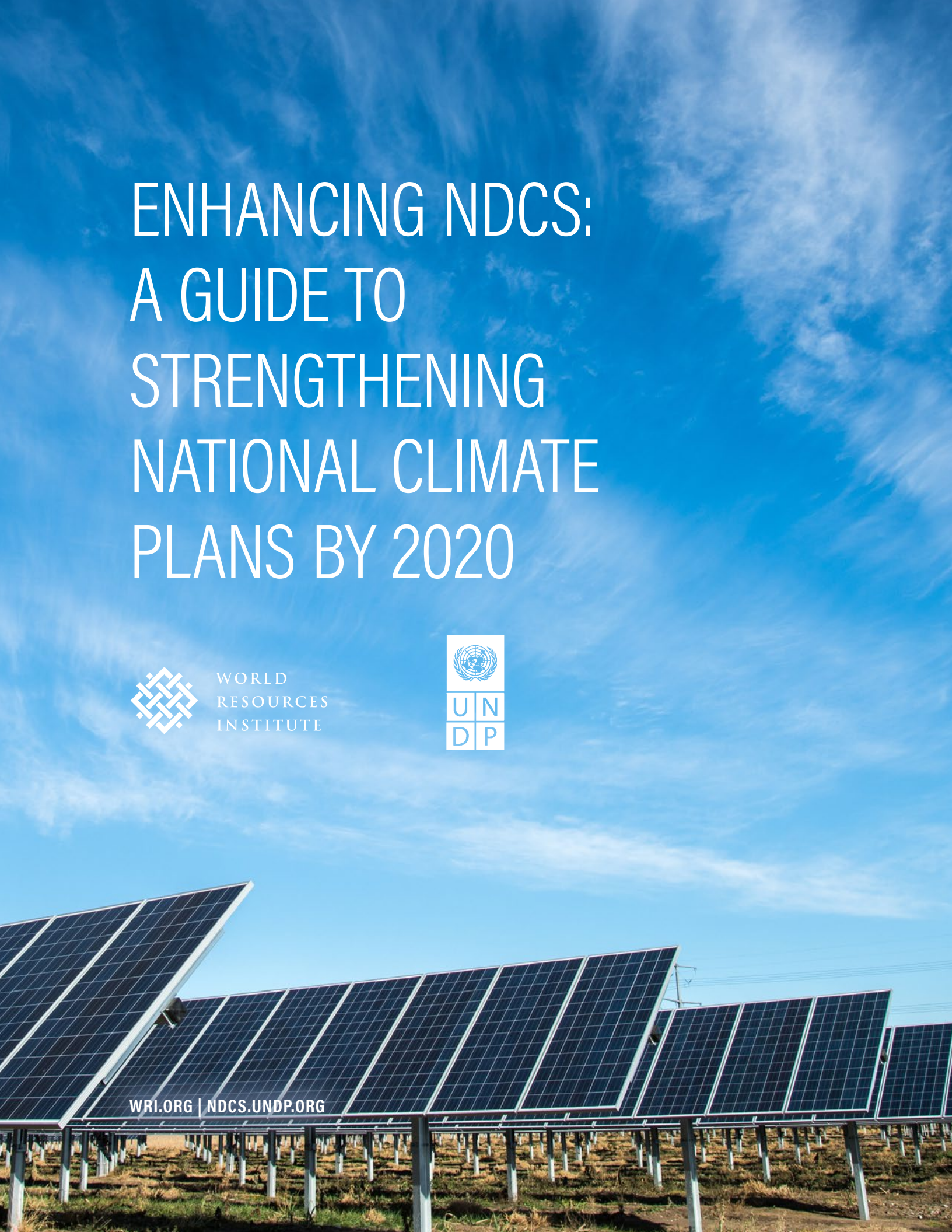
ENHANCING NDCS: A GUIDE TO STRENGTHENING NATIONAL CLIMATE PLANS BY 2020



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FOREWORD

Next year, 2020, is a key milestone. For the first time since 2015, countries will put forward enhanced Nationally Determined Contributions (NDCs) that go beyond current national climate plans and bring us closer to the Paris Agreement goals of de-carbonizing economies and improving resilience. Now more than ever, ambitious action is urgently needed to address the global climate crisis and keep global temperature increases in check.

This first round of NDC enhancement comes at a crucial time. The effects of climate change are being felt around the world in a wide range of forms, including increased frequency of extreme weather, biodiversity loss, rising sea levels, and prolonged droughts.

According to the Intergovernmental Panel on Climate Change (IPCC), we have only until 2030 to slash emissions nearly in half and limit global warming to 1.5°C. We need rapid and bold paradigm shifts in energy and land use, as well as in areas like industry and infrastructure, in order to avoid the most devastating impacts of climate change and achieve our sustainable development objectives. This level of ambition must guide the NDC enhancement process in 2020.

New analysis by the UN Development Programme (UNDP) and UN Climate Change (UNFCCC) confirms that a significant number of countries are committed to enhancing NDCs. This publication guides governments through this process. The NDC enhancement process is also an opportunity for countries to demonstrate their climate leadership while advancing development benefits—such as improved health, access to clean energy, and economic growth—in line with the Sustainable Development Goals (SDGs). Enhancing NDCs can help capture some of the estimated USD 26 trillion in economic benefits associated with taking ambitious climate action between now and 2030.

However, for many countries, this ambition must be met with financial, technological, and capacity-building support. We stand ready to support countries in this process. We echo UN Secretary-General António Guterres' call for countries to lay out a course to enhance their NDCs and work towards "net-zero" emissions. This guide is designed to assist those who are exploring how to answer that call.

We invite countries to work through a step-by-step process to identify their best options for enhancing NDCs, to learn from country experiences, and to put forward enhanced NDCs in the next year at a key moment for the Paris Agreement—and for our shared future.

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EXECUTIVE SUMMARY

This report aims to help government officials identify options for enhancing Nationally Determined Contributions (NDCs) in line with the Paris Agreement. It offers guidance on establishing a process for NDC enhancement, enhancing mitigation and adaptation components of NDCs, and communicating NDCs transparently. Additionally, it reflects on aligning NDCs with the Sustainable Development Goals (SDGs), and on the role of finance in NDC enhancement.

Highlights

- At the Paris climate negotiations in 2015, countries agreed to establish 2020 as a key milestone in the global effort to fight climate change. As part of the regular five-year cycles to strengthen ambition laid out in the Paris Agreement, countries are requested to put forward nationally determined contributions (NDCs) by 2020.
- The rationale for updating NDCs, and particularly for enhancing mitigation ambition, is greater than ever: The latest climate science underscores the need for ambitious, immediate action to keep the Paris Agreement goals within reach; technological advances increasingly facilitate ambitious action; and the alignment between ambitious climate action and socioeconomic benefits is increasingly well documented and understood.
- This guidance provides a structure to help countries think through the process of enhancing their NDCs along three dimensions: mitigation, adaptation, and transparent communication.
- With regard to mitigation, this guidance places a priority on enhancing ambition and reducing emissions to achieve the temperature goals in the Paris Agreement, while noting that NDCs can also be enhanced to strengthen implementation in various ways.
- Enhancing an adaptation component of an NDC depends strongly on a country's objectives with regard to adaptation and the relationship between the NDC and other adaptation-related processes.
- Clear communication of NDCs builds trust and facilitates effective implementation. Guidance on communication—or clarity, transparency, and understanding—is based on the Paris Agreement Work Program adopted in 2018.

Executive Summary

Context

The Paris Agreement established a series of five-year cycles to increase ambition, including through NDCs that would grow more ambitious over time. Countries also specifically agreed on 2020 as a critical next step in the Paris process. Countries with an NDC time frame ending up to 2025 are requested to communicate new ones by 2020 (UNFCCC 2015a). Those countries whose NDCs have a time frame ending up to 2030, in turn, are requested to communicate or update their NDCs by 2020. This guidance refers to the process of developing new or updated NDCs as "NDC enhancement."

It is imperative that the NDC enhancement process deliver greater mitigation ambition. Scientific evidence suggests that the window of opportunity to limit the global mean temperature well below 2°C, or 1.5°C, is closing rapidly (IPCC 2018). Hence, it is crucial that countries enhance the mitigation ambition of their NDCs by 2020.

NDC enhancement also provides an important opportunity to make adaptation planning more robust and to advance transparent communication of the NDC. Enhancing the adaptation component of an NDC can increase the visibility and profile of adaptation to achieve balance with mitigation, strengthen adaptation action and support, provide inputs to the global stock-take, and enhance learning and understanding of adaptation needs and actions. Enhancing transparency can clarify the emissions level implied by the NDCs, facilitate global aggregation of NDCs' greenhouse gas (GHG) effect, their sectoral and GHG coverage, and their underlying assumptions and methodologies, among other elements.

There are many additional reasons to enhance NDCs in 2020:

- Taking advantage of major technological advances
- Avoiding carbon lock-in
- Reducing transition costs
- Aligning with carbon neutrality and long-term strategies
- Building on action by subnational and nonstate actors
- Seizing opportunities for economic growth and development
- Maximizing synergies with the Sustainable Development Goals (SDGs)
- Attracting climate finance and investment
- Bolstering implementation
- Building broader buy-in from key ministries and stakeholders

About This Guidance

The objective of this guidance is to help countries design an enhanced NDC for communication to the UNFCCC by 2020. The guidance proposes an overarching framework that countries can use to think through the process of, and options for, updating their NDCs. Its use is entirely voluntary; countries are free to use it in whole or in part and to adapt it to their national circumstances as relevant. The guidance is intended to complement, but not substitute for, NDC provisions in the Paris Agreement and the Paris Agreement Work Programme.

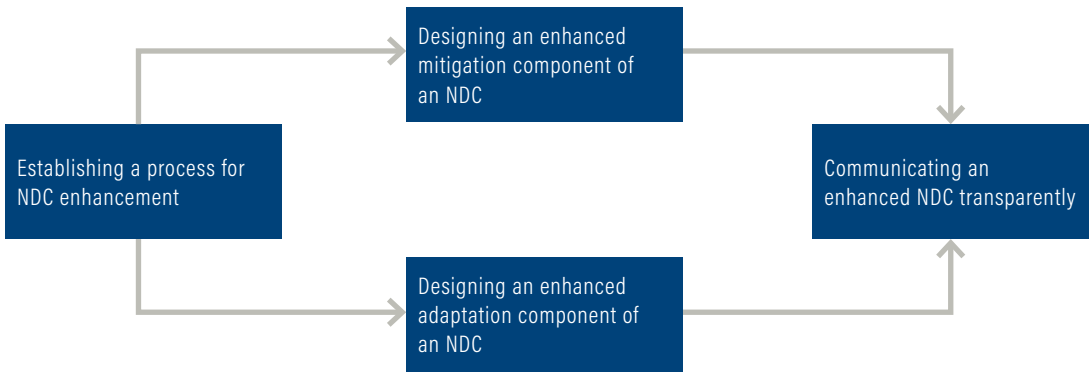
This overarching framework will be supplemented by more detailed guidance on particular sectors and themes. These subsequent modules will address electric power generation and use, transportation, agriculture, forest and land use, oceans, short-lived climate pollutants, and potentially other sectors.

Summary of the Guidance

The guidance first presents considerations for establishing a process to enhance NDCs, and then guides countries through the main components of NDC enhancement: mitigation, adaptation, and transparent communication (Figure ES-1). Each section presents the rationale for enhancing that component as well as guidance on taking stock of the current situation and identifying options for enhancement. Finally, it includes examples of additional resources that countries can consult throughout the process of enhancement.

Establishing a clear and inclusive process to enhance the NDC is a vital first step (Figure ES-2). In establishing such a process, countries should consider how to ensure coherence with national planning processes, gain support from affected constituencies and those who will implement the NDC, define institutional arrangements to ensure leadership and coordination, engage stakeholders, and develop a work plan with defined roles and responsibilities to undertake the enhancement. For both mitigation and adaptation, countries should explore how climate actions in the NDC can also help the country achieve national development objectives, including implementation of the SDGs.

Figure ES-1 | Elements of the NDC Enhancement Process



Source: Authors.

Figure ES-2 | Steps to Establish an NDC Enhancement Process

Source: Authors.

In this guidance, enhanced mitigation ambition is defined to mean that the enhanced NDC, if fully implemented, results in lower cumulative emissions than the fully implemented initial NDC (Fransen et al. 2017). Countries should undertake the steps described below with a view toward promoting this result.

Countries can undertake the following steps to identify options for mitigation enhancement and reflect them in their NDCs (Figure Es-3):

- Take stock of recent developments, including updated GHG inventories, trends in key sectoral indicators, changes in national policies and measures, actions and plans by nonstate and subnational actors, and economic and technology trends. National emissions projections should also be updated as feasible and relevant.
- Take stock of long-term objectives and benchmarks to inform NDC enhancement. These include the the global and sectoral benchmarks for mitigation to achieve the temperature goals in the Paris Agreement, as well as the SDGs and other global and national frameworks and plans. Review the global emissions and associated sectoral benchmarks associated with the temperature goals in the Paris Agreement and consider their relevance in the particular country.
- Apply the following diagnostic questions at the sectoral and cross-sectoral level with a view both to identify and fill gaps in the NDC and to enhance its existing elements:

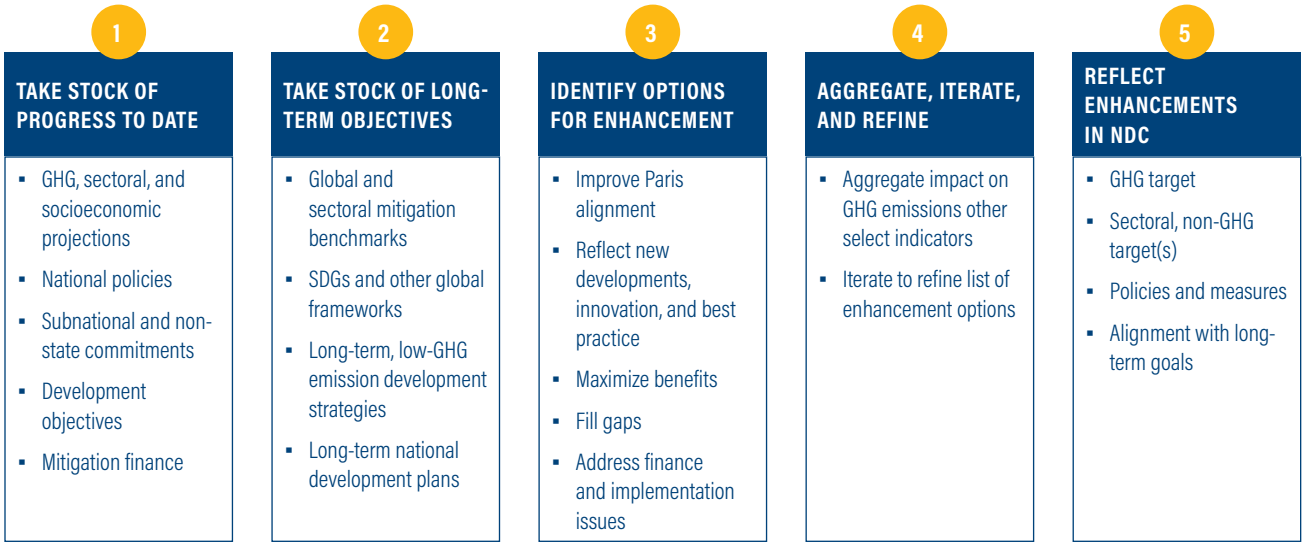
Improving Paris alignment

- ☐ Does the NDC as a whole, and its treatment of each sector individually, lead to a trajectory that aligns with the benchmarks for achieving Paris Agreement temperature goals?

Reflecting new developments, innovation, and best practices

- ☐ Does the treatment of the sector in the initial NDC reflect up-to-date assumptions regarding available technologies and their costs?
- ☐ Does the NDC as a whole, and its treatment of each sector individually, reflect the relevant plans, policies, and measures that are being implemented and considered at the national level or that ought to be considered based on available best practices?
- ☐ Does the NDC as a whole, and its treatment of each sector individually, reflect the relevant climate action commitments being made by nonstate and subnational actors in the country?

Figure ES-3 | Steps to Enhance Mitigation in the NDC



Source: Authors.

Maximizing the benefits

- ☐ Does the NDC as a whole, and its treatment of each sector individually, maximize synergies and reduce potential conflicts with development objectives, including climate resilience?

Filling the gaps

- ☐ Does the NDC address all relevant sectors, subsectors, and gases?

Addressing finance and implementation issues

- ☐ Could the NDC better reflect finance needs for NDC implementation and/or policy actions to align finance flows with climate goals?
- ☐ Does the NDC address important cross-sectoral interactions?
- ☐ Could the NDC otherwise facilitate strengthened implementation?

Create a list of mitigation enhancement options on the basis of the diagnostic questions.

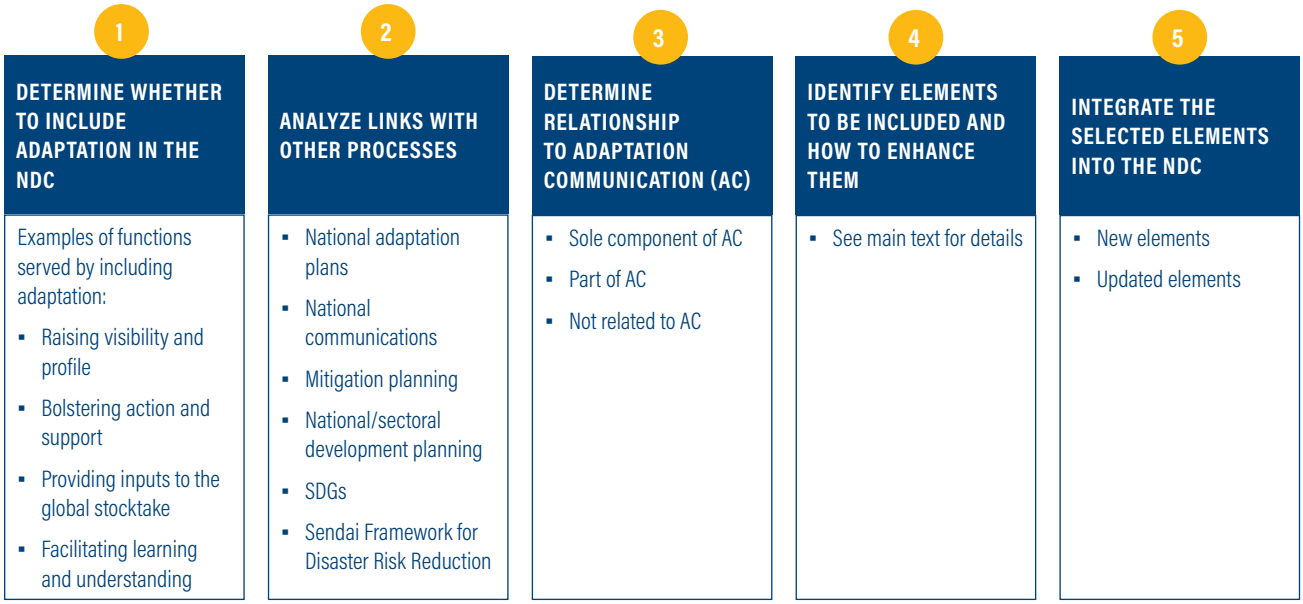
- Refine the list of mitigation enhancement options on the basis of selected criteria, such as GHG reduction potential, feasibility, and benefits and costs. To the extent feasible, aggregate the impacts of the proposed enhancement opportunities and iterate the previous steps to refine and finalize the list of mitigation enhancements.
- Determine how to reflect enhancements in a revised NDC, whether in the form of a GHG target, a sector-specific non-GHG target, policies and actions, or a combination of the above.

The following steps can guide countries in determining the treatment of adaptation in an enhanced NDC (Figure ES-4):

- Explore the purposes of including an adaptation component in the NDC: As a starting point, a UNFCCC decision on adaptation communication (UNFCCC decision 9/CMA.1) identifies the following objectives:
  - ☐ Increasing the visibility and profile of adaptation and its balance with mitigation.
  - ☐ Strengthening adaptation action and support for developing countries.
  - ☐ Providing inputs to the global stock-take.
  - ☐ Enhancing learning and understanding of adaptation needs and actions.

