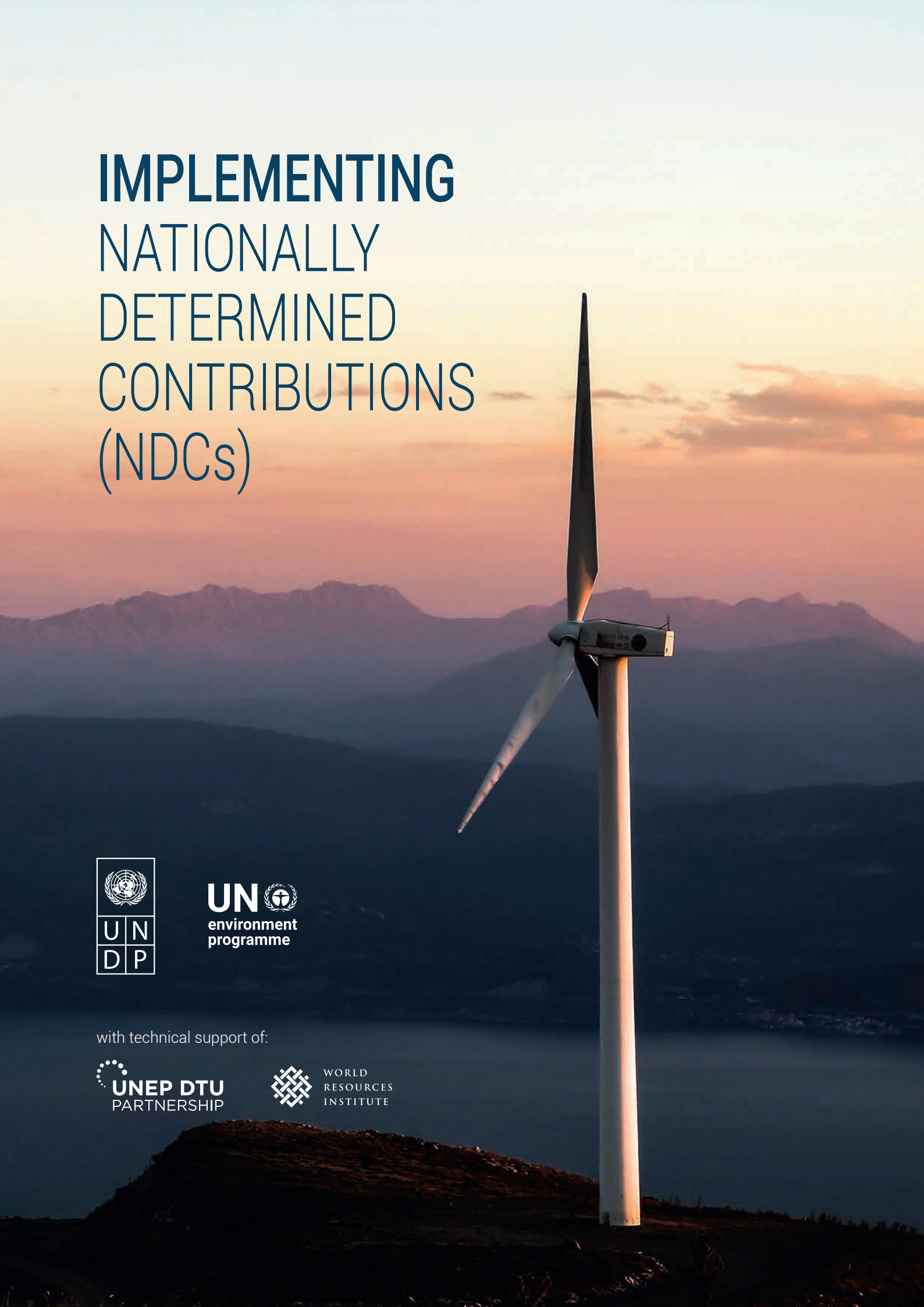
IMPLEMENTING NATIONALLY DETERMINED CONTRIBUTIONS (NDCs)



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CONTENTS

Acronyms

AEA	American Economic Association
AFDB	African Development Bank
AFOLU	Agriculture, Forestry and Other Land Use (USA)
BAU	Business As Usual
BIOFIN	Biodiversity Finance (Bhutan)
BNP Paribas	French international banking group
BRs	Biennial Reports
BTRs	Biennial Transparency Reports
BURs	Biennial Update Reports
CBA	Cost-Benefit Analysis
CBI	Climate Bonds Initiative
CC	Climate Change
CCFF	Climate Change Financing Framework
CCR	Cross-Cutting Capacity Development Assessment Report
CCU	Climate Change Unit (Namibia)
CDKN	Climate and Development Knowledge Network
CDM	Clean Development Mechanism
CEA	Cost-Effectiveness Analysis
CH_4	Methane
CICC	Interministerial Commission for Climate Change (México)
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COP	Conference of the Parties
CPEIR	Climate Public Expenditure and Institutional Review
CPI	Climate Policy Initiative
DRM	Disaster Risk Management (Lao People's Democratic Republic)
EBRD	European Bank for Reconstruction and Development
EPA	Environment Protection Agency (Sierra Leone)
FAO	Food and Agricultural Organization
FMCP	Facilitative Multilateral Consideration of Progress
GCF	Green Climate Fund
GDP	Gross Domestic Product
GDRC	Global Development Research Center
GEF	Global Environment Facility
GET.invest	European Programme for Mobilising Renewable Energy Investments
GHG	Greenhouse Gas
GIZ	German Agency for International Cooperation
GTM-NDC	Nationally Determined Contributions Multisectoral Working Group (Peru)
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
IAR	International Assessment and Review
ICA	International Consultation and Analysis
ICAT	Initiative for Climate Action Transparency
IDB	Inter-American Development Bank
IDEAM	Institute of Hydrology, Meteorology and Environmental Studies (Colombia)
IDLO	International Development Law Organization
IEA	International Energy Agency
IFC	International Finance Corporation
I&FF	Investment and Financial Flow
IIED	International Institute for Environment and Development
ILO	International Labour Organization
INDCs	Intended Nationally Determined Contributions
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
iSDG Tool	Sustainable Development Goals Tool
ITMOs	Internationally Transferred Mitigation Outcomes
LDCs	Least Developed Countries
LEDS	Low-Emissions Development Strategies
LPG	Liquefied Petroleum Gas
LULUCF	Land Use, Land Use Change and Forestry
MCDA	Multicriteria Decision Analysis
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MET	Ministry of Environment and Tourism (Mongolia)
MESTI	Ministry of Environment, Science, Technology and Innovation (Ghana)
MGAP	Ministry of Livestock, Agriculture and Fisheries (Uruguay)
MINAM	Ministry of Environment (Peru)
MPGs	Modalities, Procedures and Guidelines
MRV	Monitoring, Reporting and Verification
$MtCO_2e$	Million metric tons of carbon dioxide equivalent
MTEF	Medium-term Expenditure Framework
MW	Megawatt
MWh	Megawatt hour
NAMAs	Nationally Appropriate Mitigation Actions
NAP-Ag	Integrating Agriculture in National Adaptation Plans
NAPs	National Adaptation Plans
NAPAs	National Adaptation Programs of Action

NBSAP	National Biodiversity Strategy and Action Plan (Bhutan)
NCSA	National Capacity Self-Assessments
NDCs	Nationally Determined Contributions
NF_3	Nitrogen trifluoride
NGOs	Non-Governmental Organizations
N_2O	Nitrous oxide
nonGHG	Non Greenhouse Gas
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PCEIR	Private Sector Climate Expenditure and Institutional Review
PFCs	Perfluorocarbons
PROSE	Participatory, Results-Oriented, Self-Evaluation (Trinidad and Tobago)
RD&D	Research, Development and Demonstration
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RIA	Rapid Integrated Assessment
SARAS	South American Institute for Resilience and Sustainability Studies
SCAN-Tool	Sustainable Development Goals Climate Action Nexus Tool
SDGs	Sustainable Development Goals
SEMARNAT	Ministry of Environment and Natural Resources (México)
SF_6	Sulphur hexafluoride
SIDS	Small Island Developing States
SISCLIMA	National Climate Change System (Colombia)
SMAPs	Sectorial Mitigation Action Plans (Colombia)
SWOT	Strengths, Weaknesses, Opportunities, Threats (Trinidad and Tobago)
TER	Technical Expert Review
TNAs	Technology Needs Assessments
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
USAID	United States Agency for International Development
WRI	World Resources Institute

EXECUTIVE **SUMMARY**

HIGHLIGHTS

How countries' nationally determined contributions (NDCs) are implemented and improved upon over time will determine whether the long-term temperature goal of the Paris Agreement is achieved.

