and/or categories) as compared to total net emissions from the land sector as a percentage, if known
If the land sector is included, assumed accounting approach (activity-based or land-based) and accounting method for the land sector and the level against which emissions and removals from the land sector are accounted, if known, including policy assumptions and methodologies employed
Any assumed use of methodologies to quantify and account for natural disturbances and legacy effects
Any other relevant accounting approaches, assumptions, or methodologies

For GHG reduction targets relative to a projected baseline scenario:
Whether the baseline scenario is static (will be fixed over the period) or dynamic (will change over the period)
The methodology used to project the baseline scenario, including the projection method (e.g., name and type of models); the cut-off year for policies included in the baseline scenario and any significant policies excluded from the baseline scenario; and the emissions drivers included and assumptions and data sources for key drivers
For dynamic baseline scenario targets, under what conditions will the baseline be recalculated and, if applicable, any significance threshold used to determine whether changes in emissions drivers are significant enough to warrant recalculation of the scenario
Total emissions projected in baseline scenario in the target year(s)
For GHG reduction targets relative to emissions intensity:
Level of output (e.g., GDP) in the base year, projected level of output in the target year/period (and an uncertainty range, if available), and units and data sources used
For INDCs that include actions:
Estimated impact on GHG emissions and/or sustainable development indicators
Methodologies used to estimate impacts, including the baseline scenario and other assumptions
Uncertainty of estimated impacts (estimate or description)
Information on potential interactions with other policies/actions
How the Party considers that its INDC is fair and ambitious, in the light of its national circumstances, and how it contributes toward achieving the objective of the Convention as set out in its Article 2
Comparison of the contribution to multiple indicators related to fairness. Factors Parties may want to consider:
Emissions (e.g., past, current, or projected future emissions; emissions per capita; emissions intensity; or emissions as a percentage of global emissions)
Economic and development indicators (e.g., GDP, GDP per capita, indicators related to health, energy access, energy prices, education, housing)
National circumstances
Vulnerability and capacity to adapt to climate change impacts
Costs or relative costs of action
Mitigation potential (e.g., renewable energy potential)
Benefits of action (e.g., cobenefits) or other factors
Comparison of the contribution to multiple indicators related to fairness. Factors Parties may want to consider:
Projected business-as-usual emissions
Recent historical emission trends
Total mitigation potential based on mitigation opportunities determined to be technically and economically feasible
Benchmarks for the annual rate of emissions reductions, or other factors

Comparison of the contribution to multiple indicators related to achieving the objective of the Convention as set out in its Article 2. Factors Parties may want to consider:
Anticipated national emissions in the target year/period if the contribution is achieved
The quantified GHG impact of the contribution
The intended peaking year and peaking emissions level (if known)
The annual rate of emissions reductions and/or expected emissions trajectory over time
Deviation from business-as-usual emissions
Any long-term mitigation goals, plans to limit cumulative emissions over time, or other factors
Other information
For outcomes, type of target, and target level
For actions, name or title of actions, legal status, implementing entity(ies), or other relevant information
Additional action that could be achieved if certain conditions were met, such as action by other Parties, the receipt of support, or other factors, if applicable
Description of Party's long-term target(s), if applicable
Elaboration on national circumstances (e.g., emissions profile, mitigation potential)
Additional information on adaptation not captured elsewhere, if relevant
Additional information, explanation, or context as relevant
NDC Principles from the Paris Agreement (Article 4)
Information regarding how the NDC represents a progression beyond the Party's current NDC (Article 4.3)
Information regarding how the NDC represents highest possible ambition (Article 4.3)
Information regarding how the developed country Party is taking the lead or how the developing country Party is enhancing mitigation efforts or moving toward economy-wide emission reduction or limitation targets (Article 4.4)

Source: The above list is drawn from WRI's Open Book list and WRI and UNDP's "Designing and Preparing Intended Nationally Determined Contributions."
Through consultation with government representatives, WRI developed a list of information for countries to provide when communicating their then-INDCs in 2015. For more information, see http://www.wri.org/our-work/project/open-book and Levin et al. 2015.