- Determine whether to include an adaptation component in the NDC: While integrating adaptation into the NDC is voluntary, many countries opted to do so in the first submission of NDCs.
- Analyze relevant links, synergies, trade-offs, and opportunities to streamline with other domestic and international processes; for instance, national adaptation plans (NAPs), national communications (NCs) to UNFCCC, mitigation planning, national or sectoral development planning processes, the 2030 Development Agenda (SDGs), and the Sendai Framework for Disaster Risk Reduction 2015–2030.
- Determine whether the adaptation component in the NDC constitutes the country's adaptation communication solely, in part, or not at all. If the adaptation component in the NDC is the country's adaptation communication, it must be clearly indicated, and the information should be stored in the UNFCCC registry for adaptation communication.
- Based on the results of previous steps, identify elements to be included and how to enhance them: As a starting point, the following elements drawn from the UNFCCC decision 9/CMA.1 on Adaptation Communication (UNFCCC 2019) could be considered, each with associated options for enhancement (see main text):
  - ☐ National circumstances, institutional arrangements, and legal frameworks
  - ☐ Impacts, risks, and vulnerabilities
  - ☐ National adaptation priorities, strategies, policies, plans, goals, and actions

Figure ES-4 | Steps to Enhance Adaptation in the NDC



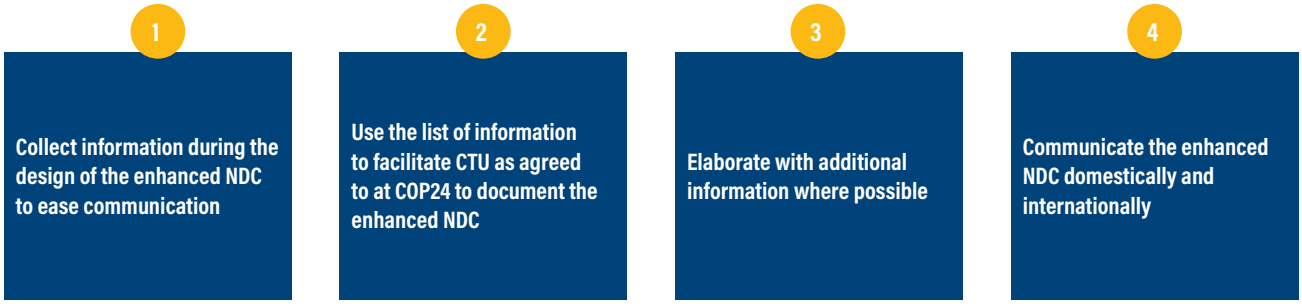
Note: These steps are explained in the chapter "Designing an Enhanced Adaptation Component of an NDC."
Source: Authors.

- implementation and support needs of, and provision of support to, developing country Parties
- implementation of adaptation actions and plans
- adaptation actions and/or economic diversification plans, including those that result in mitigation co-benefits
- an assessment of how adaptation actions contribute to other international frameworks and/or conventions
- gender-responsive adaptation action and traditional knowledge, knowledge of indigenous peoples, and local knowledge systems related to adaptation

- Integrate the elements selected into the NDC, with new and/or updated content, using existing information according to the sources of information and processes listed above, and complementing this with additional analyses and consultations when required.

Finally, countries can enhance the information in their NDCs to facilitate clarity, transparency, and understanding (CTU) in communicating their NDCs and to foster alignment with the elements of CTU as agreed at COP24 (Figure ES-5). This guidance outlines how countries can fulfill the information requirements agreed to under the UNFCCC, as well as provide additional information that facilitates even further CTU.

Figure ES-5 | Steps to Facilitate Clarity, Transparency, and Understanding in an Enhanced NDC



Source: Authors.

INTRODUCTION

Since its adoption in 2015, the Paris Agreement has cleared two major hurdles. First, it entered into force less than a year after it was adopted. Second, in 2018, countries adopted the Paris Agreement Work Programme, fleshing out the details governing its implementation.

The year 2020 will mark the Paris Agreement's next major milestone. To achieve its ambitious long-term goals, the Agreement included a five-year cycle to increase the ambition of climate action over time. Reflecting the urgency of early action, countries agreed on the following actions by 2020: Countries with an NDC with a time frame up to 2025 are requested to communicate a new NDC, and countries with an NDC with a time frame up to 2030 are requested to communicate or update an existing NDC (decision 1/CP.21, UNFCCC 2015a). A decision at the 24th Conference of Parties in Katowice, Poland, (decision 1/CP.24) in 2018 explicitly reiterated this request for NDCs to be brought forward by 2020 (UNFCCC 2018).

Several factors motivated countries to agree that 2020 would be the next moment to submit NDCs. First, countries' initial mitigation targets were insufficient to achieve the Agreement's broader goals, as confirmed by a UNFCCC assessment in the lead-up to the Paris negotiations (UNFCCC 2015c). Second, many countries had prepared their initial NDCs without adequate time or capacity to fully consider key issues. Developing countries, in particular, have noted challenges in developing their first NDCs as well as the need for technical assistance to revisit their NDCs based on the Paris Agreement (UNDP 2016). Finally, the initial NDCs did not set a consistent timeline for action: Most NDCs targeted 2030, but some targeted 2025, and others targeted years beyond 2030 (WRI 2016). In recognition of these and other factors, some countries have already made changes to their NDCs in advance of 2020 (Box 1).

This 2020 round of NDC enhancement would effectively kick-start the Agreement's mechanism for enhancing NDC ambition. To set the stage for this moment, the Talanoa Dialogue, a year-long, collective stock-taking process, concluded at COP 24 with an invitation to countries to use its outcomes in preparing their NDCs. The Talanoa process included an emphasis on the need for increased ambition and the wide range of opportunities for climate action across multiple sectors that can also provide development, economic, and other benefits (UNFCCC 2018).

As with each cycle of NDC communication, this moment in 2020 offers countries the opportunity to assess whether the mitigation contributions in their NDCs reflect their highest possible ambition and whether they could do more to contribute to collective efforts toward achieving the long-term goals of the Paris Agreement. The need to enhance ambition has taken on renewed urgency in light of the IPCC special report on 1.5°C, which underscored the need to halve emissions by 2030 (IPCC 2018).

BOX 1 | How NDCs Have Changed to Date

While the deadline for updating the first NDCs is not until 2020, several countries have already changed their commitments. Some did so when ratifying the Paris Agreement, when their intended nationally determined contributions (INDCs) were converted into NDCs.

Encouragingly, some of these changes have led to increased ambition. For example, while Morocco kept its baseline scenario target type, it increased the target ambition, moving from an unconditional 13 percent reduction from its baseline emissions in 2030 (and a 31 percent conditional reduction target) to a 17 percent reduction (41 percent conditional reduction target).

Other countries added new commitments or actions in their NDCs. For example, Morocco added a detailed list of 55 unconditional and conditional mitigation actions, alongside emissions reduction potential and cost estimates for 2030. Nepal added a renewable energy target, and Uruguay added non-GHG targets for energy, transportation, agriculture, land use, and other sectors.

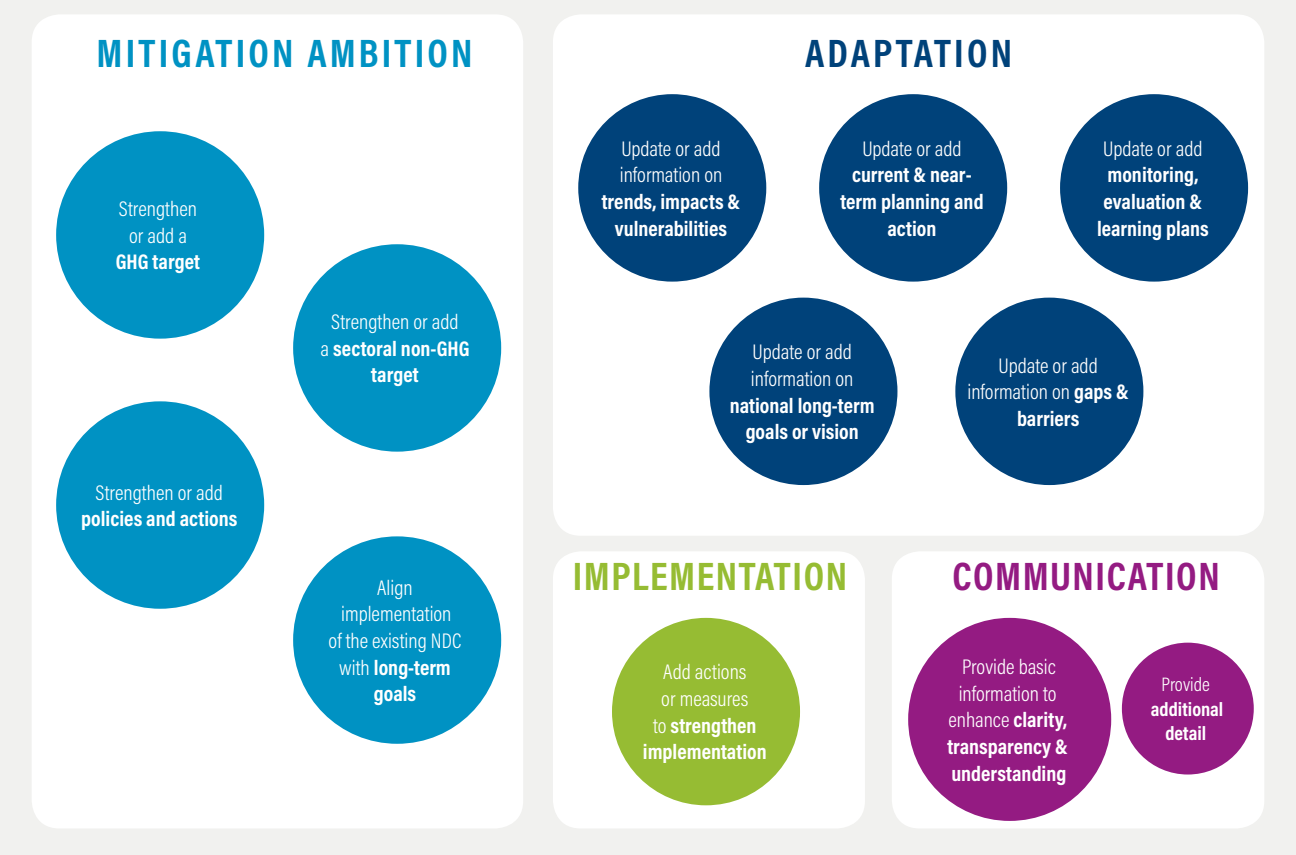
Some countries, such as Argentina, Benin, Canada, Mali, Pakistan, and Uruguay, also chose to include adaptation, or expand upon its inclusion, as part of their changed NDCs.

Lastly, some countries improved the transparency of the NDC since the INDC was first submitted. For example, Argentina, Canada, Morocco, and Uruguay have now specified the level of emissions that will result if their NDCs are achieved. In the case of Argentina, the country moved from a baseline scenario target to a fixed level target (to not exceed net emissions of 483 $MtCO_2e$ by 2030, with a conditional target of 369 $MtCO_2e$ by 2030).* This brings greater transparency and assurances that a certain level of emissions will be achieved. Belize communicated the anticipated emissions reductions from its actions.

Note: * Determining whether a new option will enhance a Party's level of ambition can be technically complex. 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 level of ambition. The GHG Protocol Mitigation Goal Standard (WRI 2014a) and Policy and Action Standard (WRI 2014b) provide guidance on GHG accounting that can inform analysis of ambition. This content is adapted from Fransen et al. (2017).

Source: Fransen et al. 2017; Ge and Levin 2018.

Figure 1 | Types of NDC Enhancement



Source: Fransen et al. 2017.

Defining NDC Enhancement

The term *NDC enhancement* captures the idea of NDC progression inherent in the Paris Agreement, starting with the invitation to communicate new or updated NDCs in 2020 (Fransen et al. 2017). This guidance considers the following dimensions of NDC enhancement—mitigation (noting that mitigation enhancements can increase ambition and/or facilitate enhanced implementation), adaptation, and communication—taking into account that the objectives and requirements under the Paris Agreement vary across these components (See Figure 1). Ideally, the NDC enhancement process will bring NDCs more closely into alignment with the goals of the Paris Agreement, maximize the benefits of the NDC for development and resilience, incorporate relevant opportunities to strengthen implementation, and improve transparency.

On mitigation, the guidance aims to help countries identify opportunities to strengthen the ambition of their NDCs, given the very large emissions gap between the current global emissions trajectory and the pathway consistent with achieving the Paris Agreement's goals. We define strengthened mitigation ambition as when an enhanced NDC—including its complete set of mitigation targets and actions, and assuming full implementation—results in lower cumulative emissions than the existing NDC. To determine the effect of NDC enhancement on mitigation ambition, the cumulative impact of all changes to the NDC, including their overlap with one another, must be considered (Box 2; Fransen et al. 2017). Aside from their effects on ambition, enhancements related to mitigation can also have the effect of facilitating stronger implementation, if countries commit to specific policies and measures in support of existing targets, including those related to financial flows, coordinated implementation, and greater integration with development.

On adaptation, the guidance walks countries through options for enhancing various elements, taking into consideration their objectives in including adaptation in the NDC as well as the relationship between their NDC and their adaptation communication, building on other processes such as the National Adaptation Plans (NAPs).

Finally, enhanced communication is essential "to build mutual trust and confidence and to promote effective implementation" (UNFCCC 2015b). Our guidance on communication is based on the elements of clarity, transparency, and understanding (CTU) adopted at COP 24 in Katowice (UNFCCC 2018)

These elements of NDC enhancement are neither mutually exclusive nor interchangeable. It may be appropriate for a country to enhance its NDC across more than one of these dimensions.

BOX 2 | Terms Related to NDC Enhancement

New or updated NDC: From the COP decision adopted together with the Paris Agreement (1/CP.21), these terms refer to the request in the COP decision to Parties concerning NDCs in 2020. A new NDC is one subsequent to the initial NDC when a Party's initial NDC contains a time frame up to 2025. An updated NDC is one communicated by a Party whose initial NDC contains a time frame up to 2030.

Enhanced NDC: In this guidance, a new or updated NDC that improves upon the initial NDC with respect to mitigation (ambition and/or implementation), adaptation, and/or communication.

NDC with enhanced mitigation ambition: In this guidance, this refers to an NDC that, if fully implemented, would result in lower cumulative emissions than the fully implemented existing NDC. It is important to note that a new, updated, or enhanced NDC may not necessarily lead to enhanced mitigation ambition. 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.*

Note: * Determining whether a new option will enhance a Party's level of ambition can be technically complex. 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 level of ambition. The GHG Protocol Mitigation Goal Standard (WRI 2014a) and Policy and Action Standard (WRI 2014b) provide guidance on GHG accounting that can inform analysis of ambition.

Source: Fransen et al. 2017 and authors.

Why Enhance NDCs in 2020

The rationale for enhancing the mitigation ambition of NDCs sooner rather than later is threefold: The window for climate stability is closing, countries have a growing number of opportunities to enhance their ambition, and countries that act ambitiously will benefit.

The window for climate stability is closing

The IPCC has emphasized that large-scale, immediate transformation is necessary to keep the goals of the Paris Agreement in reach. Warming is likely to reach 1.5°C as early as 2030 if it continues to increase at the current rate; CO_2 emissions, in turn, must be slashed by almost half from recent levels by that same year to avoid such an outcome (IPCC 2018).[1] Current NDCs are not consistent with these goals (Rogelj et al. 2016). Delaying the process of increasing ambition until 2025 or beyond will dramatically constrain options for achieving the Paris goals. It will mean needing to achieve even more rapid decarbonization, at greater cost, while relying on unproven technologies. Laying out a more ambitious vision now, on the other hand, preserves countries' remaining options to achieve the Paris objectives.

While some countries' enhancement of ambition will clearly have greater impact due to the magnitude of their emissions, the range and number of countries that enhance their NDCs can have an important impact on the political momentum for strengthened ambition globally. Moreover, if a wide array of countries take action in their NDCs in critical sectors like energy, transportation, land-use, and agriculture, doing so can reinforce the political signals and market drivers for change in those arenas.

Opportunities to enhance ambition are growing

Since the initial NDCs were developed, innovation has flourished and technology costs have fallen, alongside other developments that can enable countries to enhance their NDCs. The cost of renewable energy technologies – including battery storage and charging infrastructure – has declined dramatically, opening up possibilities in the power and transportation sectors (IRENA 2018) based on the latest cost and auction price data from projects around the world. Broadly, the study finds: Renewable power generation costs continue to fall and are already very competitive to meet needs for new capacity. Competitive procurement—including auctions—accounts for a small fraction of global renewable energy deployment. Yet these mechanisms are very rapidly driving down costs in new markets. Global competition is helping to spread the best project development practices, reducing technology and project risk and making renewables more cost-competitive than ever before. In developed countries, solar power has become cheaper than new nuclear power. For example, the cost of a lithium-ion battery pack fell to US$176/kwh in 2018, down from $577/kwh in 2014 when many INDCs were being developed (Goldie-Scot 2019).

Many countries have made significant progress on NDC implementation, and some are on track to meet or exceed their existing targets, including six of the G20 countries (UNEP 2018; den Elzen et al. 2019), countries committed to a variety of climate actions, including post-2020 greenhouse gas (GHG) reductions. The 2020 process for enhancing NDCs offers an opportunity to examine the ambition of the initial NDCs in light of this progress. Moreover, cities, states, regions, companies, and investors have announced significant new commitments to climate action that were not reflected in initial NDCs. At the Global Climate Action Summit alone, 73 of the world's largest cities committed to carbon neutrality, 150 major corporations committed to 100 percent clean energy, and 400 investors managing $32 trillion in assets committed to an ambitious climate action agenda, alongside over 500 other commitments by nonstate actors (Global Climate Action Summit 2018). In this sense, there is an opportunity to enhance NDCs to reflect the national, subnational, and nonstate action that is already under way.

At the international level, the Paris Agreement has taken effect, and its modalities have largely taken shape. Likewise, the Montreal Protocol's Kigali Amendment has entered into force, defining a schedule for phasing down hydrofluorocarbon emissions.

Taken together, these factors create many more options for climate action than countries were able to consider prior to the Paris Agreement. Nevertheless, these developments do not suggest

that enhancing mitigation ambition will be easy or straightforward. The scale of transformation needed is without precedent, and many countries face substantial political, financial, and capacity-related challenges in delivering it. This guidance proposes that the 2020 NDC enhancement process can be an opportunity to rally political support to help overcome these challenges, in light of the growing number of options, and urgent need, for enhanced ambition.

Countries that enhance ambition stand to benefit

Although enhanced NDCs are critical to meet the objectives of the Paris Agreement, countries that take ambitious action also benefit domestically. They stand to reap the gains not only of being recognized for their international leadership, but also gains in the form of economic growth and development benefits. Evidence of the alignment among climate action, economic growth, and development benefits continues to accumulate. On the economic side, the latest analysis estimates that ambitious climate action could generate $26 trillion in net economic benefits between now and 2030 and create 65 million jobs in 2030, while avoiding 700,000 premature deaths from air pollution (The Global Commission on the Economy and Climate 2018).

NDCs can also contribute to achieving a wide range of development priorities, including those related to the SDGs, as described in Box 3 (WRI n.d.). These synergies include sectors that are clearly related to climate action, such as energy, transportation, land use, and ocean issues, as well as relevant intersections related to poverty, inequality, health, gender equality, and the broader principle embedded in the SDGs of "leaving no one behind" (IPCC 2018). By undertaking NDC enhancement in consideration of mitigation, adaptation, and sustainable development benefits in combination, it is possible to create greater benefits, make more informed and equitable decisions on trade-offs, and design more efficient process than would be possible in cases where separate efforts are made for mitigation, adaptation, and development objectives respectively.

Finally, reflecting enhanced ambition in NDCs may also afford countries an opportunity to rally stakeholders in support of implementation and to attract finance, technology, and capacity-building support from the international community.

How Should This Guidance Be Used?

This guidance aims to help countries through the process of designing enhanced NDCs for communication to the UNFCCC, with a particular focus on 2020. Whether a country's current NDC targets 2025 or 2030, this guidance assumes that countries will build on their most recent NDC in some way, rather than starting from scratch.