Each country will prepare for and implement its NDC in different ways, based on the nature of its NDC, how the NDC was first developed, and its national circumstances.

Nevertheless, this report identifies some common features of the NDC implementation process:

- Preparing for NDC implementation—which may result in the preparation of an NDC implementation plan—includes several key steps, such as aligning NDC implementation and the Sustainable Development Goals (SDG); taking stock of the NDC; reviewing the analysis underpinning the NDC; prioritizing policies and measures; assessing capacities, institutions, and regulatory frameworks required for NDC implementation; and engaging stakeholders.
- Preparing for NDC implementation will also require costing of implementation options, formulating strategies to finance NDCs, and scaling up climate finance in a more integrated and sustainable way.
- Central to NDC implementation is monitoring and reporting of NDC progress and achievement, which can inform any adjustments to implementation plans.

Lastly, and of critical importance, successful NDC implementation can help countries prepare for their next NDC submission and increase ambition to achieve the Paris Agreement's goals.

Background

Greenhouse gas (GHG) emissions have been climbing since the Industrial Revolution. Global average temperatures have already increased more than 1 degree Celsius (˚C) (1.8˚F) since 1880 (NASA 2018). And in recent years, we have seen records smashed one year after another, from temperature to precipitation to ice loss to other impacts. The impacts we see in the future will be determined by our emissions pathway and resultant level of temperature increase. The warmer it gets, the greater the impacts will be—and the greater the limits on our ability to adapt.

The historic Paris Agreement includes a collective goal to limit Earth's warming to well below 2°C by 2100, with efforts to limit warming to 1.5°C. It also includes a goal to increase adaptive capacity and foster climate resilience, as well as to make finance flows consistent with low-GHG and climate-resilient development.

Central to our ability to curb warming and increase resilience are countries' own contributions to the global effort. Countries are already implementing their climate pledges through 2020. And in the lead up to and following the Paris Agreement negotiations in 2015, 165 post-2020 climate commitments—known as "intended nationally determined contributions, or INDCs"—representing 192 countries, were submitted to the UN Framework Convention on Climate Change (UNFCCC) Secretariat.[1]

If fully implemented, these NDCs contribute significantly to reducing warming. In their absence, we would see 4–5°C of warming. However, they still fall far short of the global goal to limit warming to well below 2°C or even to 1.5°C. Even if fully implemented, the NDCs imply 2.7–3.7°C of warming, according to a range of studies (Levin and Fransen 2015).

The Paris Agreement has established a process by which countries increase their efforts to reduce emissions and increase resilience over time in an effort to achieve the long-term temperature goal of the Paris Agreement. Countries have been requested to prepare, communicate, and implement subsequent NDCs every five years.[2] They are to do so with a view to ensuring that successive NDCs represent a progression beyond the current NDC and reflect the Party's highest possible ambition.

In the meantime, countries are strengthening the implementation of their NDCs, and how they do so will determine the degree to which they are aligned with other critical sustainable development objectives and the long-term goals of the Paris Agreement.

About This Report

This document is dedicated to supporting countries in implementing their NDCs. It is informed by technical assistance that the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) have been providing to a number of developing countries on their national processes for implementing NDCs. UNDP, UNEP, and the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat have also implemented a number of national and regional events to support countries on NDC implementation. These include the UNDP/UNFCCC series of NDC Regional Dialogues carried out since 2014 in collaboration with UNEP, World Resources Institute (WRI), and other partners. The countries that participated in these events requested additional guidance on NDC implementation, and this document responds to that request. It builds on previous experience in implementing climate actions and captures ideas shared during the national and regional events. The document also draws from the scholarly literature, reflects the current state of negotiations, and puts forward options for implementing NDCs.

[1] For more information, see the UNFCCC's catalog of "INDCs as Communicated by Parties," at https://www4.unfccc.int/sites/submissions/indc/Submission%20Pages/submissions.aspx.

[2] At the time of ratification, accession, or approval of the Paris Agreement, for the large majority of Parties, their INDC will automatically be converted into their first "nationally determined contribution" or NDC. Other countries will revise their INDC and send their first NDC separately.

Recognizing that NDC implementation is inherently country-driven and location-specific, this document is not meant to be prescriptive. Instead it provides an overview of critical issues that countries can keep in mind while devising their implementation strategies. Also, the document is far from comprehensive. Each of the issues covered in the document deserves more detailed dedicated guidance, but this was beyond the scope of the document.

This document walks countries through the choices they will face in developing implementation strategies, laid out in five general steps detailed in turn in Chapters 2 through 6: aligning climate and development objectives, though integrated implementation of the NDCs and SDGs; preparing for NDC implementation; developing a finance strategy, monitoring and reporting NDC progress and achievement; and revising strategies and preparing for subsequent NDCs. Readers may choose to read this document sequentially or focus on specific chapters, based on their needs.

Overview of Document

Chapter 1: Putting the Nationally Determined Contribution in Context
This chapter provides an overview of NDCs and describes how ambition will be strengthened through subsequent NDCs in order to achieve the long-term goals of the Paris Agreement.

Chapter 2: Aligning Implementation of the Nationally Determined Contributions and the Sustainable Development Goals
The chapter highlights the potential for countries to approach NDC implementation in a manner that maximizes synergies with their development objectives, including the SDGs. National and subnational policymakers have a significant opportunity to pursue implementation of both agendas in a manner that optimizes mutual benefits and reconciles potential trade-offs through careful planning and prioritization.

Chapter 3: Preparing for NDC Implementation
This chapter provides procedural insights to help countries implement their NDCs. These steps start with taking stock of the NDC, assessing the extent to which it aligns with current national policies and priorities and includes the latest data and information to enable informed and cost-effective decisions regarding implementation pathways.

The chapter then turns its attention to the identification and prioritization of policies and measures to implement the NDC. In doing so, it provides an overview of various criteria that can be used to select actions as well as a number of methods available to evaluate these criteria and help inform policy selection, design, and implementation.

Next, Chapter 3 describes how to appraise the human, information, and financial capacities required for NDC implementation. The chapter's sections describe how countries can review, adjust, and improve their regulatory frameworks to align with the NDC and Paris Agreement and establish supportive institutional frameworks for NDC implementation.

The chapter also highlights the importance of engaging stakeholders throughout the implementation process, identifying a number of approaches countries have taken to date when preparing NDCs, developing NDC implementation plans, and implementing and achieving NDCs.

The last subsection of Chapter 3 is devoted to developing an NDC implementation plan. An NDC implementation plan provides a roadmap for implementation and outlines actions that will be undertaken to achieve the NDC's goals, respective timelines, and implementation details, among other elements. Some countries may choose not to develop a standalone plan, for example, if they have existing planning processes that are sufficient to provide clear direction for achieving the NDC. Others may require a roadmap to support implementation.