ENDNOTES

1. Recent analysis revealed that 14 new laws and 33 new executive policies related to climate change have been introduced since the Paris Agreement was adopted in December 2015 with 4 of these new laws and policies specifically relating to NDCs. See Wentz 2017.
2. Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (January 29, 2016), paras 23 and 24.
3. Paris Agreement, Article 4.3.
4. Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (January 29, 2016), para 20 and para 21.
5. Paris Agreement, Articles 2.1, 4.1, and 7.1.
6. The Paris Agreement establishes a clear expectation of progression of effort over time, including the concept of enhancing the level of mitigation ambition to ensure that a country's NDC reflects its highest possible ambition. This expectation is articulated through several key provisions in Article 4 (and is also reflected in the preamble and Article 3). Article 4.3 of the Paris Agreement provides that "each Party's successive NDC will represent a progression beyond the Party's then current NDC and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." Article 4.11 states that "a Party may at any time adjust its existing nationally determined contribution with a view to enhancing its level of ambition." Read together, these provisions make clear the expectation that updated or revised NDCs (in terms of mitigation contributions) are to reflect a country's highest possible ambition. See Rajamani 2017.
7. These "intended" NDCs became NDCs for the purposes of the Paris Agreement when a country joined the Paris Agreement. See decision 1/CP.21, para 22. If a Party has communicated an intended nationally determined contribution prior to joining the Agreement, that Party shall be considered to have satisfied this provision unless that Party decides otherwise. Note that these documents may still contain the term "INDC."
8. For further explanation, see Levin et al. 2015 and http://cait.wri.org/indc/#/.
9. Paris Agreement, Article 4.2.
10. Paris Agreement, Articles 7.10 and 7.11.
11. Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (January 29, 2016), para 23, applicable to Parties whose NDC contains a time frame up to 2025.
12. Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (January 29, 2016), para 24, applicable to Parties whose NDC contains a time frame up to 2030.
13. Decision 1/CP.21, Adoption of the Paris Agreement, FCCC/CP/2015/10/Add.1 (January 29, 2016), para 20.
14. WRI (World Resources Institute), (Database). *Climate Analysis Indicators Tool (CAIT)*. http://cait.wri.org/indc/. Accessed October 23, 2017.
15. The carbon budget is the estimated amount of carbon dioxide the world can emit while still having a likely chance of limiting global temperature rise to a specified level relative to preindustrial levels.
16. According to preliminary statistics, however, during the first half of 2017 in China, coal consumption increased about 1 percent. For more, see Greenpeace. 2017. "Boom or Bust 2017: Tracking the Global Coal Plan Pipeline." March 22. http://www.greenpeace.org/india/en/publications/Boom-and-Bust-2017/.
17. Cumulative emissions are the sum of annual emissions over a defined time period. In this paper, we define cumulative emissions as the sum of annual emissions over the course of this century.
18. See the GHG Protocol Policy and Action Standard (GHG Protocol 2015), chapter 5 for guidance on considering interactions between multiple policies when quantifying GHG impacts.
19. Single-year targets aim to reduce emissions by a single target year, whereas multiyear targets aim to reduce emissions over a period of consecutive years. For example, a single-year target might aim to reduce emissions by 2025, whereas a multiyear target would aim to reduce emissions over the five-year period from 2021-25. Multiyear targets provide more clarity about the expected future emissions pathway, rather than emissions in only a single year. Unless milestones are established with a single-year target, multiyear targets have a better chance of limiting cumulative emissions over the target period, as emissions may fluctuate more with single-year targets over the target period. By limiting emissions across multiple years, multiyear targets can also better facilitate long-term domestic mitigation efforts, as opposed to single-year targets, which carry a risk that emissions could be reduced only in the target year through the purchase of transferable emissions units without making necessary transformations domestically. If a multiyear target is selected, it may be defined as an average, annual, or cumulative multiyear target. An average multiyear target is a commitment to reduce, or control the increase of, annual emissions (or emissions intensity) by an average amount over a target period. An annual multiyear target is a commitment to reduce, or control the increase of, annual emissions (or emissions intensity) by a specific amount each year over a target period. A cumulative multiyear target is a commitment to reduce, or control the increase of, cumulative emissions over a target period to a fixed absolute quantity.
20. Many countries have chosen to make their NDCs conditional on international support or other factors, reflecting in some cases the disconnect between some Parties' intent to mitigate emissions and their current or expected capability to do so. Some NDCs are conditional in their entirety; others include specific targets, policies, and/or actions that are conditional alongside other targets, policies, and/or actions that are unconditional. At least 67 percent of Parties responsible for 37 percent of global GHG emissions have a fully or partially conditional NDC.
21. Negotiations under the UNFCCC are expected to result in the establishment of accounting guidance for land use and land-use change and forestry (LULUCF) and internationally transferred mitigation outcomes (ITMOs). Unless and until guidance ensures robust treatment of both, it remains important for Parties to clarify their intended approaches.
22. See GHG Protocol 2014 for further information.
23. See GHG Protocol 2015 for further information.
24. See GHG Protocol 2015 for further information.
25. Other vehicles that countries can choose for adaptation communications include National Communications or National Adaptation Plans.
26. UNDP, UNEP, UNEP DTU, UNFCCC, and WRI. Forthcoming. "Implementing NDCs."
27. See UNFCCC, "Gender and Climate Change," unfccc.int/gender_and_climate_change/items/7516.php and http://www.uncclearn.org/sites/default/files/inventory/gender_equality_in_national_climate_action_1.pdf.
28. Paris Agreement, Article 4, paragraph 8.
29. Decision 1/CP.21, paragraph 28.
30. The detailed information provisions are drawn from WRI's Open Book list and WRI and UNDP's "Designing and Preparing Intended Nationally Determined Contributions." Through consultation with government representatives, WRI developed a list of information for countries to provide when communicating their then-INDCs in 2015. For more information see http://www.wri.org/our-work/project/openbook and Levin et al. 2015.

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ABOUT THE AUTHORS

Taryn Fransen is a senior associate with WRI's Global Climate Program and the director of the Open Climate Network.

Contact: tfransen@wri.org

Eliza Northrop is an associate with WRI's International Climate Action Initiative.

Contact: enorthrop@wri.org

Kathleen Mogelgaard is an associate with WRI's Climate Resilience Practice.

Contact: kmogelgaard@wri.org

Kelly Levin is a senior associate with WRI's Global Climate Program and leads the TRAC Policy pillar.

Contact: klevin@wri.org

ABOUT WRI

World Resources Institute is a global research organization that turns big ideas into action at the nexus of environment, economic opportunity and human well-being.

Our Challenge
Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision
We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach
COUNT IT
We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT
We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT
We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.

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