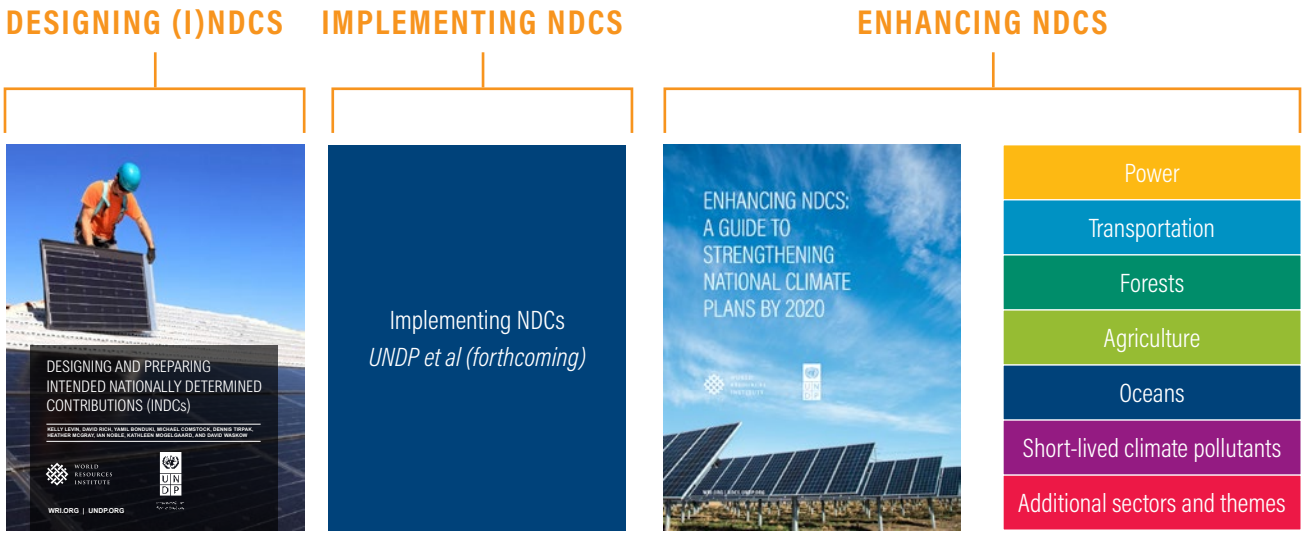
The guidance provides a framework that countries can use to think through systematically how to go about enhancing their NDCs. While it does not go into detail on particular sectors, the United Nations Development Programme (UNDP) and WRI plan to publish sector-specific modules over the coming months (Figure 2).

Use of the guidance is entirely voluntary; countries are free to use it in whole or in part, and to adapt it to their national circumstances as relevant. The guidance is intended to complement, but not substitute for, NDC provisions in the Paris Agreement and the Katowice Rulebook.

Support for NDC Enhancement[2]

Several NDC support programs exist to help countries through a range of NDC-related functions, including enhancement as well as design, implementation, and review. For example, the NDC Partnership, a global coalition of countries and institutions, works to drive transformational climate action through sustainable development. The

Figure 2 | Overview of NDC-Related Guidance by UNDP and WRI



Source: Authors.

partnership's Climate Action Enhancement Package is designed to deliver targeted, fast-track support to NDC Partnership members to enhance the quality, increase the ambition, and foster the implementation of NDCs. Many initiatives, including the ones mentioned below, support countries with their internal resources or with resources designated for Climate Action Enhancement Package:

- The **Africa NDC Hub**, established by the African Development Bank, engages national, subnational, nonstate actors, and private sector representatives on appropriate policies, strategies, and actions tailored to suit individual needs of African countries to enable them to deliver their climate change commitments under the Paris Agreement.
- **NDC Advance** is a platform of the Asian Development Bank aimed at helping its developing member countries in Asia and the Pacific mobilize funding to meet their goals under the Paris Agreement.
- **NDC Invest**, created by the Inter-American Development Bank and the Inter-American Investment Corporation, serves as a one-stop shop for countries to access resources for transforming their national commitments into achievable investments plans, including NDC Programmer, NDC Pipeline Accelerator, NDC Market Booster, and NDC Finance Mobilizer.
- The **NDC Support Programme** under UNDP works with countries to advance the implementation of the Paris Agreement and strategically use their NDCs as a tool for realizing inclusive, zero-carbon, and climate-resilient development.
- The **World Bank NDC Support Facility** is a multi-donor trust fund created and designed to help developing countries implement climate change targets laid out in the NDCs. Grants provided by the facility contribute to activities that include capacity building, analytics, coordination among development actors, and financial leverage for climate action.
- **World Resources Institute** provides knowledge products and technical support to countries focused on NDC enhancement and related topics, including developing long-term strategies; adaptation planning; capacity building; and systems for measurement, reporting, and verification.

BOX 3 | Aligning with and Reflecting SDGs and National Development Goals

By addressing intersections between climate action and other national development goals in enhanced NDCs, countries can strengthen the NDC content itself, as well as broaden buy-in and support for the NDC's commitments. There are two principal ways in which these intersections can be addressed:

1) Assess the development effects of potential climate actions and include or modify the NDC to maximize benefits

Based on an assessment of the development impacts of specific climate-oriented targets and measures in the NDC, countries can modify the NDC to maximize mutual benefits with other development objectives and address potential trade-offs. Importantly, this can be relevant for both the mitigation and adaptation components of countries' NDCs.

Impact assessments can be quantitative—for example, quantitative assessments and modeling have been used often to assess the employment or health effects of climate policies—or qualitative, to determine the potential linkages between climate policies and other development objectives and the estimated magnitude of any relevant effects.

In assessing the effect of climate actions that might be included in an NDC, it will be necessary to do the following:

- Clearly identify the target or policy to be assessed. In some cases, it may be difficult to undertake quantitative analysis of the impact of broad sectoral targets (such as renewables' share of overall energy), so it may be necessary to define policies to achieve the target.
- Clearly identify the impact(s) to be assessed.* Impacts can be derived from the SDG targets or from other development objectives, including those reflected in a country's national or sectoral development plans. These could include effects such as those involving health, employment, food security, energy access, access to sustainable transport, poverty level and inequality, and gender-related objectives.

Although impact assessments require capacity and resources, they can be helpful to identify and clarify priority actions of an NDC and to enable effective communication among various relevant ministries and agencies about how climate action in the NDC relates to other national development objectives. The assessment process can also help ensure alignment among the NDC and SDGs and other national development objectives. In many countries, the NDCs and their national development and SDG plans are not adequately linked and sometimes even have contradictory objectives; for example, involving strategies for energy sources (renewables or other sources). Alignment is critical to achieving a country's climate-related and other goals.

The impact assessments can also be used to consider ways in which benefits might be maximized (e.g., to increase energy access provided as part of a renewable energy target or action) and instances in which any trade-offs may need to be addressed (e.g., impacts on ecosystems or food security due to bioenergy production). In addition, impact assessments can be helpful in identifying indicators that a government may use to measure and assess outcomes from implementation of the NDC. Assessing impacts and identifying a comprehensive set of impact indicators can also provide information and signals for public and private investment and help steer capital, including low-cost finance, to flow to implementation of NDCs.

Impact assessments and policy decision-making for the NDC can draw on the following resources that provide guidance for such assessments:

- Initiative for Climate Action Transparency's Sustainable Development Guidance provides guidance for assessing the environmental, social, and economic impacts of climate-related policies and actions, including both qualitative and quantitative assessments (Initiative for Climate Action Transparency 2018).
- UNDP Climate Action Impact Tool provides a framework for considering the development impacts, including for the SDGs, of climate actions at the program and project level (UNDP n.d.).
- SDG Climate Action Nexus tool provides mapping for the effects of various climate actions on achieving the SDGs (New Climate Institute n.d.).
- International Labour Organization training guide on measuring and modeling social and employment outcomes of climate and sustainable development (Green Jobs Assessment Institutions Network 2017).
- Climate Watch database (WRI n.d.) and the NDC-SDG Connections tool (Stockholm Environment Institute n.d.) enable users to examine the ways in which targets and actions in existing NDCs are relevant for SDG-related objectives, which can then be considered in the development of enhanced NDCs.

2) Specify targets or actions that reflect development benefits of climate action

The NDC can also explicitly specify targets or actions that reflect and aim to maximize the benefits from climate action or reduce any trade-offs. These targets or actions can be derived from the assessments of climate actions in the NDC or can be developed through reference to other national development plans and strategies. For example, NDCs could include targets or policies for

- increased energy access, particularly through distributed renewable energy, and energy security;
- increased access to affordable, sustainable transportation and mobility;
- improved air quality and health outcomes;
- reduced damages from climate-related disasters through adaptation measures, such as better land-use planning or integrated coastal zone management;
- sustainable food and agriculture systems, particularly through measures that increase food security;
- climate-appropriate green jobs and/or just transition programs and investments;
- health-related objectives, such as reductions in local air pollutants linked to GHG reductions or reductions of climate-sensitive diseases such as water-borne illnesses; and
- gender-related objectives, such as to ensure women's access to clean energy and securing their rights and tenure to land, water, forests, and housing and their access to resilience measures, and to promote women's participation and leadership in decision-making processes.

Note: * The ICAT Sustainable Development Guidance provides options for identifying impacts to be assessed.

ESTABLISHING A PROCESS FOR NDC ENHANCEMENT[3]

A process for NDC enhancement may take into account how to secure high-level buy-in, establish institutional arrangements, engage stakeholders, define objectives for enhancement, and design a work plan. The NDC enhancement process should be inclusive, clear, and coherent with other national planning processes.

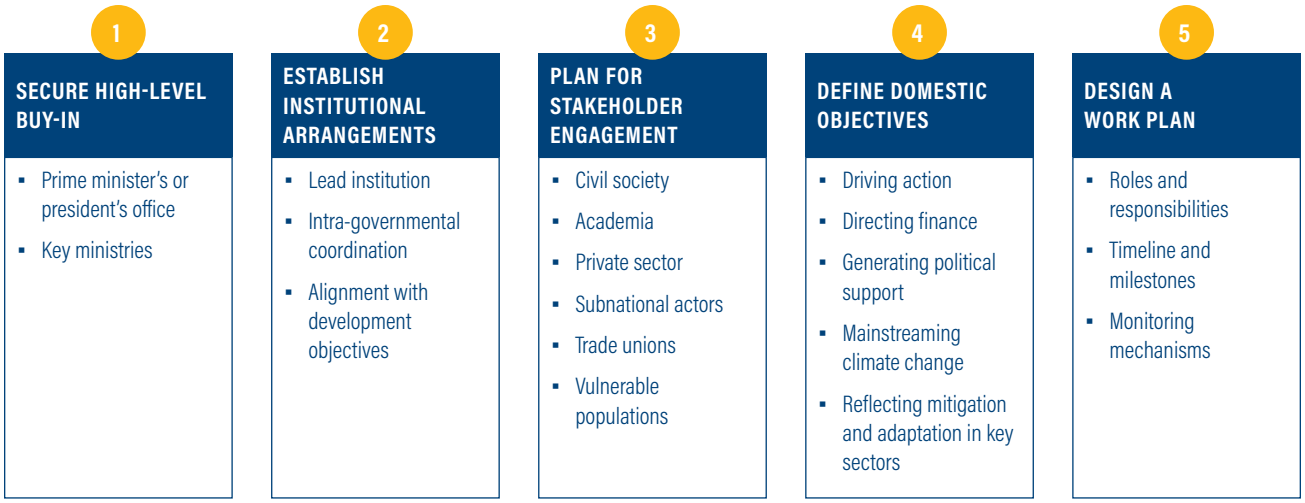
Rationale

The process for NDC enhancement will drive the content of the NDC and will ultimately underpin its successful implementation. NDC enhancement will benefit from buy-in at the highest levels of government and from clear and coordinated institutional arrangements. A robust stakeholder engagement process can also greatly strengthen support for the enhanced NDC. Likewise, explicitly articulating the domestic objectives of NDC enhancement can focus attention on key interventions. Finally, a work plan with clear roles and responsibilities will drive the process forward (Figure 3).

It may not be necessary to establish new processes and institutional arrangements for NDC enhancement; some countries may have existing arrangements that can be harnessed for this purpose, including those that were used to develop the intended INDC. However, given that many of the INDCs were designed quickly in the lead-up to the Paris Agreement, NDC enhancement can also be an opportunity to revisit and improve the NDC design process.

The NDC enhancement process as a forward-looking exercise and the NDC enhancement milestone for 2020 are only the starting points of the Paris Agreement's ambition mechanism. The design of processes to enhance the NDC, including institutional arrangements and stakeholder engagement, would benefit from having this long-term view included, so that long-term capacity is built, and governments do not have to start from scratch only a few years later for the next NDC cycle.

Figure 3 | Steps to Establish a Process for NDC Enhancement



Source: Authors.

1) Secure High-Level Buy-In

Despite their technical nature, NDCs are inherently political. They commit the countries to climate action, steer economic and social change, and serve as an official communication to the UN Climate Change Secretariat. Support from the prime minister's or president's office to initiate the process can help those tasked with NDC enhancement to gain cooperation from stakeholders within and outside of government. Buy-in from powerful ministries, such as those in charge of planning or finance, should be viewed as fundamental.

Unless such ministries are already supportive of enhancing the NDC, it will likely be necessary to explore the benefits and importance of NDC enhancement to the country. Some countries might find that it is easier to engage and sustain leadership if the NDC enhancement process is approached in the context of development and poverty eradication, linking climate change to other domestic priorities such as improving access to energy. In the context of NDC implementation, some countries have found that having the opportunity to announce their intentions internationally can help catalyze the process and attract high-level political attention, building political profile and showcasing leadership (NDC Partnership forthcoming). Some countries have also found that peer-to-peer exchanges can help pique the interest of the ministry of finance. For example, in an exchange between Honduras and the Dominican Republic, organized by the NDC Partnership Support Unit, Honduras gained greater appreciation of the financial opportunities related to NDC implementation from the Ministry of Economy, Planning, and Development of the Dominican Republic (NDC Partnership forthcoming). While this example is with regard to NDC implementation, lessons may be applicable to engagement of various ministries during NDC enhancement processes.

2) Establish Institutional Arrangements

The INDC design process illustrated the important role that a lead institution plays in managing the design process, as well as coordinating with affected sectors, local governments, technical experts, civil society, and the private sector. The same is true for NDC enhancement.

Identify a lead institution

If political support for NDC enhancement has been secured from the prime minister's office, president's office, or other high-level institution, it can be helpful to situate the lead of the NDC enhancement process within that office to maintain buy in. Alternatively, the institution that has been initially charged with INDC design and/or NDC implementation may be most appropriate to lead NDC enhancement in an effort to sustain technical expertise and ensure that the NDC builds on the existing processes and available information, such as the bi-annual update reports, the National Communications (NCs) and NAPs. If such an institution sits within the environment ministry, ensuring that the lead institution has joint responsibility with finance and/or planning ministries can strengthen alignment with national budget frameworks, investments, and development agendas (Levin et al. 2015). Ideally, if time allows, legal mandates can be established for roles and responsibilities of both the lead institution as well as others providing inputs. Engagement with parliament will be critical for some countries for establishing such mandates. Some countries may have mechanisms to secure such roles and responsibilities on a more rapid timeline, such as through a memorandum of understanding.

Provide for intra-governmental coordination

Given the cross-cutting nature of the NDC, it is critically important for the lead institution or another body to manage cooperation in the interest of a whole-of-government approach (Sands et al. 2012). Coordination across government institutions as well as relevant planning processes can increase efficiency, the quality of inputs, and eventual implementation. If a suitable coordination body (e.g., a climate change committee) does not already exist, the lead institution or another new body can be made responsible. Ideally, the coordination process will account for

- all relevant ministries, including ministries not traditionally associated with the formulation of climate change policy, such as gender, social development, and health;
- the roles of parliament and the judiciary, as applicable;

- engagement with other relevant development and sectoral planning processes, including the SDGs; and
- stakeholders outside the national government, including subnational jurisdictions, the private sector, and the public (see below).

Finally, it will be important to consider how to make coordination effective and valuable for those participating. This may require measures to raise awareness, incentives to participate, ensuring that representatives have decision-making power, and allocating sufficient budgetary resources for the process.

BOX 4 | Coordination of NDC Enhancement in Lebanon

Lebanon is engaging its newly formed NDC committee to ramp up ambition in its NDC update. The membership of the NDC committee aims to ensure that NDC implementation goes beyond the traditional sectoral viewpoints by including planning, finance, and gender institutions. The 2015 NDC targets were constructed using adopted ministerial strategies. Since then, sectoral policy updates have emerged which committee members are in the process of presenting in order to update the NDC accordingly. To institutionalize the NDC update, the NDC committee's mandate includes the periodic assessment and revision of the NDC.

Source: UNDP.

Promote alignment between NDCs and national development objectives

As noted in Box 3, it is critical to ensure alignment between the NDC and other national development objectives, including those reflected in the SDGs. An institutional process that brings together actors across a government, including ministries with different mandates, can play an essential role in helping to align the NDC and other national objectives. Most important, the design of NDCs and national development plans (including for specific sectors) should, whenever possible, be linked. Alignment is important to achieve the greatest synergies possible between these as well as to avoid contradictory objectives, for example involving strategies for energy sources (renewables or other sources). The stakeholder engagement (including subnational governments) described below should also be an essential component of efforts to align NDCs and development objectives (Box 4).

3) Plan for Stakeholder Engagement

Engaging stakeholders outside the national government can greatly strengthen the legitimacy, quality, and durability of the NDC enhancement process (Box 5). For example, civil society organizations, academia, the private sector, subnational governments, those affected by implementation measures (e.g., those with jobs in the fossil fuel economy), trade unions, and the most vulnerable populations would all be important to consider, as would engaging a cross-section of stakeholders from different sectors, interest groups, and socioeconomic levels (Levin et al. 2015). It will be important to underscore how the NDC enhancement can benefit such stakeholder groups, as well as the ways in which enhanced climate actions will not increase any hardship or current social and economic vulnerabilities. Stakeholder engagement also stands to improve the quality of the NDC; for example, by technical experts providing critical information and analysis regarding opportunities and challenges associated with enhancement options. Engaging stakeholders early and often can help ensure that concerns are considered in time to be addressed. This engagement can also help enhance the durability of the enhanced NDC by helping affected populations understand how benefits and costs will be distributed (Worker and Northrop 2017).

BOX 5 | Stakeholder Engagement for NDC Enhancement in Select Countries

Stakeholder process for gender and inclusion in Ecuador

In Ecuador, a participatory process consisting of 30 workshops with the participation of 1,000 actors from the public and private sector, civil society, and academia, was used for its first, newly developed NDC, which incorporates gender equality aspects, particularly in the energy sector. The National Council for Gender Equality and women's organizations were among the engaged actors, and gender balance throughout the consultation process was taken into account, showcasing an example of whole-of-society stakeholder engagement that can be replicated during the cyclical NDC revision process.

Source: UNDP.

Stakeholder participation in NDC implementation road maps in Colombia and Peru

In Colombia, when planning for NDC implementation, sectoral ministries have been asked to identify key nonstate actors in their sectors to engage them in dialogue. The discussions are then fed into the planning process. In Peru, the government launched a participatory dialogue, Dialoguemos NDC, involving national and local stakeholders, including the private sector, indigenous peoples, civil society, and various sectors. Although both of these examples are for NDC implementation, countries can build on such processes for the NDC enhancement process.

Source: NDC Partnership forthcoming.

Stakeholder participation catalyzed through high-level political engagement in the Republic of the Marshall Islands

In the Republic of the Marshall Islands, high-level buy-in, including from the president, has helped motivate stakeholders to engage in dialogue around climate action (NDC Partnership forthcoming). While this is in the context of implementing the NDC, such engagement could be pursued when enhancing the NDC.

Source: NDC Partnership forthcoming.

Countries used various means of engagement when designing their INDCs, including stakeholder meetings with local communities and the private sector and online comment platforms where drafts were shared, among others. Sufficient time and resources should be allocated for such processes, and stakeholders should understand how responses will be provided to their feedback. These same engagement processes may be built upon for the enhanced NDC engagement process, and/or new ones may be established depending on the perceived strengths and weaknesses of past engagement.