Chapter 4: Financing NDC Implementation
A pillar of the Paris Agreement is ensuring that financial flows are adequate and more consistent to help countries reach the global climate mitigation and adaptation targets that have been collectively agreed. While national climate policies, strategies, and action plans typically translate these

targets into more specific objectives and measures required to achieve them, these plans often lack well-defined, comprehensive integration into the domestic budget process and rarely include realistic costing and financing elements. This chapter focuses on the pivotal role of budgeting and financing for achieving NDCs, recognizing that as part of an NDC action plan it will be critical to address financing as a crosscutting, systematic issue. Given the transformational nature of the challenge to sustainably scale up both the levels and growth rates of financial flows required under the Paris Agreement, this section recognizes the risk of developing parallel, fragmented approaches. The chapter describes how to develop comprehensive financing strategies, drawing on a diversity of financial instruments and sources, including domestic public finance, domestic and international private investments, and international public support. An integrated approach that transcends project-based and short-term time horizons is required to effectively align financial resourcing to NDC priority activities.

Chapter 5: Monitoring and Reporting Progress toward Nationally Determined Contributions

The document then turns its attention to monitoring and reporting progress toward achieving the NDC. Preparing monitoring and reporting mechanisms is a key step in the NDC implementation process. Monitoring and reporting progress during the NDC implementation period serves multiple purposes, such as facilitating understanding of progress made toward achieving the NDC and of what additional progress is needed by the end of the NDC implementation period to inform future action, identifying and promoting synergies between actions taken to achieve the NDC and actions taken to achieve countries' SDGs, and fulfilling Paris Agreement provisions on accounting and transparency.

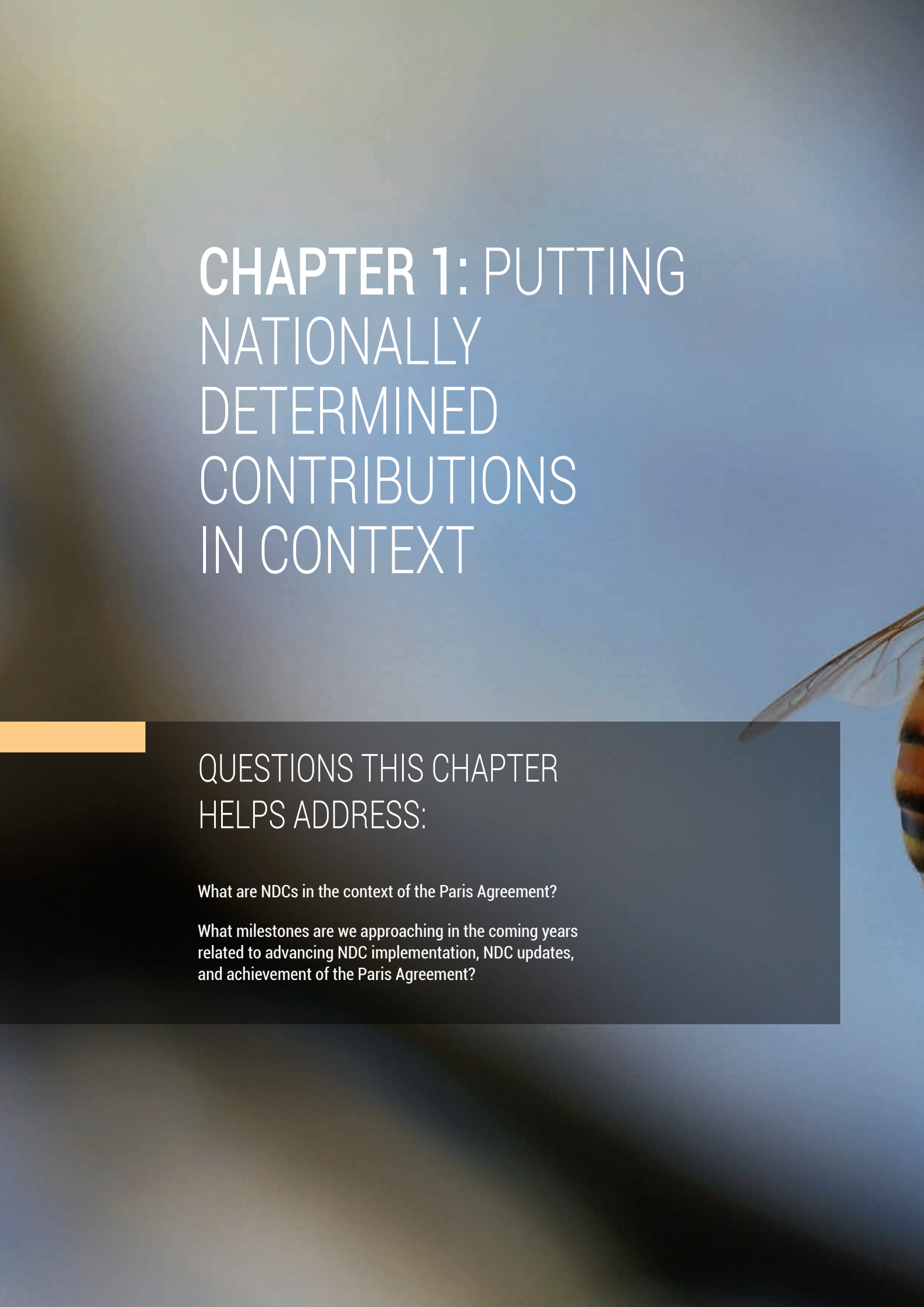
This chapter reviews what is required by the Paris Agreement's Enhanced Transparency Framework agreed at the 24th Conference of the Parties (COP 24), what types of information can be collected to monitor progress toward NDCs, what existing approaches can be built upon, and what elements should be included in a monitoring plan.

Chapter 6: Revising Strategies and Preparing for Subsequent Nationally Determined Contributions

Results from monitoring and evaluation can help a country assess progress made so far and the remaining effort still needed to achieve its NDC. Armed with this knowledge, countries can amend their implementation plans as needed based on observed impacts. The results can also help countries prepare for their next NDC submission.

Chapter 6 first focuses on revising strategies to achieve the current NDC based on the results from the monitoring and evaluation from Chapter 5. Next, the chapter turns its attention to preparing for the next NDC submission. To be successful, both short- and long-term climate action will need to be integrated into sectoral and national planning, development strategies, and investment decisions. As countries succeed in doing so, the NDCs will turn into vehicles to communicate such efforts and help achieve the goals of the Paris Agreement.

CHAPTER 1: PUTTING NATIONALLY DETERMINED CONTRIBUTIONS IN CONTEXT



QUESTIONS THIS CHAPTER HELPS ADDRESS:

What are NDCs in the context of the Paris Agreement?

What milestones are we approaching in the coming years related to advancing NDC implementation, NDC updates, and achievement of the Paris Agreement?

Nationally determined contributions (NDCs) are at the heart of the Paris Agreement (Box 1.1). They embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.

Achieving the long-term temperature goal of the Paris Agreement requires that countries undergo a transformation toward low-emissions, climate-resilient development across all sectors. Global emissions consistent with the temperature goal of the Paris Agreement will be achieved over time by preparing and implementing subsequent NDCs, paired with a determination to increase efforts to reduce emissions and increase resilience. It will be critical to raise ambition because while the INDCs submitted to date represent an improvement in the global emissions pathway relative to a business-as-usual scenario, the collective ambition they reflect is still far from consistent with the Paris Agreement's long-term goal of limiting warming to 1.5°C–2°C. Even if current commitments are fully implemented, warming is on track to reach 2.7–3.7°C under current pledges over the course of the century (Levin and Fransen 2015), setting the world on course for dangerous sea-level rise, drought, and other effects. To achieve its goals, the Paris Agreement pursues several approaches:

- It sets the objective of achieving peak global greenhouse gas (GHG) emissions as soon as possible and rapidly reducing emissions after they peak in order to achieve a balance across anthropogenic emissions by sources and sinks in the second half of this century.[3] This will require the reduction of human-caused greenhouse gas emissions—such as emissions from fossil-fueled vehicles and factories—to as close to zero as possible, and the balancing of any remaining greenhouse gases with an equivalent amount of sustainable removals, such as restoration of forests.

[3] A "carbon sink" removes greenhouse gas emissions from the atmosphere.

BOX 1.1 GENESIS OF NATIONALLY DETERMINED CONTRIBUTIONS

The origins of the Paris Agreement date back to the 17th session of the Conference of Parties (COP 17), held in Durban, South Africa, in 2011. At those meetings, a process was established to develop a protocol or other legal instrument under the climate change convention. Two years later, at COP 19 in Warsaw, it became evident that negotiations toward this instrument would deliver a set of mandates, commitments, and processes. With a view to complementing this agreement with specific actions by countries and building trust among Parties that all were contributing to global climate goals, the COP invited all Parties to prepare intended nationally determined contributions (INDCs) and to communicate them before the end of the negotiations process.

At the time, the nature, scope, and legal status of commitments and actions under the Paris Agreement were not clear. It was up to Parties to decide how they intended to contribute to global efforts to address climate change. By October 1, 2015, 147 Parties had responded to this invitation by communicating, within their INDCs, their plans to reduce emissions and adapt to climate change through a variety of targets and actions.

The concepts of "contribution" and "national determination" are reflected in Articles 3 and 4.2 of the Paris Agreement, which is based on the premise that each government decides, based on its circumstances and capacities, the actions it will take to contribute to achieving the objectives of the agreement. The efforts of individual Parties to reduce national emissions should, in aggregate, set the world on a path to limiting temperature rise to well below 2°C or 1.5°C above preindustrial levels. To achieve these goals, net global greenhouse gas emissions must decline to zero by 2080–90 or 2060–80, respectively.[a]

Note: [a] UNEP (2016).

Source: Authors.

- The agreement invites Parties to develop long-term, low-emissions development strategies, through which they could set long-term objectives to achieve zero net emissions. A number of countries are developing long-term strategies that identify how they will pursue development over time to increase prosperity and well-being while phasing out emissions. Such strategies can help save money in the long run by avoiding investments that are inconsistent with these long-term objectives. They foster innovation by sending the right signals to the private sector and allowing the benefits associated with early action to be reaped (Morgan et al. 2015). Although not mandatory, these strategies are important because they can serve as a long-term vision, enabling countries to submit more ambitious NDCs in the future and also put countries on a path toward sustainable development.
- The agreement requests that Parties prepare, communicate, and implement NDCs every five years. NDCs should reflect the short- and medium-term measures countries will undertake to reduce national emissions and increase resilience. Ideally, they should be fully integrated into a country's policies and plans. With a view to increasing the ambition of their NDCs and ensuring that successive NDCs represent a progression beyond the current one, Parties should consider the vision enshrined in their own long-term strategy, if they have one, as well as the results of the global stocktake under the Paris Agreement (a process by which the international community will collectively evaluate progress toward achieving the objectives of the Paris Agreement).

In the coming years, countries will move toward implementation of the agreement in the following ways:

- In 2018, the UNFCCC convened a year-long facilitative dialogue, known as the Talanoa Dialogue, to take stock of collective efforts toward the agreement's long-term goal stated in Article 4 and inform the preparation of the next NDCs, due in 2020.[4] A key input to this dialogue was the Intergovernmental Panel on Climate Change (IPCC) special report on the implications of the 1.5°C goal.

- Parties have been asked to communicate by 2020 a new NDC (if their first NDC ends in 2025) or an updated one (if their first NDC ends in 2030). They will continue to do so every five years. As of 2030, countries will have a common time frame for NDCs.

- In 2023, a global stocktake is to take place, with a preparatory stage commencing in 2021, assessing collective progress toward achieving the agreement. The outcome of the stocktake will inform the updating and enhancing of Parties' climate actions and support. A stocktake will take place every five years, in time to inform the next round of NDCs.

- The enhanced transparency framework will enter into full implementation phase, at the latest by December 2024, when the first biennial transparency reports are submitted.

Through their NDCs, countries tailor their contributions to their national priorities, capabilities, responsibilities, and climate risks. Box 1.2 illustrates the diversity of the first NDCs.

Now that countries have put forward their first NDCs, they are embarking on implementation. How the NDCs are implemented and improved upon over time will determine whether the goals of the Paris Agreement, as well as Sustainable Development Goals, are achieved.

[4] Under Decision 1/CP.21, para. 20, countries can increase the ambition of their NDCs at any point and need not wait for the facilitative dialogue in 2018.

BOX 1.2 DIVERSITY OF NATIONALLY DETERMINED CONTRIBUTIONS

NDCs differ in various ways:

- *Variety of mitigation contributions:* NDCs include greenhouse gas targets, non–greenhouse gas targets, and policies and actions. Almost 80 percent of Parties set greenhouse gas reduction targets, and almost a quarter set non–greenhouse gas targets. A small number submitted actions only.
- *Types of targets:* NDCs include a range of greenhouse gas reduction targets, including base-year emissions targets, baseline scenario targets, intensity targets, trajectory targets, and fixed-level targets. Non–greenhouse gas targets include renewable energy targets (e.g., expressed as percentage of installed capacity or penetration rates) and forestry targets (e.g., expressed in hectares or cubic meters of biomass).
- *Sectoral coverage:* Thirty-five percent of NDCs cover all sectors. Another 10 percent include all sectors except land use, land-use change, and forestry.
- *Greenhouse gas coverage:* Almost two-thirds of NDCs cover only partial greenhouse gases. Thirteen percent of the NDCs cover all seven gases cited in the Kyoto Protocol, and 11 percent cover six of them (all gases except nitrogen trifluoride [NF3]).
- *Conditionality:* More than half of Parties put conditionalities on their NDCs (e.g., conditional upon international support), with the majority specifying which part of the NDC is conditional.
- *Target year:* The large majority (62 percent) of NDCs have a target year of 2030. Nine Parties include a target year of 2025. A few Parties include target years of 2025 and 2030.
- *Inclusion of adaptation:* The overwhelming majority of NDCs include adaptation, with commitments ranging from broad visions or goals to specific measures in a variety of sectors.
- *Gender equality:* Sixty-five NDCs (40 percent of the total) make at least one reference to gender equality or women. Most mention the role of women in adaptation; only 18 Parties recognize the role of women in mitigation. Gender goals are highlighted in the Paris Agreement as integral to climate action.a

Note: [a] UNDP (2016)

Source: Authors.

CHAPTER 2: ALIGNING IMPLEMENTATION OF NATIONALLY DETERMINED CONTRIBUTIONS AND THE SUSTAINABLE DEVELOPMENT GOALS

QUESTIONS THIS CHAPTER HELPS ADDRESS:

How are the NDCs and SDGs aligned?

What are the potential benefits of pursing implementation of the NDC and SDGs in an integrated manner?

How should countries map the alignment between their NDCs and the SDGs, including national development policies and strategies?

What steps should countries take to pursue implementation of the NDCs and SDGs in an integrated manner?