4) Define Domestic Objectives

Although NDCs support the global goals in the Paris Agreement, they also need to drive domestic action. The process to enhance the NDC can begin with an examination of the ways in which the initial NDC is being used to drive action in a country and whether that action can be improved by enhancing the NDC. The definition of domestic objectives for NDC enhancement should be informed by the input of stakeholders, for example, by asking the following questions:

- Is the NDC driving effective action on climate change in a country and in what ways?
- Is greater funding being directed into climate action of specific sectors?
- Is the NDC effectively generating higher-level political support for climate action?
- Is climate change being mainstreamed into other development priorities, ministry policies (including for sectors and ministries such as finance and planning), and sectoral action in the country?
- Are the dimensions of climate change, involving both mitigation and adaptation, adequately reflected, including in specific sectors?

Based on the answers to these questions, the NDC enhancement process can be designed to drive the changes being sought in the country. These could

include objectives such as engaging a range of ministries and political leadership to a greater degree, providing greater specificity about investment needs and approaches needed to drive finance, or more fully addressing specific sectors. Addressing these types of questions at the start of the NDC enhancement process could help determine the contours of the process to develop the enhanced NDC and the enhancement itself.

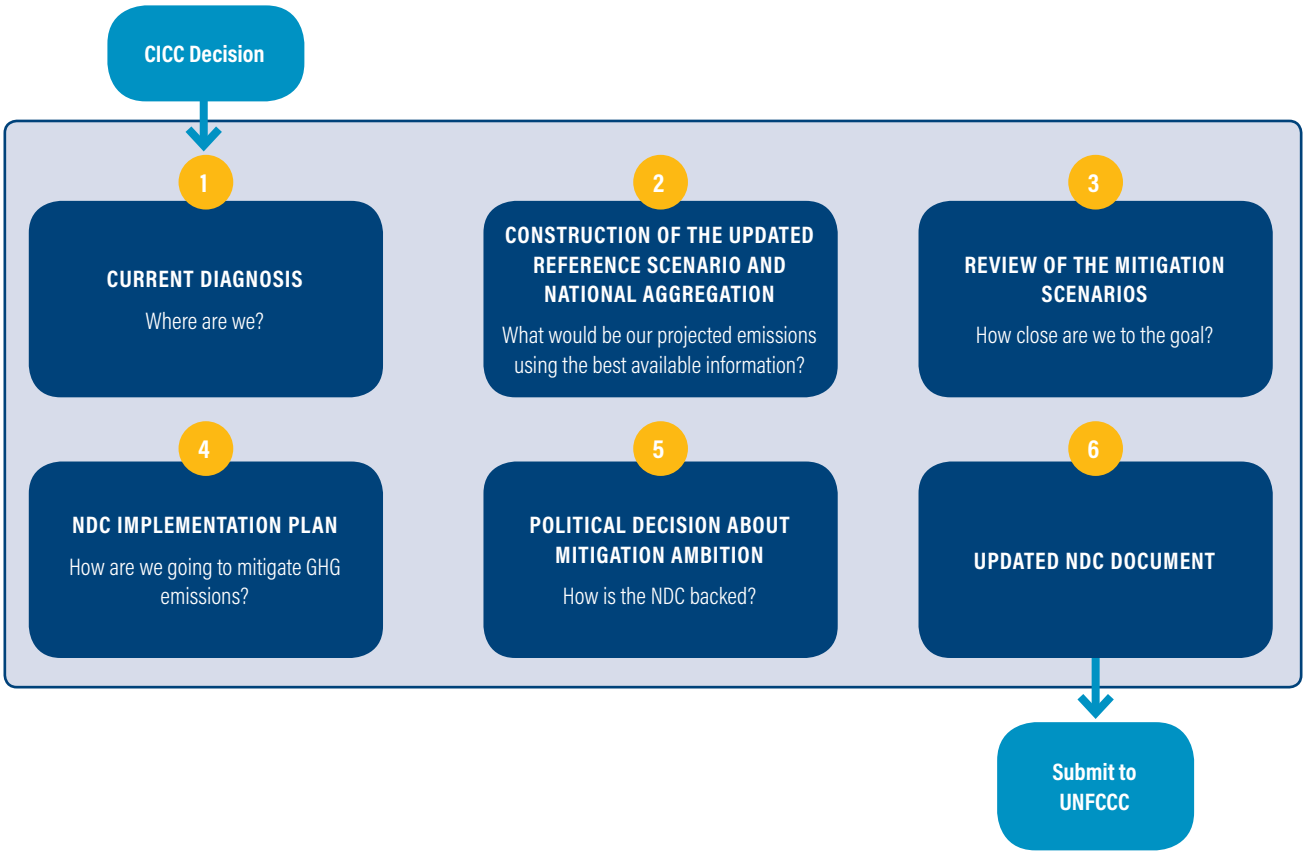
Moreover, the NDC enhancement process should not be viewed in a silo as though it were unrelated to the process of updating a country's national and sectoral plans. NDC enhancements will ultimately need to be reflected in existing planning processes. This will improve the likelihood of uptake of the NDC and synergies in implementation. There are also tremendous benefits in streamlining processes between NDC enhancement and development of a long-term low emissions development strategy, as the NDCs can be designed as milestones to reach the envisioned long-term transitions, avoiding lock-in of other pathways.

5) Design a Work Plan

The lead institution should transparently communicate a work plan for the NDC enhancement process so that government institutions and other stakeholders can engage at appropriate times. Roles and responsibilities, as well as a clear timeline with clear milestones and a mechanism to monitor progress on the work plan, should be designated from the start to set expectations and to help achieve the desired timeline. The timeline should consider important national milestones, including national budgets, elections, and other relevant events.

It may be useful to assign specific aspects of the design process to the ministry of finance or planning, if these ministries are not leading the process, so as to keep them engaged (NDC Partnership forthcoming). The process should also be built in a long-lasting way as the NDC enhancement will take place every five years; it would be most efficient for countries to build on existing process and not start from scratch every time they enhance their NDCs. See Figure 4 for an example of the steps of Colombia's work plan for enhancing its NDC.

Figure 4 | Colombia's Steps for Enhancing Its NDC



Source: Colombia's Ministry of Environment and Sustainable Development.

DESIGNING AN ENHANCED MITIGATION COMPONENT OF AN NDC

To advance the Paris Agreement's goal to limit warming to well below 2°C, or 1.5°C, the next round of NDCs must result in lower GHG emissions relative to the initial round. This section provides guidance on enhancing mitigation in the NDCs, with a view to increasing ambition.

Rationale

The first round of NDCs, if fully implemented, would lead to warming of 2.9°C to 3.4°C over the course of the century (UNEP 2018). Enhanced mitigation ambition is therefore essential to achieving the Paris Agreement's goal to limit warming to well below 2°C, or 1.5°C, and so it should be a strong focus of the NDC enhancement process. Not all NDC improvements related to mitigation will increase mitigation ambition. NDC enhancement can improve implementation, clarity, transparency, and understanding without necessarily enhancing ambition, as outlined in the Introduction. Fortunately, several factors—including falling technology costs, increased nonstate action, and a growing understanding of the benefits of climate action—set the stage for countries to enhance their mitigation ambition. The process comprises five steps (Figure 5).

1) Take Stock of Progress to Date

In the process of designing enhanced commitments, it is useful to take stock of progress made toward implementing existing climate change targets and plans. New commitments should be informed by experiences, challenges, and lessons learned from implementing current targets and plans. Countries may find that progress is advancing faster than expected or may find that challenges are hindering progress in reaching existing commitments, with implications for NDC commitments. It is also useful to review any changes in national circumstances, political priorities, development priorities, and efforts to achieve SDGs (including progress made toward relevant sectoral SDG targets), which can help identify new opportunities and synergies to pursue emissions reduction strategies in tandem with other national priorities.

Countries with mitigation targets should consider how much progress has been made in reducing emissions and reaching those targets, as well as identifying new mitigation opportunities that could enhance NDC commitments. Finally, countries should consider whether improved data is available; for example, related to the national GHG inventory, sectoral indicators, GHG projections, policies and measures, or other information that can improve the NDC enhancement process.

In this step, countries will review the list of information identified in Table 1, and respond to the "taking stock" questions. As a result of this exercise, they will generate, to the extent feasible, the following items:

- A comparison of current GHG projections, socioeconomic trends, and sectoral indicators with those indicated in the initial NDC
- A list of existing national policies, their implementation status, and impact
- A list of subnational and nonstate commitments, plans, policies, and actions and their implementation status, and impact
- A list of national development objectives that synergize with climate change mitigation
- A list of sources of mitigation finance available and a comparison of these sources to the finance needed to implement the initial NDC

Taking stock of these trends and developments can be considered when updating the commitment, either in a qualitative way as part of the decision-making process, or quantitatively as technical inputs when updating national emissions projections (Box 6).

If progress in key sectors is advancing in line with existing commitments, more ambitious commitments can be adopted to pursue additional mitigation opportunities. If progress is not advancing as planned, enhanced NDCs should focus on overcoming barriers in key sectors.

Table 1 outlines the types of information that can be reviewed at the economy-wide level and on a sector-by-sector basis, a set of questions to review to take stock, and how the answers to these questions might help identify opportunities for NDC enhancement.

Figure 5 | Designing an Enhanced Mitigation NDC

1 TAKE STOCK OF PROGRESS TO DATE

- GHG, sectoral, and socioeconomic projections
- National policies
- Subnational and non-state commitments
- Development objectives
- Mitigation finance

2 TAKE STOCK OF LONG-TERM OBJECTIVES

- Global and sectoral mitigation benchmarks
- SDGs and other global frameworks
- Long-term, low-GHG emission development strategies
- Long-term national development plans

3 IDENTIFY OPTIONS FOR ENHANCEMENT

- Improve Paris alignment
- Reflect new developments, innovation, and best practice
- Maximize benefits
- Fill gaps
- Address finance and implementation issues

4 AGGREGATE, ITERATE, AND REFINE

- Aggregate impact on GHG emissions other select indicators
- Iterate to refine list of enhancement options

5 REFLECT ENHANCEMENTS IN NDC

- GHG target
- Sectoral, non-GHG target(s)
- Policies and measures
- Alignment with long-term goals

Source: Authors.

Table 1 | Taking Stock of Progress to Date

TYPE OF INFORMATION	TAKING STOCK
GHG INDICATORS ■ National GHG inventory report ■ Updated projections of future emissions	How do emissions trends and projections compare to the target level of emissions? How much progress has been made in reducing emissions? How much remaining progress is needed?
SOCIOECONOMIC TRENDS ■ GDP (actual and projected) ■ Income per capita (disaggregated by different groups in society) ■ Employment (disaggregated by different groups in society) ■ Other indicators relevant to the national context	How do GDP growth and other socioeconomic trends compare to previous assumptions that informed NDC targets? How do they compare to national development goals?
SECTORAL AND TECHNOLOGICAL INDICATORS ■ Examples: share of renewable energy in the energy mix, vehicle kilometers traveled by transportation mode, area/percentage of land covered by forests, commercial availability of new technologies, cost (e.g., of renewable energy), other indicators relevant to the national context	How do trends in sectoral indicators compare to sectoral targets (if any) in the NDC? How do trends compare to sectoral progress needed to achieve emission reduction targets? How do recent trends compare to previous assumptions?
NATIONAL PLANS AND POLICIES ■ Climate change legislation or policy ■ National development plans or policies ■ Sector-specific plans or policies ■ Long-term climate strategies ■ SDG implementation plans	Are policies being implemented as planned? Are they having the desired impacts in reducing emissions and achieving other objectives? Have new policies been implemented that can help achieve mitigation and other objectives? Have new policies been implemented that create challenges for meeting mitigation and other objectives?
SUBNATIONAL AND NONSTATE COMMITMENTS, PLANS, POLICIES, AND ACTION UNDERTAKEN BY ■ states, provinces, and regions ■ cities ■ businesses ■ industry sectors ■ academic institutions ■ NGOs Relevant commitments and actions may be led by individual actors or undertaken collaboratively and could include a wide range of initiatives such as GHG reduction targets, clean energy targets, energy efficiency improvements, vehicle electrification targets, or goals or actions related to agriculture, land use, and waste, to name only a few examples.	Are previous efforts by subnational and nonstate actors being implemented as planned? Are new subnational and nonstate commitments and actions being adopted and implemented? What impact are subnational and nonstate efforts having on national emissions?
DEVELOPMENT SYNERGIES AND TRADE-OFFS ■ SDGs and SDG implementation plans ■ National and sectoral development plans ■ Sendai Implementation Plans ■ Biodiversity/Convention on Biological Diversity strategies	What synergies exist between national development goals and related indicators and climate change mitigation? What potential trade-offs might need to be managed?
FINANCE ■ Financial requirements for NDC implementation ■ Finance availability ■ Policy action to align finance flows with mitigation goals	What are the financial requirements for implementing the current NDC? What is the availability of finance? What policies are planned, adopted, or implemented to align finance and mitigation?

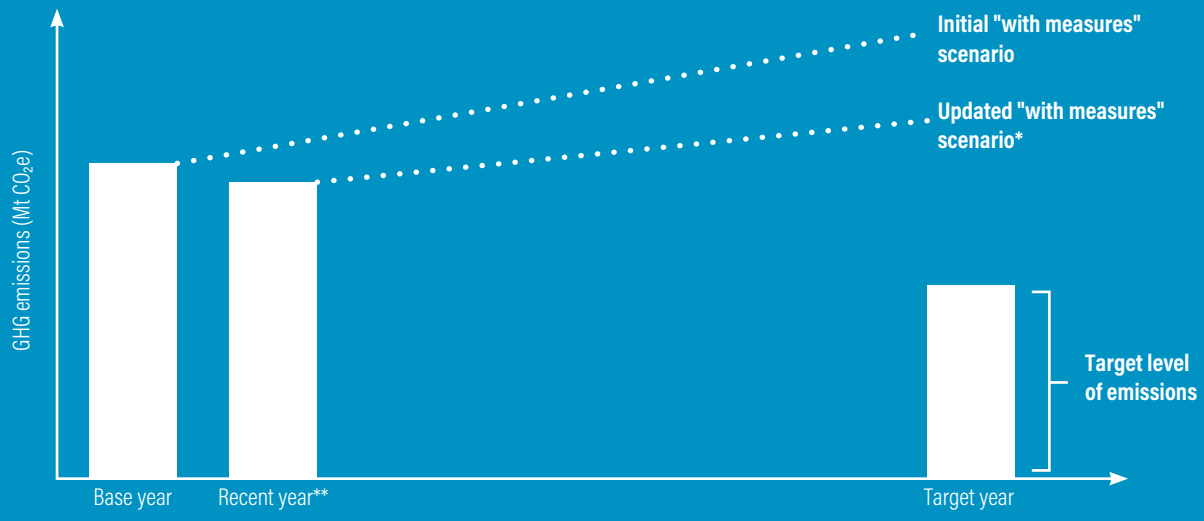
Source: Authors.

BOX 6 | Updating National Emissions Projections

Updating national projections of GHG emissions and removals to reflect the latest available data and forecasts provides a quantitative basis for setting new GHG reduction targets. An updated "with measures" scenario should take into account the latest forecasts on GDP growth, technology and cost assumptions, and other drivers of emissions trends, as well as expected impacts of currently implemented and adopted policies and measures. This updated emissions scenario can show whether countries are on track to meet current commitments. It can also help inform what level of enhanced NDC commitments are feasible and ambitious, and serve as a basis for various mitigation scenarios showing possible pathways to meeting enhanced targets. See Figure B-1.

Under the Enhanced Transparency Framework adopted at COP 24, countries are required to report projections of GHG emissions and removals in their biennial transparency reports (BTRs) by 2024, while those developing countries that need flexibility in the light of their capacities are instead encouraged to report these projections. If it is not feasible to update emissions projections before designing an enhanced NDC by 2020, countries should consider these trends and developments qualitatively when deciding on new commitments. Parties may also update projections when developing long-term strategies.

Figure B-1. Example of Updating National Emissions Projections as Part of a Process to Set New Emissions Targets and Determine the Level of Emissions Reductions Needed to Meet the Target



**May be lower or higher than initial "with measures" scenario*
***The most recent year for which data are available*

Source: Adapted from Levin et al. 2015.

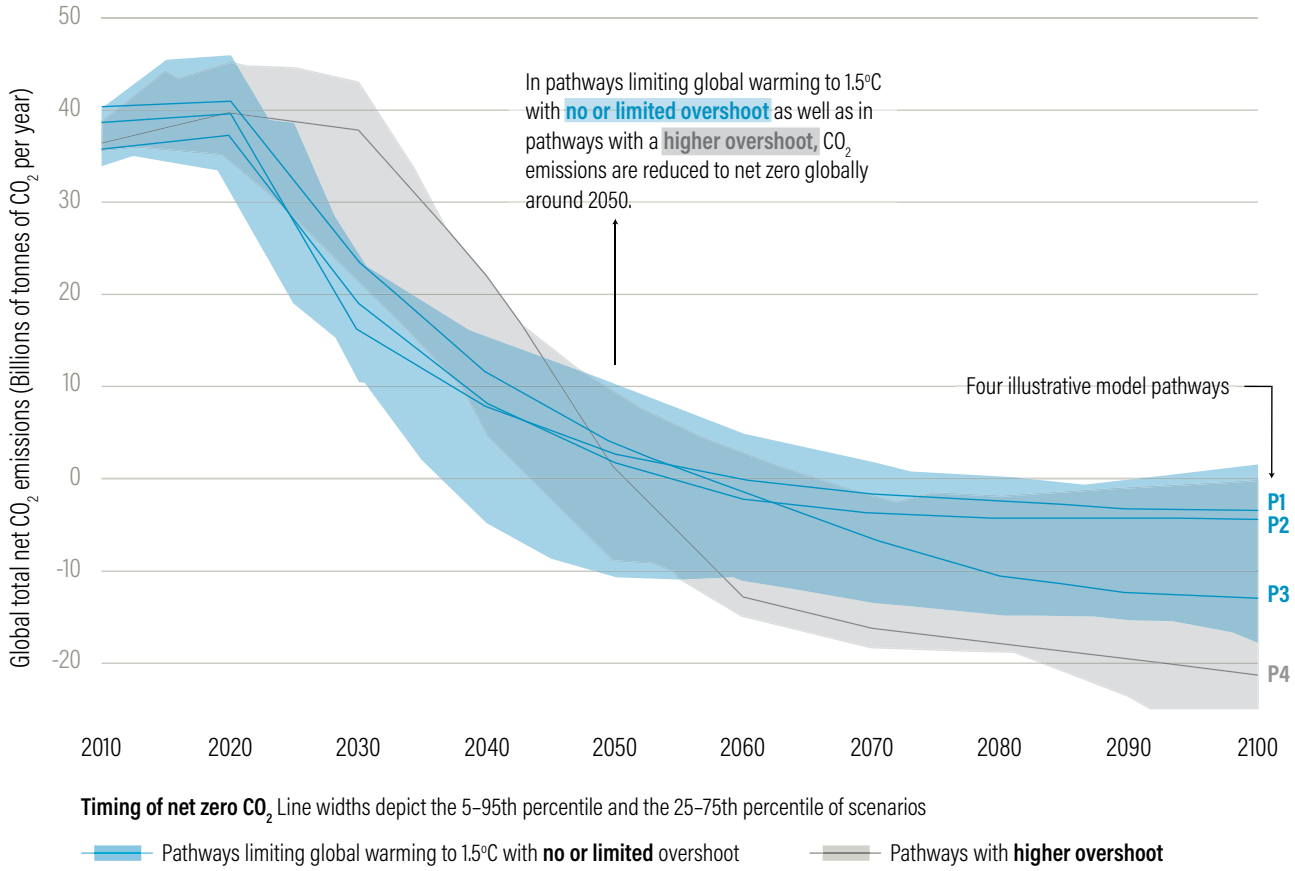
2) Take Stock of Long-Term Objectives and Benchmarks

The NDC enhancement process is an opportunity to bring NDCs into greater alignment with the temperature goals outlined in the Paris Agreement, with other important global objectives such as the SDGs, and with nationally articulated climate and development outcomes. To deliver on this opportunity, it is important to assess the current NDC and progress against it, as outlined in the previous section, in view of such objectives. In this step, countries will consult global frameworks and agreements, as well as national plans, to prepare a list of goals, objectives, and milestones for consideration for inclusion in an enhanced NDC.