In parallel to implementing their NDCs and developing long-term strategies under the Paris Agreement, countries are also translating the global 2030 Agenda for Sustainable Development—also adopted in 2015—into national and subnational sustainable development plans and processes. Identifying areas of potential alignment or inconsistency between the NDC and these national and subnational sustainable development plans and processes is a crucial first step that countries should undertake before developing NDC implementation plans (see Chapter 3). Based on this analysis, countries can use the implementation process to prioritize actions that deliver on both agendas, proactively identify and reconcile trade-offs, and ultimately avoid long-term pathways that may either lock in a high-emissions development trajectory or lock out future options to reduce emissions, adapt to climate impacts, or achieve sustainable development objectives.

Take, for instance, decision-making around investment in infrastructure. The world is set to invest approximately US$90 trillion in infrastructure over the next 15 years. That means spending will increase from about $3.4 trillion per year to about $6 trillion (New Climate Economy 2016). Most of this investment will be in developing and emerging markets and is vital to ensuring that the development objectives of these countries are achieved. At the same time, infrastructure relevant to energy, transport, and water needs to be efficient and able to cope with future climate impacts (New Climate Economy 2016). Taking an integrated approach to implementation of the climate and sustainable development will enable a development trajectory that is based on sustainable infrastructure, transformative production and consumption practices, and the use of cleaner fuels and technologies, while at the same time enhancing resilience to climate impacts.

The benefits of such an approach are not limited to realizing the objectives of the Paris Agreement and the 2030 Agenda. Greater coherence between these agendas, fostered through an understanding of the potential benefits and trade-offs, will also enable constituencies (national and subnational governments, civil society, and the private sector) to maximize scarce international and domestic resources toward priorities that achieve both agendas. An aligned approach helps ensure policy integration and coherence by preventing duplication and siloing of information, capacity, and technical expertise. It can also help respond to requirements of international financing mechanisms. For example, the Green Climate Fund has a specific mandate to "maximise the impact of its funding for mitigation and adaptation, and seek a balance between the two, while promoting environmental, social, economic and development co-benefits and taking a gender-sensitive approach."[5]

Adopting an aligned approach to implementation can also support a shift from short-term, project-based implementation toward long-term, transformational decision-making.

2.1 Overview of 2030 Agenda and Relevance to NDC Implementation

The 2030 Agenda succeeds the UN Millennium Declaration, which established the Millennium Development Goals (MDGs), and represents a considerable expansion in scope and ambition. The 2030 Agenda comprises 17 Sustainable Development Goals (SDGs) and 169 associated targets that are applicable to all countries. These goals and targets address and incorporate in a balanced way all three dimensions of sustainable development (the environment, economics, and society) and their linkages. Together they provide a comprehensive and universal blueprint for realizing human rights, gender equality, and empowerment; ensuring decent jobs and educational opportunities; and building sustainable, low-carbon, and climate-resilient communities. Although these goals are global in nature, each country is responsible for translating them into national and subnational development plans to support implementation of the SDGs and for providing regular progress reports to the United Nations.

[5] Green Climate Fund, Governing Instrument for the Green Climate Fund, para. 3, available at https://www.greenclimate.fund/documents/20182/1246728/Governing_Instrument.pdf/caa6ce45-cd54-4ab0-9e37-fb637a9c6235.

TABLE 2.1 EXAMPLES OF CLIMATE ACTIONS IN NDCs ALIGNED WITH THE SDGs

Sustainable Development Goal	Examples of Aligned Climate Actions in NDCs	Country
1: No Poverty	Reduce extreme poverty by creating job opportunities and alternative livelihoods based on sustainable forest management aimed at reducing emissions.	Zambia
2: Zero Hunger	Ensure food security by protecting, sustainably maintaining, and managing agricultural land; restructuring crops and livestock; creating new climate change resilient varieties; and completing the disease control and prevention system.	Vietnam
3: Good Health and Well-Being	Develop health surveillance, early warning systems, systematic climate risk assessment, and effective disease prevention and response measures to address health consequences related to climate change.	Thailand
4: Quality Education	Increase vocational and engineering skills to build and maintain climate-friendly technologies.	Afghanistan
5: Gender Equality	Enhance participation of women and youth in activities related to adaptation and environmental conservation in order to empower them and enhance their adaptive capacity, including by establishing a rural women's development program.	Sudan
6: Clean Water and Sanitation	Promote programs to sustain access to improved water supply sources, despite increasing water scarcity as a result of climate change.	Jordan
7: Affordable and Clean Energy	Construct infrastructure to develop the electricity sector, including power lines, substations, and transmission facilities, to meet increased renewable energy generation capacity.	Uganda
8: Decent Work and Economic Growth	Help businesses and the community reduce emissions, including through the Emissions Reduction Fund, while improving productivity and sustaining economic growth.	Australia
9: Industry, Innovation, and Infrastructure	Introduce environmentally harmonized steelmaking process.	Japan
10: Reduced Inequalities	Foster greater inclusivity and benefit sharing by enhancing engagement with youth, vulnerable communities, and women.	Sri Lanka
11: Sustainable Cities and Communities	Develop and implement urban and sustainable development plans for cities at risk of flooding that include the movement and internal displacement of the population and the reduction of disaster risks in the most vulnerable areas.	Haiti
12: Responsible Consumption and Production	Increase access to services for postharvest treatment and storage of food crops to reduce food loss and waste.	Rwanda
13: Climate Action	Improve the early warning systems and adaptive capacity of national agencies through multihazard risk assessments, systematic observations, integrative research, and the development of relevant databases, models, and technologies.	Thailand
14: Life below Water	Reduce sources of pollution through appropriate policies, develop appropriate sewage treatment systems on the islands, manage and safely dispose of solid waste to protect coral reefs.	Maldives
15: Life on Land	Implement afforestation/reforestation activities on 1,500 hectares of degraded lands by 2030.	Georgia
16: Peace, Justice, and Strong Institutions	Strengthen populations' adaptive capacity through transparent and inclusive mechanisms of social participation designed with an approach cognizant of gender and human rights.	Mexico
17: Partnerships for the Goals	Use bilateral agreements to exchange debt for nature conservation and adaptation to climate change in vulnerable areas.	Guatemala

Source: Northrop et al. (2016).

The climate policies and measures of the NDCs advance many of the objectives of the 2030 Agenda, not just SDG 13 on climate action. A wide range of actions that countries put forward in their NDCs provide enormous potential for achieving the targets of the SDGs (Table 2.1). Northrop et al. (2016) find that one or more climate actions in NDCs align with at least 154 of the 169 SDG targets. One can view the NDCs as a means to achieve the SDGs, and vice versa.

The high degree of potential alignment between these two agendas offers domestic policymakers a significant opportunity to pursue implementation in a manner that optimizes mutual benefits and reconciles trade-offs through careful planning and prioritization.[6] Furthermore, approaching NDC implementation through the inclusive development interventions envisaged by the SDGs will be crucial to achieving and sustaining the level of economic and social transformation required by the goals of the Paris Agreement. An example of this is to pursue implementation of the climate targets and actions in the NDC in a gender-responsive manner, advancing gender equality and the empowerment of women, as laid out in SDG 5. Women play important roles in climate change mitigation and adaptation through their roles in agriculture, livestock management, energy, disaster risk reduction, forestry, water management, and health (Denton 2002; Dankelman 2010). Efforts may not be effective or sustainable over the long term if they do not take gender into account (UNDP 2015c). For example, in some cases adaptation actions have led to increased workload and reduced decision-making power for women (Sovacool and Linner 2016).

[6] The interconnection between NDCs and SDGs goes beyond the inclusion of a goal dedicated to taking urgent action to combat climate change and its impacts (SDG 13) and the 11 additional targets that explicitly address climate-related mitigation, adaptation, and resilience efforts. For studies that catalog the relationships, synergies, and trade-offs between the proposed SDGs and climate change, see Marston (2014); Munro (2014); Picot and Moss (2014); Scott and Picot (2014); Ansuageti et al. (2015); Leong (2015). These studies may understate the degree of potential alignment between NDCs and SDG targets.

2.2 Promoting Alignment of NDCs and SDGs through Implementation

Planning processes and institutional arrangements for implementing the NDCs and translating the SDGs into national and sectoral plans need to be well coordinated, built on inclusive, multistakeholder consultation, and have strong political buy-in (see Chapter 3).[7] Countries can take a number of key steps to pursue implementation of the NDCs and SDGs in an integrated and joined-up manner to capture the potential benefits mentioned in the preceding sections. The following are key steps for countries to consider:

1. **Identify areas of alignment and inconsistencies:** Understanding and communicating the alignment between both agendas can help generate buy-in from sector ministries. Similarly, understanding where there may be inconsistencies or trade-offs in the pursuit of both agendas is the first step in ensuring informed decision-making and prioritization of national resources. Reviewing the climate targets, policies, and measures outlined in the NDC against national policy and strategy documents (Box 2.1) can identify areas of alignment and potential inconsistencies.

2. **Promote coordination across government:** Institutional and policy coordination mechanisms can ensure greater coordination of staff and associated decision-making for implementation of both agendas. Options include the coordinating body (see Section 3.5) assigning coherent joint responsibilities to ministries and agencies for advancing the domestic implementation of the SDGs and the NDC (Figure 2.1); mandating regular check-ins between senior staff; developing common policy planning instruments to mainstream both sets of policy objectives in planning and budgeting; mandating high-level participation in national coordination bodies; and mandating that focal points across ministries

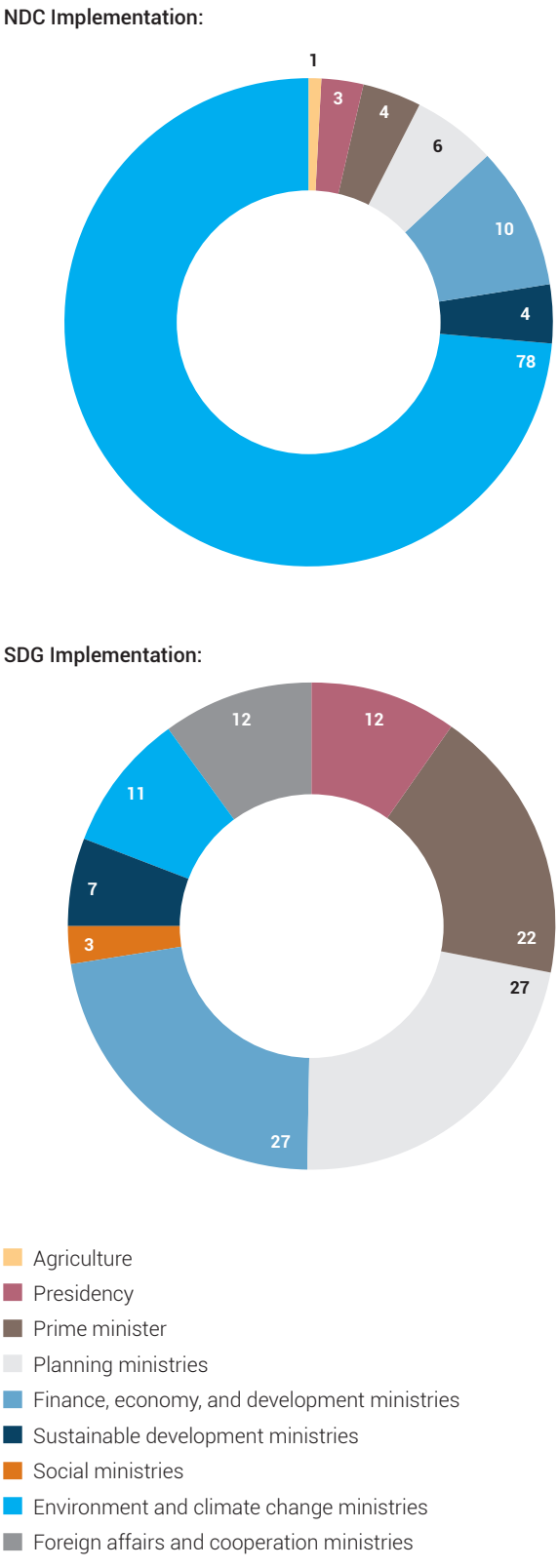
[7] For the purposes of this report, a stakeholder is any group or individual who can affect, is affected by, or can help define the public policy program (UNEP 2005).

collaborate on mainstreaming SDGs and NDCs in policymaking and data collection (Bouyé et al. 2018). Including parliaments and local authorities in both SDG and NDC national coordination frameworks is also key to promoting integrated planning (Bouyé et al. 2018). See Boxes 2.2 and 2.3 for approaches to coordination followed by Mexico and Colombia. One can see from the Figure 2.1 that the lead institutions for NDCs are largely those responsible for climate change and the environment, instead of the line ministries that will implement the policies and measures necessary to achieve the NDCs. A broader range of institutions implement the SDGs. This will make coordination essential.

3. **Provide multistakeholder engagement opportunities:** Participation by climate experts in coordination bodies for implementation of the 2030 Agenda and participation by development experts and vulnerable communities in coordination bodies for NDC implementation can facilitate greater coordination and integration. Alternatively, implementation of both agendas can be addressed simultaneously by establishing multistakeholder engagement frameworks, such as multidisciplinary advisory expert groups and national forums gathering various interest groups (Bouyé et al. 2018).

4. **Undertake prioritization:** The SDGs are broad, and efforts to ensure alignment run the risk of opening up a process where everything is a priority (Araya 2018). Therefore, identifying priorities across both agendas that focus on a set of fundamental actions necessary to achieve a country's long-term goals for climate and development is key to delivering development with less carbon and less exposure to the worst climate risks. Ensuring a successful prioritization exercise will likely depend on steps 1, 2, and 3 already being in place. Strong coordination and multisector engagement is critical to ensure sufficient buy-in and ownership.

FIGURE 2.1 LEAD AND CO-LEAD ORGANIZATIONS FOR NDC AND SDG IMPLEMENTATION



Source: Bouyé et al. (2018).

5 **Pursue comprehensive and integrated finance strategies:** Budgeting processes are powerful incentives for policy integration. Comprehensive finance strategies that encompass the overarching priorities for both agendas (based on the outputs from steps 1 and 4 above) and identify the nexus where public investments can have the greatest benefit will also play an important role. Issuing instructions for budget preparation to ministries addressing SDGs and climate action and establishing consistent budgets can help guide implementation.

6. **Establish mutually reinforcing monitoring and reporting frameworks:** Consistent sets of indicators and common data strategies will support integrated monitoring of outcomes. Progress on implementation of both agendas can be highlighted through national reporting frameworks under the 2030 Agenda and the UNFCCC.