The IPCC Special Report on 1.5°C provides indicators of the benchmarks that need to be achieved globally and in key sectors to align with the temperature goals in the Paris Agreement. These indicators, many of which address the 2030 time frame, can help contextualize mitigation ambition in the NDC enhancement process. At the global level, as shown in Figure 6, the IPCC notes the following facts (IPCC 2018):

- To limit warming to 1.5°C with no or limited overshoot, global net anthropogenic CO_2 emissions decline by about 45 percent from 2010 levels by 2030, reaching net zero around 2050.
- To limit warming to below 2°C, CO_2 emissions decline by about 25 percent by 2030 and reach net zero around 2070.
- Non-CO_2 emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C.

Figure 6 | Global Emissions Pathway Characteristics



Note: General characteristics of the evolution of anthropogenic net emissions of CO_2, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals.
Source: IPCC Special Report on Global Warming of 1.5°C.

Achieving these emission cuts will require large-scale transformation across key sectors. Several studies have quantified the sector-level changes implied by emissions scenarios that achieve given temperature outcomes (Kuramochi et al. 2018).

Because these are global benchmarks, it is not necessary for every country to adopt them exactly as articulated in Table 2. For instance, some countries may aim to achieve 100 percent zero-carbon electricity generation by 2030, while others may aim to achieve 50 percent on that same time frame. As long as the global averages align with the benchmarks in Table 2, the global emissions trajectory will be on track to achieve 1.5°C. Moreover, there is no consensus view on translating global benchmarks to the national level. We propose that countries use these benchmarks as guideposts in two ways: First, countries with high responsibilities and capabilities should aim for the more ambitious end of these guideposts. Second, all countries should ensure that their NDCs address the types of transformations outlined in Table 2, particularly for sectors that comprise a large share of their emissions. For example, if the current NDC does not promote zero-carbon buildings or decreasing the share of fossil fuel cars, the NDC could be enhanced to address those transformations.

Moreover, while these benchmarks are fundamental to achieving the Paris temperature goals, it is also important to consider, on a sector-by-sector level, intersections with the SDGs and other related national priorities. At this stage, countries should also take stock of other important global objectives, such as the SDGs (Box 3), as well as national climate and development objectives, such as those articulated in a long-term, low-GHG emission development strategy; national development plans; or national sector-specific plans, such as those for energy or agriculture. Table 3 presents the range of information to be consulted in this step, as well as a series of guiding questions to consider about each of them. Countries are also encouraged to consult the sector-specific guidance for further detail on the relationship between mitigation and development objectives in each sector.

Table 2 | Sectoral Shifts and Benchmarks Associated with Limiting Warming to 1.5°C above Pre-industrial Levels from Existing Literature*

SECTOR	BENCHMARK (FOR 2030 UNLESS OTHERWISE NOTED)
Power generation	■ Achieve 60–80% zero-carbon electricity generation (this implies growing the share of renewables and other zero- and low-carbon sources by approximately 2.5 percentage points per year) ■ Reduce electricity generation from coal by 65% from current levels; phase out coal plants in the EU and OECD countries
Industry	■ Reduce process CO_2 emissions by 20% relative to 2010 level ■ Reduce total direct and indirect emissions by 10–30% relative to 2010 level
Buildings	■ All new buildings fossil-free and near-zero-energy by 2020 in OECD countries and by 2025 in non-OECD countries ■ Increase annual building retrofit rates from less than 1% to about 5% in OECD countries and 3% in non-OECD by 2020 ■ Reduce building-sector emissions by 60–70% from 2010 levels by 2030
Transportation	■ Sell last fossil fuel passenger car by 2035–2050 ■ Accelerate decarbonization of aviation and shipping
Agriculture	■ Plateau emissions at 2020 levels (implying abatement of 2.3 to 4.6 $GtCO_2e$ per year relative to baseline)
Forestry and land use	■ End net deforestation by 2025 ■ Reduce emissions by 95% from 2010 levels by 2030

Note: * The benchmarks in this table are derived from 1.5°C-consistent modeling scenarios. They are subject to certain limitations: Not all sectors and subsectors that produce GHG emissions are specified. They do not explicitly aim to reconcile multiple development objectives. They are global in nature and do not specify which countries should do what. They are based on a wide range of underlying modeling assumptions that are not possible to predict with accuracy.
Source: Adapted from Kuramochi et al. 2018.

Table 3 | Taking Stock of the Needed Transformations

INFORMATION TO CONSULT	TAKING STOCK
Global and sectoral mitigation benchmarks (Table 2)	■ Has the country already adopted economy-wide and/or sector-specific milestones pertaining to the transformations illustrated in Table 2? If so, what are they? If not, what milestones might be appropriate for inclusion in an enhanced NDC?
SDGs, Convention on Biological Diversity, Sendai Disaster Risk Reduction Framework, and other global frameworks of interest	■ Has the country already adopted economy-wide and/or sector-specific milestones pertaining to these agreements/frameworks? If so, what are they? If not, what milestones might be appropriate for inclusion in an enhanced NDC?
Long-term, low-GHG emissions development strategy	■ What key objectives does the plan lay out for mid-century, at the economy-wide level and in key sectors? ■ Does the plan include milestones pertinent to the NDC time frame? What are they?
National development plans (including sector-specific plans)	■ What key objectives do the plans lay out for mid-century, at the economy-wide level and in key sectors? ■ Do the plans include milestones pertinent to the NDC time frame? What are they?

Source: Authors.

After working through Table 3, countries will have in hand a list of actual and/or potential goals and objectives, based on the long-term transformations necessary to achieve a range of goals, to consider for inclusion in an enhanced NDC.

3) Identify Opportunities for Enhancement

In this step, countries will identify mitigation-related NDC enhancement options stemming from opportunities to fill gaps in their initial NDCs and to strengthen elements of their initial NDCs. As inputs, they will use the lists generated in Steps 1 and 2, information drawn from relevant sectoral guidance, and other resources (see Box 11), as relevant. The output of this step will be a list of NDC enhancement options. In compiling the list of enhancement options, countries should strive to bring the NDC more closely into alignment with the benchmarks associated with the Paris Agreement temperature goals; take full advantage of recent developments, innovation, and best practices; maximize the benefits of the NDC for development and resilience; fill gaps in sectors and gases not yet addressed; and incorporate relevant opportunities to strengthen implementation and finance.

This section proposes diagnostic questions to aid in the systematic evaluation of the NDC to identify opportunities for enhancement, as described below and summarized in Table 1. We suggest that countries address these questions on an economy-wide or cross-sectoral level as well as for each sector individually. At the sector level, countries may choose to review the sectors around which national inventories are organized (energy, industry, waste, agriculture, and forestry and other land use). Alternatively or in addition, they may wish to review by energy end-use sector (transportation, industry, buildings), or around particular themes such as cities, short-lived climate pollutants, or oceans. In determining this approach, countries may wish to consider their major emissions sources, as well as how stakeholders within and outside of government are organized. As noted earlier, subsequent guidance from UNDP and WRI will provide greater detail on enhancing NDCs in specific sectors.

Improving Paris alignment

Is the NDC consistent with a trajectory that aligns with key benchmarks in Table 2 and in relevant sectoral guidance? Compare the NDC as a whole, including its economy-wide targets and policies, sector-specific targets and policies, and the assumptions that underlie them, insofar as these are available, against the list of goals and objectives produced in Step 2. As relevant, consult sector-specific guidance for more detailed and granular benchmarks pertinent to each sector. Identify goals and objectives that are not yet reflected in the NDC at all or that are reflected in the NDC but at a more incremental, rather than transformative, scale.

Compile a list of NDC enhancement options that advance transformative change in each sector. For example, perhaps a country's long-term, low-emissions development strategy (as well as Table 2) suggests that electrification of road transportation and industry will be necessary to achieve long-term climate goals, but the NDC addresses transportation only through fuel-efficiency improvements and does not address industry at all. This country might identify transportation electrification and industry electrification as potential NDC enhancements. See Box 7 for examples.

Reflecting new developments, innovation, and best practices

Does the treatment of each sector in the initial NDC reflect up-to-date assumptions regarding available technologies and their costs? Consider whether the technology and cost information identified in Step 1, as well as in relevant sector guidance modules, would shift the cost-benefit balance of different technology options and open up mitigation opportunities and potential not yet reflected in the NDC.

Compile a list of NDC enhancement options related to these technology opportunities. For example, if the costs of renewable energy technology have fallen, can the energy matrix become cleaner faster than considered in the initial NDC? If battery costs have fallen and charging infrastructure is more available, can the transportation sector electrify faster than anticipated?

Does the NDC reflect the relevant plans, policies, and measures that are being implemented or considered in the country or that ought to be considered, based on available best practices? Consider the list of existing national plans, policies, and measures identified in Step 1, as well as best practices outlined in other resources, such as sector-specific guidance. Are these reflected in the initial NDC? If not, consider enhancing the NDC to take them into account. Do these plans, policies, and measures reflect best practice (as outlined, for example, in the resources in Box 11)? If not, consider enhancing the NDC to commit to additional best-practice policies.

Compile a list of NDC enhancement options relating to existing and/or best-practice policies not yet included in the NDC. For example, suppose a country has set ambitious renewable energy goals at the national level, but these are neither stated explicitly in the NDC nor factored into the country's economy-wide GHG target. This country could consider factoring its ambitious renewable energy plans into its NDC. Alternatively, suppose a country consults best-practice guidance for the forest sector and identifies strong land-tenure policies as a best-practice policy for reducing deforestation. This country does not yet have such policies either domestically or in its NDC. This country could consider including land-tenure measures as an NDC enhancement option.

BOX 7 | Examples of Improving Alignment with the Paris Agreement

A number of countries are enhancing their NDCs to align them with the 1.5°C goal in the Paris Agreement, with their own long-term, low-carbon development strategies, or with other considerations relevant to long-term transformations:

- Costa Rica's National Decarbonization Plan, which aims to decarbonize the country's economy by 2050 via 10 sector-specific axes of action, notes that it will feed into the process of updating the country's NDC for 2020.
- The Philippines has indicated its intent to "identify actions and targets to align with the more ambitious 1.5 Paris Agreement goal."
- The Republic of the Marshall Islands has revised its NDC to link to its 2050 Climate Strategy. The revised NDC affirms GHG reduction targets for 2025 and 2030 and includes an indicative target for 2035, targets that align with a pathway to achieving net-zero emissions by 2050.

Sources: Government of Costa Rica 2019; NDC Partnership.

Does the NDC reflect the relevant climate action commitments being made by non-state and subnational actors in the country? Do these open up opportunities to enhance the NDC? Consider the list of existing nonstate and subnational commitments identified in Step 1 and their potential impacts. (For guidance on assessing the impacts of nonstate and subnational actions, see ICAT (2018). Are these reflected in the initial NDC? If not, consider enhancing the NDC to take them into account. Compile a list of NDC enhancement options relating to existing non-state and subnational actions not yet included in the NDC.

For example, suppose a number of the largest cities and states in a country have signed onto the Under2 Coalition (an agreement under which subnational governments commit to limiting emissions to 80–95 percent below 1990 levels, or to below 2 annual metric tons per capita, by 2050), or have otherwise taken on ambitious mitigation commitments. The country might consider strengthening its NDC commitments related to emission sources over which the cities and states have significant influence.

Maximizing the benefits

Does the NDC maximize synergies and reduce potential trade-offs with development objectives, including climate resilience? Consider the list of synergies between mitigation and development objectives identified in Step 1, and drawing from the SDGs, the Sendai Disaster Risk Reduction Framework, the Convention on Biological Diversity, and national development and implementation plans. Can additional targets and policies be designed around these synergies and included in the NDC? Can the NDC be strengthened to address important interactions across mitigation and adaptation actions? Compile a list of NDC enhancement options that contribute to synergies and/or address trade-offs.

For example, nature-based solutions can provide important synergies across mitigation, adaptation, biodiversity conservation, and other sustainable development objectives. On the other hand, major adaptation measures can also increase emissions; for example in the water, agriculture, and energy sector. By planning NDC enhancement in a systemic manner where mitigation, adaptation, and sustainable development benefits are considered together, it is possible to create greater benefits, make more informed and equitable decisions on trade-offs, and design more efficient processes than would be possible in cases where separate efforts are made (Box 8).

BOX 8 | Examples of Maximizing Synergies

Countries have noted the potential to leverage NDC enhancement to promote synergies between mitigation and other development priorities, including adaptation and the SDGs.

- Jamaica intends to "focus on finding and leveraging co-benefits of mitigation and adaptation policies" in its NDC enhancement process. A request for technical support stated, "In assessing the current NDC, Jamaica hopes to further develop synergies between climate change mitigation and adaptation policies."
- Namibia discussed plans for the development of an NDC implementation strategy that is "costed and integrates SDG actions with sector specific investment plans."

Source: NDC Partnership.

Filling gaps

Does the NDC address all relevant sectors, subsectors, and gases? In their initial NDCs, many countries do not address all sectors and all gases. At least 40 percent of Parties (responsible for 13 percent of 2014 global emissions) exclude some gases in their NDCs (particularly non-CO_2 gases), and over half of Parties (responsible for 40 percent of 2014 global emissions) exclude some economic sectors (Fransen et al. 2017). Within sectors that are addressed in the NDC, there may still be gaps in subsectors. For example, an NDC might address the energy sector broadly, but may not consider mitigation actions in every relevant end-use sector, such as buildings, transportation, and industry. Compile a list of NDC enhancement options addressing any missing sectors, subsectors, or gases (Box 9).

BOX 9 | Examples of Filling Gaps

Some countries have expressed an intent to enhance their NDCs to address sectors that were not included in their initial NDCs.

- While Jamaica's initial NDC focused on the energy sector, it intends to use the 2020 enhancement process to expand to additional sectors, to be determined through a series of sectoral analyses with support from the NDC Partnership.
- Likewise, Nigeria intends to enhance its NDC by addressing the waste and water that were not addressed in its initial NDC, in addition to the five sectors it already covers: power, oil and gas, agriculture, industry, and transportation. Nigeria's NDC enhancement process includes an impact assessment for the currently included sectors, vulnerability and risk assessments, cost-benefit analyses, and the quantification of sectoral targets.

Source: NDC Partnership.

Addressing finance and implementation issues

Does the NDC reflect the potential associated with finance? There are at least two ways in which countries can reflect finance in NDC enhancement (Box 14). With regard to mitigation, first, countries could identify specific finance gaps and support needs for mitigation action, with a view to strengthening implementation by attracting finance to fill the gap. Second, countries can commit in their NDC to create, reallocate, and align finance flows with mitigation objectives; for example, by committing to remove fossil fuel subsidies. Such alignment could facilitate achievement of existing mitigation targets and potentially enable the country to achieve a more ambitious target.

Does the NDC address important cross-sectoral interactions? In many cases, sectors interact with one another, and taking these interactions into account is necessary to ensure an internally coherent NDC. For example, transitioning end uses in buildings, transportation, and industry from fossil fuel combustion to electrification is key to these sectors' decarbonization but also has material implications for the power sector. Ensuring internally consistent NDC enhancement will require joint consideration of these sectors alongside the power sector. Likewise, the land sector sits at the nexus of carbon removal and storage, food production, biofuel production, and a wide range of crucial ecosystem services. Therefore, NDC enhancement should consider potential interactions among forests, food production, and biofuel production. The sectoral modules that will supplement this guidance treat such interactions in greater detail.

Can the NDC otherwise facilitate strengthened implementation? Consider any implementation gaps or challenges identified in Step 1. The previous diagnostic questions in Step 3—by identifying options that take advantage of technological advancement, strengthen development synergies, articulate clear contributions from key sectors and subsectors, and address finance and cross-sectoral interactions—may already do a great deal to facilitate stronger NDC implementation. If any identified challenges are left unaddressed, however, consider whether there are additional opportunities to address them via NDC enhancement options, and compile a list of such options (Box 10).

BOX 10 | Examples of Addressing Finance and Implementation Issues

Several countries are planning to enhance their NDCs to include greater detail on implementation and finance.

- In its revised NDC, Honduras intends to elaborate a process for achieving its NDC goal of reforesting one million hectares.
- Based on its experience developing an NDC implementation plan, Mozambique plans to enhance its NDC to expand on implementation elements.
- With support from NDC Partnership, Jamaica intends to create an NDC implementation plan, which would include details of investments in order to outline the financial requirements for meeting the country's NDC targets.

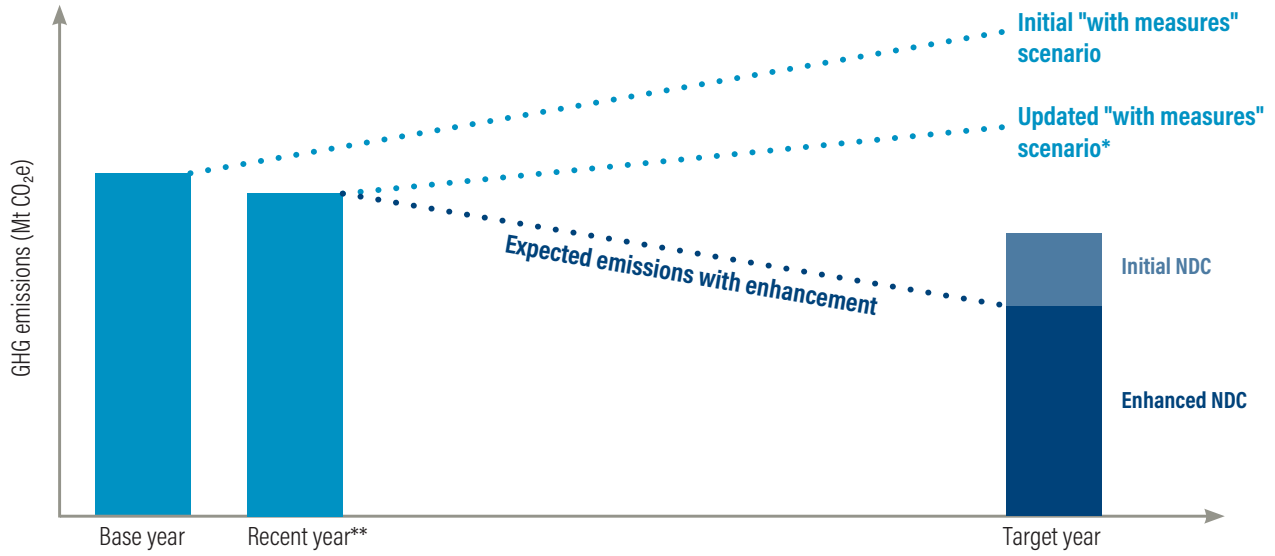
Source: NDC Partnership.

4) Aggregate, Iterate, and Refine the List of Mitigation Enhancement Options

The output of Step 3 was a list of possible mitigation NDC enhancement options. Step 4 involves analyzing the impact of these options on GHG emissions, sectoral indicators, and other socioeconomic indicators of concern, to the extent that time and resources permit, and use this analysis to refine and finalize the list of options. Considerations in refining the list of mitigation options might include GHG reduction potential, feasibility, benefits and costs, and other considerations (for example, proven effectiveness, measurability, fair distributional impact, and potential to expand and entrench support from domestic constituencies). These considerations are detailed further in Levin et al. (2015a).

Countries with modeling capacity are encouraged to model these impacts quantitatively, building off of the updated national emissions projections described in Box 6. The results of this exercise can be compared to existing GHG, sectoral targets, and national development benchmarks and considered in the context of the global mitigation benchmarks consistent with achieving the Paris temperature goals. This type of analysis can help to determine whether specified actions merely support the implementation of existing GHG targets in the initial NDC, or whether they collectively go beyond the initial NDC to enhance overall mitigation ambition. If the results illustrate that the enhancement options do not adequately support climate and development objectives, the list of options can be refined accordingly. Figure 7 illustrates a notional example of aggregating the impact of NDC enhancement options on GHG emissions and using this information to set an enhanced GHG target.

Figure 7 | Aggregating the GHG Impact of NDC Enhancement Options



*May be lower or higher than initial "with measures" scenario
**The most recent year for which data are available

Source: Adapted from Levin et al. 2015.