If those charged with developing an NDC implementation plan (see Section 3.5) put in place the above steps, they can build an enabling environment that will serve countries beyond

BOX 2.1 EXAMPLES OF NATIONAL PLANNING PROCESSES RELEVANT TO ALIGNING CLIMATE AND DEVELOPMENT OBJECTIVES

- **National climate change policies** articulate a country's mitigation and adaptation priorities, drive alignment with development priorities, and establish governance frameworks for climate change.
- **National development plans** are overarching frameworks for social, economic, and environmental development in a particular country context that are used to define a desired destination and identify the role of each sector in reaching that goal. Development plans shape policymaking and domestic investment priorities.
- **Sector development and investment plans** include objectives, policies, and strategies that support development in a specific sector (e.g., energy, agriculture, or forestry) toward the goals and priorities identified in national development plans.
- **Green growth development plans or strategies** are overarching strategies aimed at "green growth," or ensuring that economic growth occurs in a manner that incorporates low-carbon opportunities and climate risk while ensuring that natural assets continue to provide the resources and environmental services on which humans' well-being relies.
- **Nationally appropriate mitigation actions (NAMAs)** are actions that reduce emissions in developing countries and are prepared under the umbrella of a national governmental initiative.
- **Low-emissions development strategies (LEDS)** are country-led strategic planning frameworks to promote climate-resilient economic growth while simultaneously reducing greenhouse gas emissions over the long term.
- **National adaptation plans (NAPs)** are country-driven national plans that formulate and implement national adaptation plans as a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programs to address those needs. Creating a NAP is a continuous, progressive, and iterative process that follows a country-driven, gender-sensitive, participatory, and fully transparent approach.
- **National adaptation programs of action (NAPAs)** allow least-developed countries to identify priority activities that respond to their urgent and immediate needs to adapt to climate change.
- **Technology needs assessments (TNAs)** are country-driven activities that identify and determine countries' mitigation and adaptation technology priorities.

Source: Authors.

BOX 2.2 COLLABORATION BETWEEN LEAD INSTITUTIONS FOR NDC AND SDG IMPLEMENTATION IN MEXICO

In February 2017, the Office of the President of Mexico, which leads on the 2030 Agenda, and the Ministry of Environment and Natural Resources (SEMARNAT) and the National Institute of Ecology and Climate Change, which are jointly responsible for NDC implementation, agreed to coordinate closely. The three offices acknowledged the need for ensuring synergies between policies and investments supporting both agendas to avoid duplication and scale up impact. They identified the following top priorities for a joined-up implementation: institutional collaboration, alignment between climate policies and the 2030 Agenda implementation strategy, and an integrated approach to mainstreaming of both sets of goals into national- and local-level policy planning and budgeting.

To advance institutional coordination, each office is engaged in defining the annual work programs of the Interministerial Commission for Climate Change (CICC) and the National Council for the 2030 Agenda. Fourteen ministries are represented at the secretary level in both the National Council for the 2030 Agenda and the CICC. The Office of the President also regularly engages in working groups under the CICC in order to foster discussion of SDG-NDC linkages and ways to deliver greater co-benefits.

Source: Bouyé et al. (2018).

implementation of their first NDC. Pursuing a holistic, whole-of-economy approach to NDC and SDG implementation has the potential to unlock additional mitigation potential and opportunities to enhance resilience. The SDGs include key drivers of climate action that may have been overlooked when INDCs were first developed, such as reducing food loss and waste, strengthening coordination across government ministries, empowering women, enhancing transparency and accountability of decision-making, and strengthening health sector preparedness.

Achieving alignment and synergies with the SDG targets would also help countries plan for supporting inequality reduction, despite the impact of climate change, and ensuring a just transition of the workforce—a challenge that remains insufficiently mentioned in climate plans.

BOX 2.3 COLOMBIA'S APPROACH TO INTEGRATION IN NDC AND SDG IMPLEMENTATION AT THE LOCAL LEVEL

The Colombian government has been working with local authorities to integrate the SDGs and the climate agenda into local planning and budgetary processes, including in its National Development Plan. Those efforts have fostered linkages between the climate and sustainable development agendas and between implementation efforts at the national and local levels, offering strong potential for greater efficiency and synergies.

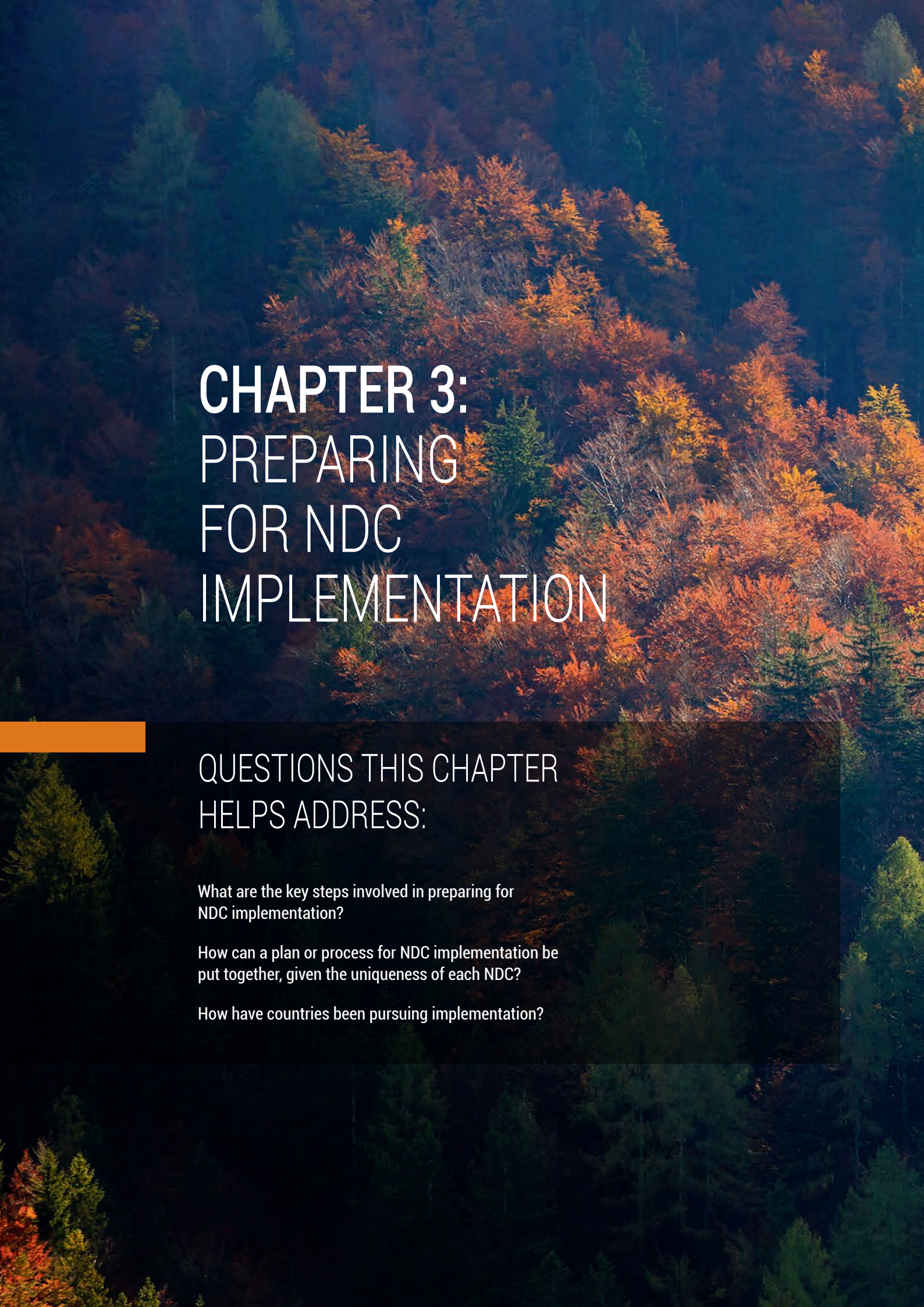
Initial analysis of the alignment between the 32 territorial development plans and the SDGs found that about one-third of those plans do not address SDGs 7, 12, 13, and 15, which correspond to top national mitigation priorities (energy, industry, waste and agriculture, forests, and other land use). Colombia's planning tool for localizing national priorities for the SDGs—the Kit Territorial—requests that 100 percent of departments and their capital cities mainstream SDGs, including climate actions, in local-level planning and adopt climate change plans as required by the NDC and SDGs (targets 13.2 on climate policy mainstreaming and 11.b on the inclusion of climate action in municipal plans).