5) Determine How to Reflect Enhancements in the NDC

Finally, countries will need to decide how to reflect the final enhancement options within their NDCs, whether through strengthened or additional GHG targets, strengthened or additional sector-specific, non-GHG targets, and/or strengthened or additional policies and actions (Figure 8). Countries can also specify that their manner of achieving GHG or non-GHG targets will align with long-term decarbonization pathways; for example, by promoting electrification of end uses.

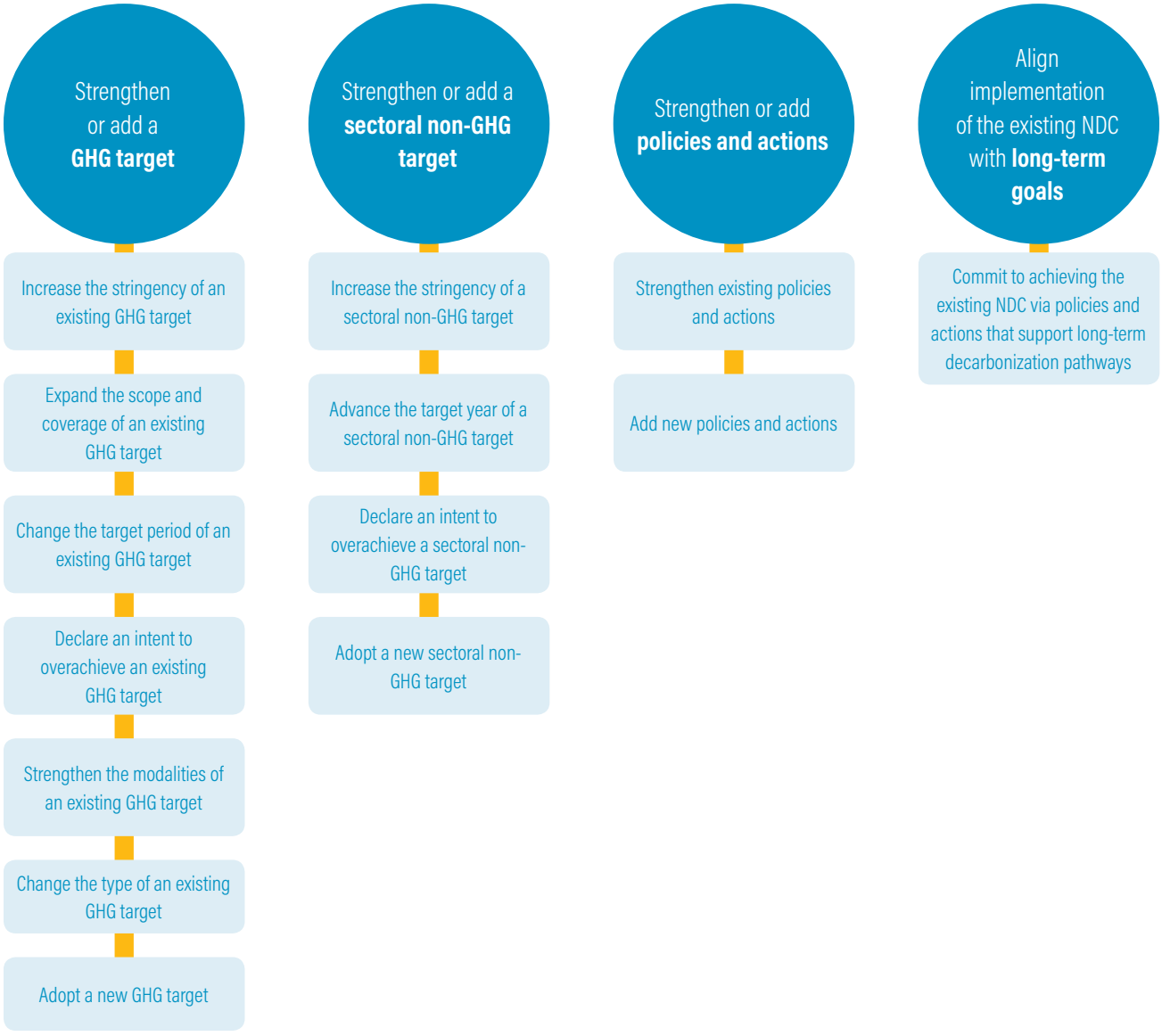
Each of these options offers advantages and disadvantages, and they are not mutually exclusive. The following considerations are relevant to GHG targets, non-GHG targets, and policies and actions:

- **GHG targets** "offer the most flexibility on how to achieve GHG reductions—without necessarily specifying which actions will drive emissions reductions. Tracking progress of GHG outcomes is easier than tracking progress of actions because GHG targets can typically be monitored through the national GHG inventory, rather than through more detailed sector-level data. GHG outcomes are also better suited to aggregation of GHG reductions across Parties' contributions" (Levin et al. 2015). Some Parties may choose to increase the stringency of their GHG targets with a combination of domestic action and transfers of mitigation outcomes from other Parties. If this is the case, Parties should ensure that the principles and rules of the Paris Agreement are met—that is, with regard to double counting—and that they are transparent about the contribution of international transfers toward the target. (See p. 57 with regard to transparent communication.) If the goal of increasing the stringency of a GHG target is to drive domestic action, targets should be achieved primarily through emissions reductions from within a country's borders rather than via international transfers.

- **Non-GHG targets** "can provide flexibility on how to achieve a certain outcome—as opposed to specifying particular actions. However, they may restrict mitigation activities to a certain sector (for example, energy efficiency or renewable energy generation). Tracking the progress of non-GHG outcomes is relatively simple by tracking key performance indicators, such as the energy efficiency of sectors and the level of renewable energy generation. Likewise, communicating non-GHG outcomes to stakeholders is fairly simple. However, non-GHG outcomes pose challenges to aggregating GHG reductions across Parties' contributions, unless the GHG impacts of non-GHG outcomes are also communicated" (Levin et al. 2015).
- **Policies and actions** offer specificity regarding action to be taken under the NDC but do not, in and of themselves, offer information on the overall impact on GHG emissions, nor do they allow flexibility in how to achieve GHG reductions.

As discussed in the Introduction and in Step 4, the form in which a country chooses to express its mitigation enhancement(s) is not related to the effect of the enhancement(s) on the overall mitigation ambition of the NDC (Fransen et al. 2017).

Figure 8 | Options for Reflecting Mitigation Enhancement in an NDC



Source: Fransen et al. 2017.

In this step, a country considering a given set of NDC enhancements, as defined in Step 4, will consider its options for reflecting these enhancements in its NDC and prepare the final content of its enhanced mitigation NDC on that basis. For example, if a country identifies that increased penetration of renewable energy in the power sector is possible, relative to what it had envisioned in its initial NDC, the country may wish to take one or more of the following actions in its NDC:

- Strengthen its economy-wide GHG target, taking into account a greater share of renewable electricity
- Establish a renewable energy target for the power sector or strengthen such a target if one already exists
- Outline the policies or actions that it plans to undertake to take advantage of this newly identified potential for renewable energy
- Commit to aligning its power sector with the long-term goals outlined in the Paris Agreement, and/or in the country's own long-term strategy, if it has one

BOX 11 | Further Resources on Mitigation

The following list presents a selection of resources that provide further details and guidance on concepts related to enhancing the mitigation component of NDCs:

GHG accounting

- *Greenhouse Gas Protocol: Mitigation Goal Standard* (WRI 2014a)
- *Greenhouse Gas Protocol: Policy and Action Standard* (WRI 2014b)

NDC design and implementation

- *Planning for NDC Implementation: Quick Start Guide and Reference Manual* (CDKN 2016)
- *Designing and Preparing Intended Nationally Determined Contributions (INDCs) (Levin et al. 2015): Implementing NDCs* (UNDP et al. forthcoming)
- *How to Advance Intended Nationally Determined Contributions: Technical Aspects for Development and Review* (Wienges et al. 2015)

Sectoral benchmarks for 2030

- *Realizing the Promise of Paris: Roadmap to a Safer Climate Technical Appendix* (de Villafranca Casas et al. 2019)
- "Short Term Policies to Keep the Door Open for Paris Climate Goals" (Kriegler et al. 2018)
- "Ten Key Short-Term Sectoral Benchmarks to Limit Warming to 1.5°C" (Kuramochi et al. 2018)

Best-practice policies

- "Reducing Global GHG Emissions by Replicating Successful Sector Examples: The 'Good Practice Policies' Scenario" (Roelfsema et al. 2018)

Sectoral and thematic resources

- Buildings: "A Guide for Incorporating Buildings Actions in NDCs" (Global Alliance for Buildings and Construction, 2018)
- Cooling efficiency: "Guidance on Incorporating Efficient, Clean Cooling into the Enhancement of Nationally Determined Contributions" (K-CEP 2019)
- Short-lived climate pollutants: "Strengthening Nationally Determined Contributions to Catalyze Actions That Reduce Short-Lived Climate Pollutants" (Ross et al. 2018); *Emissions Gap Report 2017*, chapter 6 (UNEP 2017)
- Energy supply and end use: *Emissions Gap Report 2017*, chapter 5 (UNEP 2017); *Emissions Gap Report 2016*, chapter 5 (UNEP 2016)
- Forests: *Emissions Gap Report 2015*, chapter 6 (UNEP 2015)
- Non-CO_2 gases: "Non-CO_2 Greenhouse Gases: International Emissions and Projections" (US EPA 2012)
- Nonstate action: "Nonstate and Subnational Action Guidance" (ICAT 2018)
- Forthcoming modules on NDC enhancement, addressing electric power supply and use, transportation, agriculture, forests and land use, oceans, and short-lived climate pollutants (WRI and UNDP, forthcoming)


FWD
NISSAN DIESEL

DESIGNING AN ENHANCED ADAPTATION COMPONENT OF AN NDC

The importance of adaptation is undeniable. However, given that the inclusion of adaptation in NDC is voluntary and countries may implement adaptation actions without mentioning them in NDC, strategic thinking is required as to how to address adaptation in an enhanced NDC.

Rationale

The Paris Agreement states that one of its aims is to increase "the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development" (Article 2.1). It also established the global goal of "enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change" (Article 7.1). Countries have opportunities to communicate, in their NDCs, how they intend to contribute to this global goal by enhancing adaptive capacity and resilience in their own jurisdictions and by supporting other countries in doing the same.

The enhancement of adaptation is an issue that many countries may choose to consider while they embark on the enhancement of their NDCs. While the inclusion of adaptation in the NDCs remains optional, a significant majority of countries have opted to incorporate adaptation, and it is likely that upcoming NDC enhancements will continue to reflect adaptation priorities to varying degrees. As of November 2018, 132 out of 180 NDCs (73 percent) communicated to UNFCCC have an adaptation component (Least Developed Countries Expert Group 2018), 44 percent of which include a mention of NAPs (GIZ GmbH n.d.).

While inclusion of adaptation in the NDC is voluntary, countries are encouraged by the Paris Agreement (Article 7.10) to submit an adaptation communication to report on adaptation, and an adaptation component of an NDC can serve as this adaptation communication for each country. In other words, each country has the liberty to decide how its NDC adaptation component relates to its adaptation communication, depending on its national circumstances. The process involves five steps (Figure 9).

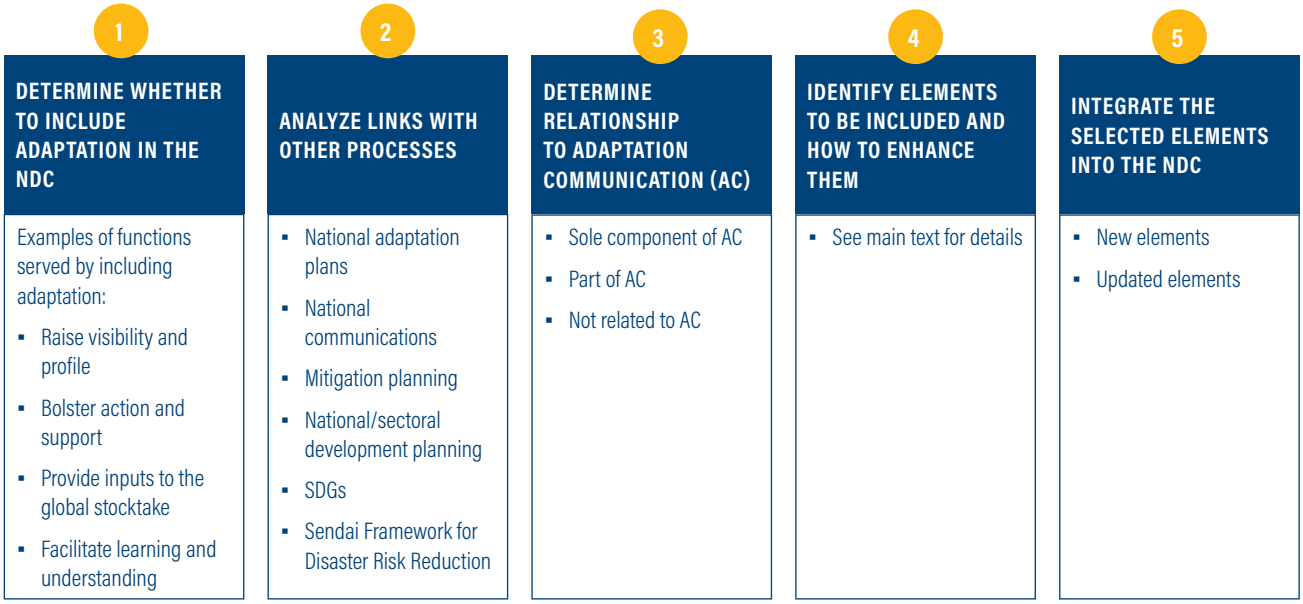
Recent Developments in Guidance for Adaptation Communication

To clarify the nature of the adaptation communication and its relationship with the NDC, it is important to understand the evolution of key adaptation-related decisions at the COP (Figure 10). In December 2014 at the 20th Session of the Conference of the Parties (COP 20) to the UNFCCC, Parties were invited to "consider communicating their undertakings in adaptation planning or consider including an adaptation component in their intended nationally determined contributions" (UNFCCC decision 1/CP.20 Para.12).

The discussion regarding the adaptation component of the NDC continued as part of the negotiations on the "adaptation communication." The Paris Agreement (Article 7.10) indicates that Parties "should, as appropriate, submit and update periodically an adaptation communication" (UNFCCC 2015b). This can be communicated as a component of or in conjunction with other communications or documents, such as NDCs, NCs, and NAPs (UNFCCC 2015b Article 7.11) (Box 12). BTRs may also include contents related to climate change impacts and adaptation (UNFCCC decision 18/CMA.1) and, therefore, can be used for adaptation communication.

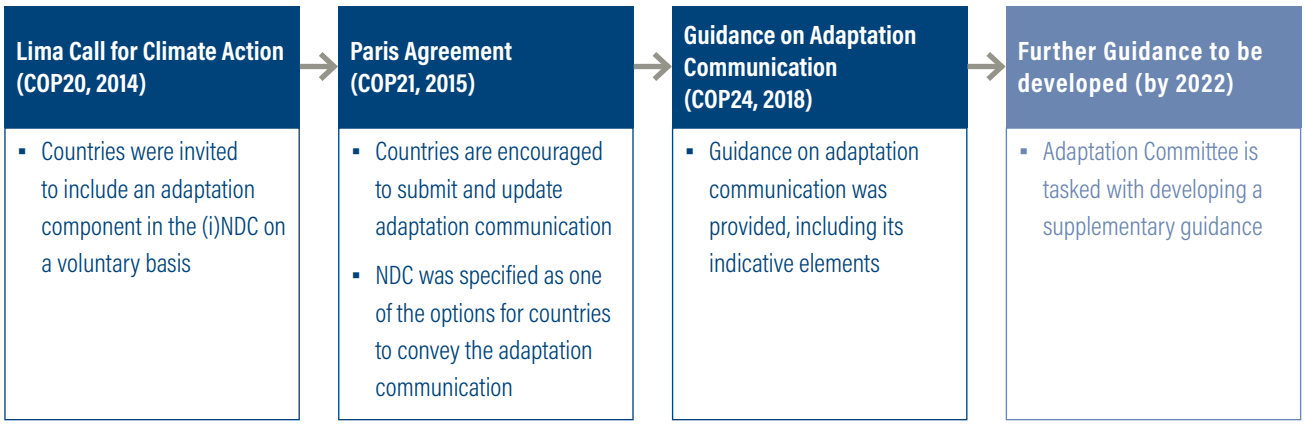
Elements of the adaptation communication were provided in December 2018 at COP 24 (UNFCCC 2019) and are outlined in the section below. The Adaptation Committee, with the engagement of Working Group II of the IPCC, will develop supplementary guidance for communicating information on these elements by 2022 for consideration by the UNFCCC subsidiary bodies (UNFCCC 2019 Para. 15).

Figure 9 | Steps for Enhancing an Adaptation Component in NDCs



Source: Authors.

Figure 10 | UNFCCC Decisions on an Adaptation Component in the NDCs



Source: Authors.

1) Determine Whether to Include Adaptation in the NDC

The importance of adaptation is undeniable. Hallegatte et al. (2016) warn that without "rapid, inclusive, and climate-informed development . . . climate change could result in an additional 100 million people living in extreme poverty by 2030." It is imperative for all countries to plan for and implement adaptation actions. However, this does not necessarily mean that countries need to include adaptation in their NDCs, because this is not necessarily a prerequisite for robust adaptation planning and implementation.

Therefore, it is useful for countries to explicitly consider the purpose of including adaptation in their NDCs in order to incorporate adaptation NDC elements that best serve the identified purposes (Levin et al. 2015). Decision 9/CMA1 identifies the following purposes for the adaptation communication, some or all of which may mirror a country's own priorities for including adaptation in the NDC:

- Increase the visibility and profile of adaptation and its balance with mitigation
- Strengthen adaptation action and support for developing countries
- Provide input to the global stock-take
- Enhance learning and understanding of adaptation needs and actions

Because NDCs are high-profile documents, internationally and often also domestically, elaborating the adaptation contents in the NDC can increase the visibility and profile of adaptation (Fransen et al. 2017), and countries may wish to consider what aspects of adaptation they would like to highlight there. Here are some examples:

- Countries can use an adaptation component in the NDC to strengthen adaptation action and highlight support needs by including elements like adaptation priorities, strategies, policies, plans, goals, and actions, as well as barriers, challenges, and gaps for implementing adaptation action.
- Although NDCs are forward-looking in nature, countries can choose to include backward-looking information, such as adaptation efforts and progress made. This can provide input to the global stock-take if countries do not identify other suitable channels to communicate such information.
- Countries can use an adaptation component of the NDC to facilitate learning and understanding of adaptation needs and actions by, for example, laying out an effective monitoring and evaluation system; detailing good practices and lessons learned; and highlighting barriers, challenges, gaps, and support needs to implement adaptation action.

Once countries have explored the purposes of including an adaptation component in their NDCs, they need to decide whether to include it.

2) Analyze the Linkages, Trade-Offs, Synergies, and Streamlining with Other Domestic and International Processes

In developing an adaptation component of the NDC, countries can draw important information from the adaptation contents of the previous (I)NDC and NCs, NAPs (if the countries have already initiated them), or other adaptation planning processes under way in the country. It is also important to ensure consistency and coherence across such documents and processes. Given that the NAP and NC (and BTR) are iterative processes, the development or enhancement process of an adaptation component of the NDC would also inform the future NAPC/BTR processes, and this can create a virtuous cycle of improvements in the country's adaptation planning, implementation, and communication.

If the country has developed or is in the process of developing a mid-century, long-term low GHG emissions development strategy, as invited by the Paris Agreement (Article 4.19), and if the strategy includes adaptation, it is important to draw on and align with it. The NAP process is also intended for

medium- and long-term adaptation planning, and if the country has already embarked on the NAP process or any other long-term adaptation planning process, an adaptation component of the NDC should align with it. Adaptation should not focus only on immediate actions required to respond to materializing climate impacts; this would run the risk of taking actions that increase vulnerabilities in the long-term (maladaptation). Instead, countries also need to contemplate a long-term strategy to cope with the long-term impacts of climate change, which extend far beyond the time horizon of each NDC. If the country has not initiated any long-term adaptation planning processes, updating the NDC may be a good opportunity to trigger such a process.

Countries also need to consider linkages and potential trade-offs and ensure alignment with mitigation planning, related development, and sectoral planning processes, as well as international frameworks, such as the 2030 Development Agenda (SDGs) and the Sendai Framework for Disaster Risk Reduction 2015–2030. This can include a broader assessment of potential synergies with development that can be maximized in the NDCS and any trade-offs to avoid. (See Box 3 for more details about climate and development linkages, including relevant resources to consult.)

Countries can not only draw information from those processes but also create synergies, manage trade-offs, and streamline planning, implementation, and reporting by aligning those processes with each other and ensuring coherence among them. By planning and implementing actions in consideration of mitigation, adaptation, and sustainable development benefits in combination, it is possible to create greater benefits, make more informed and equitable decisions on trade-offs, and design a more efficient process than would be possible in cases where separate efforts are made for mitigation, adaptation, and development objectives, respectively. For example, the agriculture and forestry sectors have significant potential to create this type of synergy.

3) Decide Whether the Adaptation Component of the NDC Constitutes the Country's Adaptation Communication

If countries choose to include adaptation in their NDC, there are three options they can consider with regard to the NDC's relationship with the adaptation communication. In deciding which option to choose, countries may wish to consider streamlining various reporting processes under UNFCCC and other related international conventions or initiatives to reduce the administrative burden of reporting.

OPTION 1: The NDC solely constitutes the country's adaptation communication

If countries decide that the adaptation component in the NDC is the adaptation communication, they should consider including the elements of the adaptation communication mentioned in Table 4 below. They are further encouraged to identify which part of their NDC constitutes the adaptation communication and give it a sequential number (UNFCCC 2019 Para.10), for further recording in a public registry of adaptation communications maintained by the UNFCCC secretariat (UNFCCC 2015b Article 7.12).

OPTION 2: The NDC constitutes a part of the adaptation communication along with other documents such as NAPs, NCs, and BTRs

If the adaptation component of the NDC is only a part of the adaptation communication and is complemented by other documents, countries should decide which elements they will include in the NDC and which will be included in other documents (Box 12). An adaptation component of the NDC is a means to communicate a country's contribution to achieving the adaptation goals defined in the Paris Agreement. Therefore, one way to select elements to be included in the NDC is to prioritize ex-ante information such as the vision, goals, objectives, and targets; future strategies, priorities, plans, and actions; and needs and plans of support.

OPTION 3: The NDC does not constitute the adaptation communication

Even if the adaptation component of the NDC is not the adaptation communication, its content could still be considered in reference to the elements of the adaptation communication (UNFCCC 2019) as a starting point.

Option 1 has the benefit of facilitating a holistic approach to and streamlining the process of the adaptation communication by unifying the communication efforts in the NDC. In addition, because the NDC is a high-profile document, it can reach broader stakeholders. However, Option 1 may not be ideal for some purposes. For example, the planned timing of the submission of the NDC may not be conducive to delivering the latest information as an input to the global stock-take. Moreover, as the NDC does not typically contain very detailed information, it may not be the best vehicle to deliver comprehensive information for mutual or collective learning. Option 2, on the other hand, offers the benefit of being able to choose the best vehicle for delivering different information for different purposes, but it may require greater effort to ensure that the communications delivered by different vehicles are consistent with each other and collectively comprehensive. The benefits of Option 3 depend on which documents are selected to deliver the adaptation communication, but this option has a disadvantage of not being able to harness the broad readership of the NDC.

BOX 12 | Characteristics of Vehicles of Adaptation Communication

Each vehicle for adaptation communications has a specific purpose, and therefore the vehicle chosen has implications for the content of the adaptation communication itself.

- **NAPs.** NAPs, instigated in 2011, are a national planning process, rather than an international communication process. The information contained in a NAP is typically long and detailed. Countries could produce a concise summary within their NAPs that would serve as a communication. However, the updating cycle of NAPs has not been determined, and therefore its utility as a reporting tool is uncertain. Countries are advised to communicate progress on NAPs to the UNFCCC, for example, in their NCs, and often include outreach as part of their NAP process.
- **NDCs.** NDCs are a high-profile mechanism for countries to communicate their national climate change commitments to the international community. Many countries explained in their NDCs how they are preparing their NAP process, their progress, and their intentions. Most adaptation components of NDCs provide a concise overview for an international audience of what the country is doing and therefore are essentially a communication.
- **NCs.** NCs are the traditional reporting vehicle for adaptation as well as for mitigation actions. Some NCs already include priorities and needs. Decision 5/CP.17, adopted at COP 17 in Durban, South Africa, invites Parties to report on efforts and support provided and received for their NAP process through their NCs. As a vehicle for the adaptation communication, NCs could provide both backward- and forward-looking information. However, they tend to be very long, detailed documents and receive relatively little international readership or follow-up. The four-year reporting cycle of NCs may impose an undue burden on reporting of national adaptation actions.
- **BTRs:** BTRs are the reporting vehicle introduced under the transparency framework for action and support of the Paris Agreement (Article 13). BTRs need to include a GHG emissions inventory report and information necessary to track the implementation and achievement of NDCs. BTRs can also include information related to climate change impacts and adaptation (Decision 18/CMA.1), which can be both backward- and forward-looking. The first BTR is to be submitted by December 31, 2024, and countries may submit a BTR and an NC as a single report (Decision 1/CP.24 para. 43).

Source: Based on Dagnet et al. 2018; modified by authors.

4) Identify Elements to Include and How to Enhance Them

Table 4 lists the elements that are outlined in decision 9/CMA.1. The decision also provides some guidance on the choice of elements to be included in the adaptation communication and therefore in the adaptation component of NDCs if countries opt to do so. The decision invites countries to provide information related to elements (a) to (d) in Table 4. The decision indicates that countries may also include elements (e) to (i), "as appropriate," and further specifically invites countries to provide information on element (f) when the adaptation communication is included in the NDC (UNFCCC 2019). Options for enhancement are added for each element by the authors, drawing from the existing literature (Levin et al. 2015; Fransen et al. 2017).

Because the NDC functions primarily as a means to communicate the country's commitments and contributions to Paris goals, it would be fundamental to consider element (c), national adaptation priorities, strategies, policies, plans, goals, and actions. Additionally, countries with severely limited resources and capacities in planning and implementing adaptation actions may wish to include information related to barriers, challenges, and gaps (element (e)(iv)) as well as support needs (element (d)). See Box 14 for further information on integrating finance. For the methodology of adaptation planning, various guidance is available, such as the technical guidelines for NAPs (Least Developed Countries Expert Group 2012).

Table 4 | Elements of Adaptation Communications as Provided in Decision 9/CMA.1

ELEMENTS	OPTIONS FOR ENHANCEMENT
(a) National circumstances, institutional arrangements, and legal frameworks	Update or add ■ descriptions of NAPs/other adaptation planning processes and relationship between NDC and NAPs/other adaptation planning in terms of, among others, the current status of the elaboration process, institutional arrangements for coordination, planning, and implementation; and ■ descriptions of institutional arrangements to enhance coordination and synergies between the planning and implementation of an adaptation component of NDCs and other key processes, such as the mitigation components of NDCs, SDGs, the Sendai Framework for Disaster Risk Reduction, and other key national development planning and budgeting processes.
(b) Impacts, risks, and vulnerabilities, as appropriate	Update or add information on short- and long-term trends, impacts, risks, and vulnerabilities, with possible highlights on factors that underpin the element (c), drawing from ■ NAPs/other adaptation planning processes and NCs; ■ information from other key processes such as SDGs and the Sendai Framework for Disaster Risk Reduction; and ■ local, regional, and global research literature and other information materials. It is important to analyze uneven distribution of impacts, risks, and vulnerabilities across different groups of population, particularly for the most vulnerable groups, which would inform the development of the contents for element (c) below. Impacts, risks, and vulnerabilities are dynamic and change over time, but how they change is deeply uncertain. One way to address the uncertainty is to construct multiple scenarios of a plausible future and analyze their respective implications. For example, the trajectory of temperature change depends on many uncertain factors and is therefore uncertain. Resilience can be enhanced by considering a wide range of plausible temperature change scenarios and developing a robust strategy capable of coping with different futures. Information on costs resulting from impacts, when available, can be very useful in generating support for adaptation action.

Table 4 | Elements of Adaptation Communications as Provided in Decision 9/CMA.1 (Cont'd)

ELEMENTS		OPTIONS FOR ENHANCEMENT
(c) National adaptation priorities, strategies, policies, plans, goals, and actions		Update or add coverage/specificity, highlighting co-benefits and synergies with mitigation as well as other key processes including SDGs/Sendai Framework for Disaster Risk Reduction, and drawing from (and aligning with) NAPs or other long-term adaptation planning processes, in terms of ■ visions, short- and long-term goals, objectives, and priorities (national, sectoral, geographical, or cross-cutting [e.g., gender, vulnerable populations, capacity-building]); ■ sectors covered in an adaptation component, taking account of the latest information on impacts, risks, and vulnerabilities as well as co-benefits and synergies with mitigation and development; ■ measurable targets and indicators (qualitative and/or quantitative); ■ strategies, plans, and actions at national, sectoral, or subnational levels (see Box 14 for finance-related policy actions to strengthen the finance flow for adaptation); or ■ intended future plans to develop some of those above.
(d) Implementation and support needs of, and provision of support to, developing country Parties		Update or add information on ■ areas of support needed/provided (e.g., integration of adaptation into development planning, appraisal and prioritization of adaptation options, sector policy development, climate risk/vulnerability assessment, inter-agency coordination, stakeholder engagement, resource mobilization, development of project pipelines, and project development); and ■ type of support needed/provided (e.g., technology transfer, provision of data and information, capacity building, finance) in relation to each area of support mentioned above. When support needs are communicated, it is effective when such needs are backed up by the information related to the element (e)(iv) below.
(e) Implementation of adaptation actions and plans, including	(i) Progress and results achieved	Update or add information, related to both state and nonstate actors, on, inter alia, ■ major planning milestones; ■ major outputs achieved or expected; and ■ major projects/adaptation investments planned, completed, or under implementation.
	(ii) Adaptation efforts of developing countries for recognition	Update or add information on progress made in, inter alia, ■ policy development; ■ integration of adaptation into development/budgetary planning processes; ■ enhancing institutional arrangements/coordination; ■ planning efforts, including adaptation planning process, timeline, priority areas, institutional arrangements, stakeholder engagement; and/or ■ impact of adaptation action—for example, on reducing vulnerabilities of X people/households disaggregated by gender and income-levels.
	(iii) Cooperation on enhancing adaptation at the national, regional, and international level, as appropriate	Update or add information on planned and implemented cooperation at the national, regional, and international level with regard to ■ seminars, workshops, and training; ■ development of shared databases and knowledge platforms; ■ joint initiatives/projects; ■ participation in regional/international networks; and ■ transboundary plans and initiatives.
	(iv) Barriers, challenges, and gaps related to the implementation of adaptation	Update or add information on the assessment of overall systemic barriers as well as specific challenges to adaptation actions and their underlying causes; for example, ■ lack of climate and risk information, data, and/or knowledge; ■ lack of access to technology; ■ needs for capacity support to implement adaptation actions; ■ assessment of investment/activity costs and their distribution across different sectors, population groups, and subnational units; and ■ assessment of financial gaps.

Table 4 | Elements of Adaptation Communications as Provided in Decision 9/CMA.1 (Cont'd)

ELEMENTS		OPTIONS FOR ENHANCEMENT
(e) Implementation of adaptation actions and plans, including	(v) Good practices, lessons learned, and information-sharing	Update or add information on ■ actions that facilitate learning for stronger evidence base and enhanced knowledge on adaptation (including tools and approaches used to assess risks and vulnerabilities, prioritize adaptation interventions, build capacities, etc.); ■ description of major success cases, good practices, and lessons learned of actions by state and nonstate actors; ■ effectiveness of existing adaptation actions, particularly in reducing vulnerability of the most vulnerable population; and ■ activities related to information and knowledge sharing and communication.
	(vi) Monitoring and evaluation	Update or add information on ■ approach taken to monitor and evaluate the implementation of an adaptation component of the NDC and/or the NAP or other adaptation planning processes, including indicators, metrics, criteria, or milestones, and how to align with national monitoring and evaluation systems; ■ description of the revision process and timeline for an adaptation component of the NDC, the NAP, or equivalent plans; and ■ description of how the information generated from the monitoring and evaluation system will be made available to the UNFCCC global stock-takes.
(f) Adaptation actions and/or economic diversification plans, including those that result in mitigation co-benefits		Update or add ■ sectoral/thematic (e.g., forestry, agriculture, water, urban development) adaptation actions as prioritized through National Adaptation Programmes of Action, NAPs, and other adaptation planning processes; ■ activity-specific description of adaptation measures that have GHG emissions reduction co-benefits, along with additional information on emission reduction potential; and ■ description of economic diversification plans and their linkage with climate adaptation and mitigation benefits. If some planned adaptation actions are expected to lead to GHG emissions reductions, it is important to take such effects into account in the mitigation planning and target setting to avoid underestimation of the mitigation potential and to make that fact explicit to avoid accidental double-counting.
(g) How adaptation actions contribute to other international frameworks and/or conventions		Update or add information on linkages, co-benefits, and synergies with issues related to other international frameworks/conventions, such as ■ 2030 Development Agenda (SDGs); ■ Sendai Framework for Disaster Risk Reduction 2015–2030; ■ Convention on Biological Diversity; and ■ United Nations Convention to Combat Desertification.
(h) Gender-responsive adaptation action and traditional knowledge, knowledge of indigenous peoples, and local knowledge systems related to adaptation, where appropriate		Update or add information on ■ how gender has been mainstreamed into adaptation planning and the results already achieved; and ■ actions planned or implemented to collect, store, communicate, and use traditional, indigenous, and local knowledge.
(i) Any other information related to adaptation		Any additional information deemed relevant but not included in other elements above can be included under this element.

Sources: Elements: Decision 9/CMA.1. Options for enhancement: Developed by authors, drawing from Levin et al. 2015; Fransen et al. 2017.

5) Integrate the Selected Elements into NDC with New/Updated Contents

The previous section illustrated options to add or update contents of different elements in an adaptation component of the NDCs. In integrating those contents into NDC, it is more effective in communicating countries' contributions and efforts when those elements are presented with coherent and logical linkages among them. For example, adaptation goals and priorities are better understood by linking them with the assessment of related impacts, risks, and vulnerabilities and explaining how strategies, policies, plans, actions, and institutional arrangements are designed to achieve the goals. Likewise, support needs are better understood by linking them with the information on existing efforts and the progress made to date and the assessment of related barriers, challenges, and gaps.

It is also important to ensure coherence with other components of NDCs, such as a mitigation component. For example, as is mentioned in Table 4 (element [f]), if some adaptation goals, plans, and actions will result in GHG emissions reductions or increases, such effects need to be addressed in the mitigation component. On the other hand, if planned mitigation actions will result in increases or decreases in vulnerabilities or adaptive capacity, they need to be addressed in the adaptation component.

BOX 13 | Further Resources and Information on Adaptation

The following resources can facilitate the formulation and enhancement of an adaptation component of the NDCs, taking into consideration the elements of the adaptation communication:

- Guidance on NAPs, such as the 2012 Least Developed Countries Experts Group Technical Guidelines and subsequent supplementary guidelines.[a] These include useful guidance on the types of information that can be collated, analyzed, and presented with regard to adaptation goals and planning. Most developing countries report having initiated their NAPs (Least Developed Countries Expert Group 2018) and NAPs are primary sources of information to draw from. If a country's NAP is not formulated yet, useful information can be found in stock-taking reports and other outputs of any other processes related to adaptation, including, among others, strategies and plans, road maps, risk and vulnerability assessment reports, progress reports of adaptation investments, lists of appraised and prioritized adaptation options, reports on integration of adaptation in development planning and budgetary processes, and gender analysis.
- Online platforms that serve as knowledge hubs for the NAP process, such as the UNFCCC NAP Central, the website of the Global Support Programme for National Adaptation Plans[b], and NAP Global Network.[c] Through these knowledge platforms, countries can learn from the experiences of other countries and gain in-depth knowledge and insights of specific issues related to adaptation planning.
- Global Commission on Adaptation[d] provides resource materials, including its flagship reports, with evidence-based recommendations on priority adaptation actions to be taken, and actions to bring longer-term transformative change.
- The NCs are also key resources. They may be particularly relevant sources of information related to assessments of climate impacts, risks, and vulnerabilities; adaptation measures planned and taken; and support needed or provided.
- Materials produced through national, sectoral, and subnational development planning processes as well as those produced through planning and reporting processes for other international frameworks, such as 2030 Development Agenda and Sendai Framework for Disaster Risk Reduction 2015–2030, are also valuable sources of information.

Notes:

[a] https://www4.unfccc.int/sitesAPC/Guidelines/Pages/Technical-guidelines.aspx.

[b] The NAP-GSP is a joint UNDP-UN Environment program funded by the Global Environment Facility to assist least developed countries and developing countries to integrate climate change adaptation into medium- and long-term national planning and financing through the NAP process.

[c] http:/apglobalnetwork.org/about/.

[d] https://gca.org/global-commission-on-adaptation.

BOX 14 | Finance

Finance is a key element for implementing NDCs and achieving climate mitigation and adaptation goals. While the inclusion of finance-related contents in NDCs is voluntary, many countries chose to do so in their first NDCs. There are potential benefits of including finance elements: They can demonstrate the country's preparedness for NDC implementation, as well as any finance gaps; facilitate CTU of NDCs; signal clear policy goals and foreseeable courses of action; and thereby attract support and investments. Here are at least two ways that countries could include finance in an enhanced NDC:

- finance needs for NDC implementation, including finance gaps and support needs
- policy actions to align finance flows with climate goals.

Finance needs for NDC implementation

In their NDCs, countries can consider adding or updating estimated finance needs for implementing the NDC, the finance gap and, hence, the need for support. Countries may also demonstrate how the availability of finance relates to the level of ambition they can pursue. The estimation will facilitate understanding of the support needs when it is accompanied by clear descriptions of the methodology and assumptions of the estimation, including a reallocation and deployment strategy of domestic or international and public or private finance. Alternatively, countries may include a plan or intention in the NDCs to undertake an in-depth analysis and assessment of the finance needs estimation. It is also possible to express support needs for capacity building to undertake the analysis and assessment. For a practical guide to finance needs estimation, UNDP et al. (forthcoming) outline methodologies and provide useful resource materials.

Policy actions to align finance flows with climate goals

Countries can make far-reaching positive impacts toward achieving their climate goals by aligning all financial flows (public or private and domestic or international) with the transition to a decarbonized and climate-resilient economy. In their NDCs, countries may consider adding or updating policy actions, accompanied by their context and supporting information, to better align financial flows with climate goals. Below are some non-exhaustive examples of contents (Whitley et al. 2018) that countries may consider when developing or updating finance elements in the NDC. These policy actions can create a wide range of sustainable development co-benefits by integrating social equity perspectives, for example, weighted redistribution of carbon tax revenue according to income levels, and fiscal incentives to supplying affordable clean energy solutions for low-income populations.

FISCAL POLICY AND PUBLIC FINANCE

Through fiscal policy and public finance, a country can steer taxation, government spending, and other public funding to facilitate climate actions and discourage activities that contradict the Paris goals:

- Integrating climate (mitigation or adaptation) considerations into the budget cycle (planning, implementing, monitoring)
- Establishing a carbon price
- Phasing out fossil fuel subsidies
- Implementing subsidies to support the transition stage of climate-aligned investments, such as initial subsidies for renewable energy feed-in tariffs or energy-efficient buildings
- Employing dedicated tools to raise "green" or "resilience" capital and de-risk investments (climate/green/resilience funds, banks, bonds, etc.)

FINANCIAL/NONFINANCIAL SECTOR POLICY, REGULATION, ENFORCEMENT, AND ENGAGEMENT

Through financial and nonfinancial sector policies and regulations, their enforcement, and private-sector engagement, a country can steer or encourage public and private market stakeholders to align their investments and activities with national climate goals by requiring, nudging or giving incentives to, or raising awareness of stakeholders to change behaviors and align with climate goals:

- Regulations, awareness raising, or information provision (e.g., voluntary guidance) to promote environmental, social, or governance (ESG) investment, or sustainable investment
- Regulations to facilitate decarbonization or enhance resilience (e.g., renewable energy portfolio mandates, vehicle fuel efficiency requirements, development restriction in flood risk areas)
- Introduction of climate risk disclosure, whether on a voluntary or mandatory basis, for financial institutions and/or listed companies
- Introduction of climate-aligned funding policies for public financial institutions (public banks and pension funds) to showcase good practice models

INTERNATIONAL PUBLIC FINANCE

A country may include actions to align international public finance flows with climate goals through active engagement with international financial institutions:

- Development of climate-aligned country strategic frameworks that form the basis of funding from multilateral or bilateral financial institutions and development agencies
- Host country oversight of individual multilateral or bilateral investment funding to prioritize climate actions and refrain from financing that contradicts the Paris goals
- Enhancement of access to international climate finance, for example, through acquiring accreditation to international climate funds and developing a strong pipeline of transformative projects

Although the actions outlined above are to align finance flows with NDC goals and facilitate implementation of the NDC in their respective countries, NDCs can also communicate intended contributions to making international finance flows that extend beyond their jurisdictions, consistent with Paris goals, through outlining, for example, engagement as a shareholder or a contributor of multilateral financial institutions to align their funding policies and decisions with Paris goals, planned contributions to international climate finance, and bilateral support to developing countries for greening the financial or banking sector and institutions.

COMMUNICATING AN ENHANCED NDC TRANSPARENTLY IN ACCORDANCE WITH THE PARIS RULEBOOK

Countries can enhance the clarity, transparency, and understanding of their NDC, filling gaps in information so domestic and international stakeholders can better understand its content. Information should also be provided on how the NDC update constitutes an enhancement.

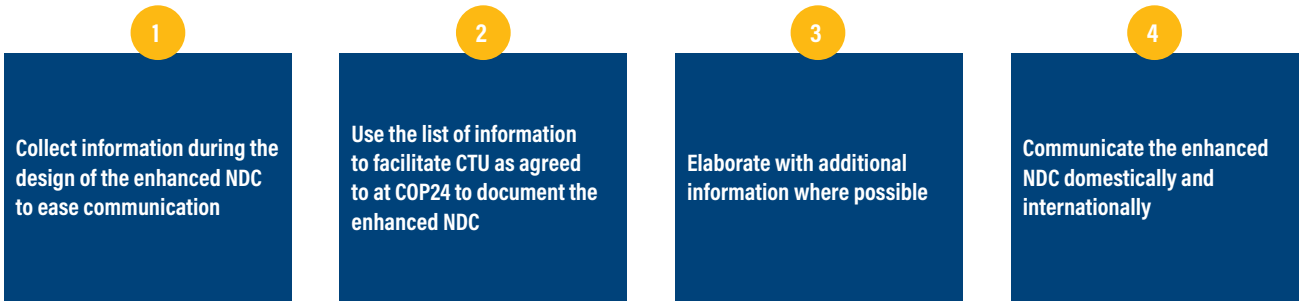
Rationale

A final way that countries can enhance their NDCs is to facilitate greater CTU of their content. During the process of enhancing NDCs, countries will already have considered much of the information required for transparent communication of their NDCs. Therefore, transparent communication should not create additional burdens to countries. Rather, it is simply an exercise in documenting the details agreed to, as well as the assumptions and processes involved in enhancing the NDC.

Significant transparency gaps exist in the first NDCs, given that the initial list of information provided in the NDCs was insufficiently detailed for understanding the NDCs, and some countries did not adhere to the list as its use was voluntary (Damassa et al. 2015).[4] As a result, it is not possible to understand the emissions level implied by many countries' NDCs, sectoral and/or GHG coverage of some of the NDCs, assumptions, and methodologies underlying many of the NDCs, among other details.[5]

The Paris Agreement calls for countries to submit information necessary for CTU of the NDCs[6] in accordance with Decision 1/CP.21, as well as based on further guidance agreed to at COP 24 in Katowice, Poland. The list of information elements agreed to in COP 24 is drawn from the Lima Call for Climate Action (Decision 1/CP.20, paragraph 14).[7] However, the list is much more detailed in order to improve on the perceived information gaps stemming from initial NDCs. It should be noted that while it is a requirement to use the information to facilitate CTU per the COP 24 decision (contained in Annex I of Decision 4/CMA.1) for Parties' second and subsequent NDCs, it is not required for the first NDCs (however, for those Parties with NDCs that end in 2025, this will be immediately relevant for the new NDCs submitted in 2020). Nonetheless, the decision strongly encouraged Parties to provide this information for their first NDCs, including when communicating or updating them by 2020, and it can be very helpful preparation to use the guidance for the enhanced NDCs and for the basis of tracking progress and achievement of the NDCs.[8] See Figure 11 for an overview of the steps for communicating an enhanced NDC.

Figure 11 | Steps for Communicating an Enhanced NDC



Source: Authors.

What to Communicate to Facilitate Clarity, Transparency, and Understanding of the Enhanced NDC

The list below contains the information elements to facilitate CTU, as agreed to at COP 24 in Katowice, Poland (Annex I of Decision 4/CMA.1). In italics, we also include further elaboration in select cases where additional information could be helpful if Parties are to provide the greatest transparency. These additions are informed by two international GHG accounting and reporting standards developed by the Greenhouse Gas Protocol (WRI 2014a; WRI 2014b).

Only a subset of the information elements may be relevant or applicable to a given country's NDC. Before providing the information outlined below, countries may choose to begin with a high-level summary of the NDC, including how it was enhanced (see 6 (C–E) below), as well as any additional context to frame the NDC.

QUANTIFIABLE INFORMATION ON THE REFERENCE POINT (INCLUDING, AS APPROPRIATE, A BASE YEAR):

- Reference year(s), base year(s), reference period(s), or other starting point(s)
- Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s), or other starting point(s) and, as applicable, in the target year
    - *For emissions intensity targets, quantifiable information of both GDP and emissions in the base year*
- For strategies, plans, and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or policies and measures as components of nationally determined contributions where paragraph 1(b) above is not applicable, other relevant information
    - *Name or title of actions, legal status, implementing entity(ies), or other relevant information (if not provided elsewhere in the NDC)*
- Target relative to the reference indicator, expressed numerically; for example, in percentage or amount of reduction
    - *Target level of the indicator in the target year*
- Information on sources of data used in quantifying the reference point(s)
- Information on the circumstances under which the country may update the values of the reference indicators
    - *Whether the baseline scenario target is static (fixed over the period) or dynamic (will change over the period), if relevant; any significance threshold used to determine whether changes in emissions drivers are significant enough to warrant recalculation of the scenario*

TIME FRAMES AND/OR PERIODS FOR IMPLEMENTATION:

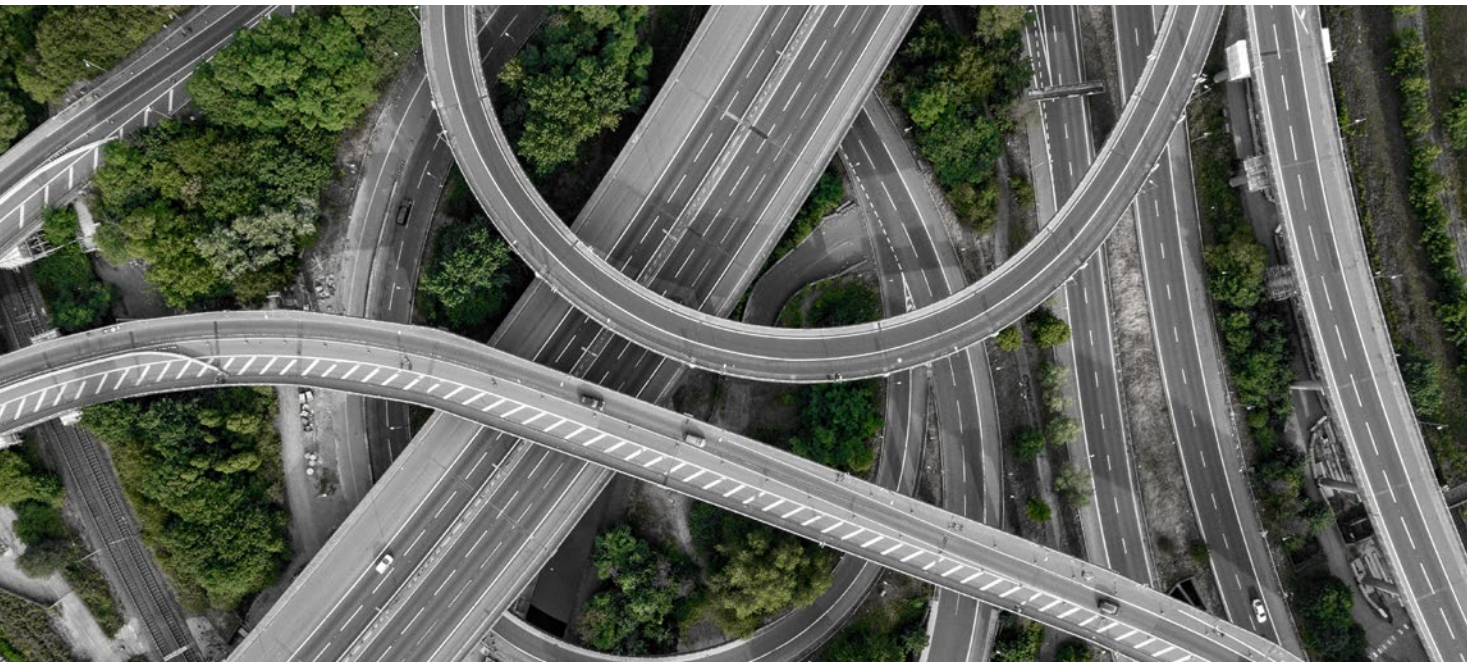
- Time frame and/or period for implementation, including start and end date, consistent with any further relevant decision adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA)
- Whether it is a single-year or multi-year target, as applicable

SCOPE AND COVERAGE:

- General description of the target
- Sectors, gases, categories, and pools covered by the NDC, including, as applicable, those consistent with IPCC guidelines
    - *Percentage of national emissions covered*
- How the country has taken into consideration paragraph 31(c) and (d) of decision 1/CP.21
- Mitigation co-benefits resulting from Parties' adaptation actions and/or economic diversification plans, including description of specific projects, measures, and initiatives of Parties' adaptation actions and/or economic diversification plans

PLANNING PROCESSES:

- Information on the planning processes that the country undertook to prepare its NDC and, if available, on the country's implementation plans, including, as appropriate,
  - domestic institutional arrangements, public participation, and engagement with local communities and indigenous peoples in a gender-responsive manner; and
  - contextual matters, including, inter alia, as appropriate, (a) national circumstances, such as geography, climate, economy, sustainable development, and poverty eradication; (b) best practices and experience related to the preparation of the NDC; (c) other contextual aspirations and priorities acknowledged when joining the Paris Agreement.
- Specific information applicable to Parties, including regional economic integration organizations and their member states, that have reached an agreement to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16–18, of the Paris Agreement
- How the country's preparation of its NDC has been informed by the outcomes of the global stock-take, in accordance with Article 4, paragraph 9, of the Paris Agreement
- Each country with an NDC under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7, of the Paris Agreement to submit information on
  - how the economic and social consequences of response measures have been considered in developing the nationally determined contribution; and
  - specific projects, measures, and activities to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits, which may cover, but are not limited to, key sectors, such as energy, resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry, and economic diversification actions, which may cover, but are not limited to, sectors such as manufacturing and industry, energy and mining, transportation and communication, construction, tourism, real estate, agriculture, and fisheries.



ASSUMPTIONS AND METHODOLOGICAL APPROACHES, INCLUDING THOSE FOR ESTIMATING AND ACCOUNTING FOR ANTHROPOGENIC GHG EMISSIONS AND, AS APPROPRIATE, REMOVALS:

- Assumptions and methodological approaches used for accounting for anthropogenic GHG emissions and removals corresponding to the country's NDC, consistent with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA
- Assumptions and methodological approaches used for accounting for the implementation of policies and measures or strategies in the nationally determined contribution
    - *Estimated impact on GHG emissions and/or non-GHG 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*
- If applicable, information on how the country will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement, as appropriate
- IPCC methodologies and metrics used for estimating anthropogenic GHG emissions and removals
- Sector-, category-, or activity-specific assumptions, methodologies, and approaches consistent with IPCC guidance, as appropriate, including, as applicable,
    - the approach to addressing emissions and subsequent removals from natural disturbances on managed lands;
    - the approach used to account for emissions and removals from harvested wood products; and
    - the approach used to address the effects of age-class structure in forests.
    - *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 (e.g., relative to historical emissions or reference emissions) 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; and other information (e.g., IPCC guidance, the country's forest definition, definition of managed land, list of land-use activities and/or categories included and their definitions)

- Other assumptions and methodological approaches used for understanding the NDC and, if applicable, estimating corresponding emissions and removals, including
  - how the reference indicators, baseline(s), and/or reference level(s)—including, where applicable, sector-, category- or activity-specific reference levels—are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources, and models used;
  - *whether the baseline scenario is static (will be fixed over the period) or dynamic (will change over the period); the cut-off year for policies included in the baseline scenario and any significant policies excluded from the baseline scenario; projection method (for example, name and type of models); emissions drivers included and assumptions and data sources for key drivers; total emissions projected in baseline scenario in the target year(s);*
  - for Parties with NDCs that contain non-GHG components, information on assumptions and methodological approaches used in relation to those components, as applicable;
  - for climate forcers included in NDCs not covered by IPCC guidelines, information on how the climate forcers are estimated; and
  - further technical information, as necessary.
- The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable

HOW THE COUNTRY CONSIDERS THAT ITS NDC IS FAIR AND AMBITIOUS IN THE LIGHT OF ITS NATIONAL CIRCUMSTANCES:

- How the country considers that its NDC is fair and ambitious in the light of its national circumstances
  - *Comparison of the contribution to multiple indicators related to fairness. Factors that countries may want to consider:*
    - *Emissions (for example, past, current, or projected future emissions, emissions per capita, emissions intensity, or emissions as a percentage of global emissions); economic and development*

indicators (for example, GDP, GDP per capita, indicators related to health, energy access, energy prices, education, housing, etc.); national circumstances; vulnerability and capacity to adapt to climate change impacts; costs or relative costs of action; mitigation potential (for example, renewable energy potential); benefits of action (for example, co-benefits); or other factors

- Comparison of the contribution to multiple indicators related to ambition. Factors that countries 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*

- Fairness considerations, including reflecting on equity
- How the country has addressed Article 4, paragraph 3, of the Paris Agreement
- How the country has addressed Article 4, paragraph 4, of the Paris Agreement
- How the country has addressed Article 4, paragraph 6, of the Paris Agreement

HOW THE NDC CONTRIBUTES TOWARD ACHIEVING THE OBJECTIVE OF THE CONVENTION AS SET OUT IN ARTICLE 2:

- How the NDC contributes toward achieving the objective of the Convention as set out in Article 2
  - *Comparison of the contribution to multiple indicators related to achieving the objective of the Convention as set out in Article 2. Factors that Parties may want to consider:*
    - *Anticipated national emissions in the target year or 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*
- How the NDC contributes toward Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement.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CONCLUSION

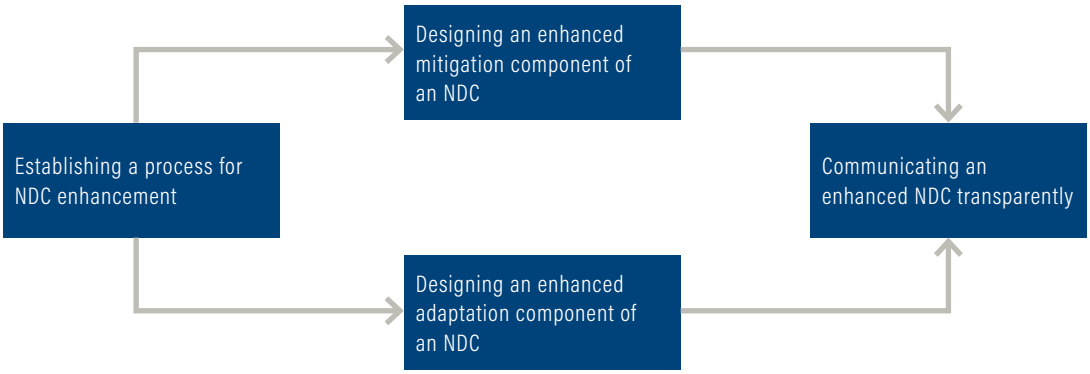
The year 2020 is the moment of truth for the Paris Agreement. The Agreement stands on the premise that countries will increase their ambition over time in line with the Agreement's long-term goals, and 2020 is the first key moment to do so.

So that countries can pursue the historic objectives of the Paris Agreement, this guidance provides countries with a structured process for effectively tackling climate change in their 2020 NDCs. In summary, the process includes the following actions (Figure 12):

- **Establishing a clear and inclusive process to guide NDC enhancement.** This involves ensuring coherence with national planning processes, gaining support for the process from affected constituencies and those who will implement the NDC, defining institutional arrangements to ensure leadership and coordination, engaging stakeholders, and developing a work plan with defined roles and responsibilities to undertake the enhancement.
- **Designing an enhanced mitigation NDC.** This involves taking stock of progress to date on existing goals and policies, considering long-term objectives and benchmarks, applying a set of diagnostic questions to identify relevant mitigation options, aggregating and assessing the impact of these options, and finally determining how to reflect the selected options in the NDC.
- **Designing enhanced adaptation contents of NDC.** Those countries that choose to include an adaptation component in their NDCs are guided through a process of identifying relationships with other domestic and international processes, determining the relationship to the adaptation communication, identifying elements and options to enhance, and integrating these elements into the NDC.
- **Transparently communicating the enhanced NDC in accordance with the Paris Rulebook.** This process entails collecting information throughout the design of the enhanced NDC, using the list of information to facilitate clarity, transparency, and understanding; elaborating with additional information where feasible, and communicating the enhanced NDC.

By establishing a clear and inclusive process to guide enhancement, identifying options for enhancing mitigation ambition and adaption action, and communicating NDCs transparently, countries can deliver a set of NDCs that brings the world closer to alignment with the climate-safe future envisioned when they came together in Paris in 2015.

Figure 12 | Elements of the NDC Enhancement Process



Source: Authors.

ABBREVIATIONS

BTRs	Biennial Transparency Reports
CDKN	Climate and Development Knowledge Network
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CO_2	Carbon dioxide
COP	Conference of the Parties
CTU	Clarity, Transparency, and Understanding
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
$GtCO_2e$	Gigatonnes of carbon dioxide equivalent
ICAT	Initiative for Climate Action Transparency
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
K-CEP	Kigali Cooling Efficiency Program
$MtCO_2e$	Million tonnes of carbon dioxide equivalent
NAP	National Adaptation Plan
NAPA	National Adaptation Programmes of Action
NCs	National Communications
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US EPA	U.S. Environmental Protection Agency
WRI	World Resources Institute

ENDNOTES

1. The IPCC states that "in model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range). For limiting global warming to below 2°C, CO_2 emissions are projected to decline by about 25% by 2030 in most pathways (10–30% interquartile range) and reach net zero around 2070 (2065–2080 interquartile range). Non-CO_2 emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C. (high confidence)."
2. Information in this section is adapted from UNDP et al. (forthcoming).
3. This chapter is greatly informed by Levin et al. (2015a) and UNDP et al. (forthcoming).
4. The initial list of information to facilitate clarity, transparency, and understanding was based on the Lima Call for Climate Action Decision 1/CP.20, paragraph 14.
5. For further detail about transparency issues in the NDCs, see also https://www.wri.org/blog/2018/11/more-one-third-national-climate-plans-arent-easily-measured.
6. Article 4, paragraph 8.
7. Paragraph 27 notes that "information to be provided by Parties communicating their nationally determined contributions, in order to facilitate clarity, transparency and understanding, may include, as appropriate, inter alia, 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, and how the Party considers that its nationally determined contribution is fair and ambitious, in the light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2; 28."
8. Decision 4/CMA.1, para 7.

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