Source: Bouyé et al. (2018).

SELECT TOOLS AND RESOURCES FOR "WORKING TO ACHIEVE BOTH NATIONALLY DETERMINED CONTRIBUTIONS AND THE SUSTAINABLE DEVELOPMENT GOALS"

- **NDC SDG Linkages** (ClimateWatch 2018): This platform comprehensively maps the alignment between the targets, actions, policy measures, and needs in countries' nationally determined contributions (NDCs) and the targets of the Sustainable Development Goals (SDGs). It can be searched by SDG, SDG target, and NDC and highlights the relevant text in the NDC.
- *Connecting the Dots: Elements for a Joined-Up Implementation of the 2030 Agenda and Paris Agreement* (Bouyé et al. 2018): This study demonstrates the importance of aligning NDC implementation with the SDGs and serves as a guide to policymakers who aim to integrate the NDCs and SDGs at the national and local level.
- *Mainstreaming Climate Compatible Development* (Bickersteth et al. 2017): This book builds upon existing scholarship on climate compatible development, including books that explain what climate mitigation and adaptation are, and including different conceptual and methodological approaches and how they are addressed in international negotiations.
- **Gender Analysis Matrix** (GDRC n.d.): This analytical tool uses participatory methodology to facilitate the analysis of gender issues by the communities that are affected by them.
- **Gender and Climate Change: Thematic Issue Briefs and Training Modules** (UNDP 2017b): The UN Development Programme (UNDP) presents updated versions of 12 training modules and issue briefs on gender dimensions of climate change covering a range of themes and sectors. These resources include a general overview and discussions on adaptation and disaster risk reduction, agriculture and food security, sustainable energy, climate finance, and REDD+ under the new development and climate change frameworks, such as the 2030 Agenda and the Paris Agreement.
- **Gender Knowledge Platform—Climate Change Sector** (GIZ n.d.a): This site offers a wealth of information on gender and is meant for experts working for implementing organizations, civil society, and others interested in the promotion of gender equality. The Climate Change, Disaster Risk Reduction, and Sustainable Development sector page provides an overview of the intersection of gender and these topics along with a series of resources including briefs, case studies, training manuals, and toolkits on gender and climate. On another page, a gender consultants pool is also available to help find consultants with gender expertise in a wide variety of subjects.
- **iSDG Tool** (Millennium Institute 2018): This tool allows policymakers and government officials to learn about the interconnectedness of policies designed to achieve the SDGs and test their likely impacts before adopting them. To enable integrated planning, the iSDG provides a tool to simulate different policy actions, resulting in an analysis of the various actions, trends, and business-as-usual scenarios. Useful both at the policy development stage to explore different scenarios and during policy implementation to assess emerging synergies across sectors, the tool allows for visualization of the results.
- *Rapid Integrated Assessment (RIA) Tool to Facilitate Mainstreaming of SDGs into National and Local Plans* (UNDP 2017d): This report discusses the Rapid Integrated Assessment (RIA) tool and provides a framework to support countries in mainstreaming the SDGs into national and subnational planning. The RIA tool, used to assess a country's readiness for SDG implementation, helps to determine the SDGs' relevance to the country context and interlinkages across targets; it is the first step in defining a roadmap for a country to implement the SDGs.
- **SDG Climate Action Nexus Tool (SCAN-Tool)** (Ambition to Action n.d.): The SCAN-tool, developed under the umbrella of the NDC Support Cluster, supports policymakers across different departments and state levels in identifying and understanding which climate mitigation actions may impact specific SDG targets. The tool provides users with a better understanding of how climate action can reinforce national sustainable development targets and improve political buy-in. Additionally, the SCAN-tool be used to inform the process of putting forward ambitions pledges of climate action, required every five years under the ambition mechanism of the Paris Agreement.

For more tools and resources, see NDC Partnership (n.d.a).



CHAPTER 3: PREPARING FOR NDC IMPLEMENTATION

QUESTIONS THIS CHAPTER HELPS ADDRESS:

What are the key steps involved in preparing for NDC implementation?

How can a plan or process for NDC implementation be put together, given the uniqueness of each NDC?

How have countries been pursuing implementation?

Each country will prepare for and implement its NDC in different ways—based on the nature of its NDC (whether target-based or focused primarily on policies and actions), how the NDC was first developed (through a bottom-up process or a top-down exercise), and its national circumstances. Regardless of where countries are starting from, it is beneficial to have an agreed whole-of-government approach that can be transparently communicated to all stakeholders.

This chapter looks at the key steps involved in preparing for NDC implementation, which may result in the preparation of an NDC implementation plan, but equally may rely on existing sectoral or subnational plans and processes. The steps or core components covered in this chapter are

1. taking stock of the NDC;
2. confirming the relevance of the analysis underpinning the NDC;
3. identifying and prioritizing policies and measures;
4. assessing the human and information capacities required for NDC implementation;
5. assessing the institutional framework for implementing the NDC;
6. assessing the regulatory framework; and
7. engaging stakeholders.

By the end of the chapter, readers should have a general understanding of how to assess their readiness for NDC implementation, and how to put in place the necessary plans and processes to move forward with implementation.

It is worth noting that the preparation of an NDC implementation plan is not required under the Paris Agreement. The Paris Agreement requires countries to prepare, communicate, and maintain an NDC, pursue domestic mitigation measures with the aim of achieving the objectives of such NDCs, and regularly provide information necessary to track progress made in implementing and achieving the provisions in the NDC.

While steps are presented in a logical order, the sequencing in practice is likely to differ among countries. Ensuring that institutional and regulatory frameworks are "fit for purpose" in terms of NDC implementation will be a continuous process and depend in large part on the policies and measures each country chooses to prioritize to achieve its NDC.

It is important to emphasize that the process a country undertakes to develop its implementation plan will be as important as the resulting plan. Preparing for NDC implementation provides an opportunity to engage stakeholders, raise awareness, align the NDC with other national priorities and processes, and ensure that the commitments made under the Paris Agreement are achieved in a coherent manner.

3.1 Taking Stock of the NDC

To ensure effective and coordinated implementation, there first needs to be clarity on what the NDC specifically commits the government to pursue in terms of domestic measures[8] — such as which greenhouse gases and sectors are included and which targets, policies, and actions need to be implemented and reported on internationally.

Taking stock of the NDC will also include enhanced understanding of how the targets, goals, and actions contained in the NDC were chosen, including the extent to which they were already adopted and planned or whether new measures need to be undertaken. This will be particularly important where there has been a change in political leadership since the first NDC was prepared. An example of this is explored in Box 3.1.

Depending on the extent of new information and changes to the underlying assumptions, countries may need to determine whether a revision of the NDC is warranted (Chapter 6). The need to revise the NDC may also stem from the fact that key sectors or mitigation opportunities were overlooked in the first NDCs. NDCs were prepared

[8] Refer to Article 4.2 of the Paris Agreement, which requires each Party to "prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions."

BOX 3.1 ARGENTINA'S REVISED NDC TARGET

Following a change in government in late 2015, Argentina submitted a revised NDC in November 2016, changing its initial GHG target type to a fixed-level target, specifying that it will not exceed net emissions of 483 $MtCO_2e$ by 2030. Moreover, with additional measures it could bring emissions down further to 369 $MtCO_2e$ for 2030. These new targets are more ambitious than the one presented in the INDC, resulting in a lower level of emissions in 2030 when compared to the 569.5 $MtCO_2e$ emissions target estimated for the INDC. This improvement is due to the change in the GHG inventory methodology used, as well as the revision of more than 50 unconditional measures and the incorporation of new ones. The switch of target type also represents a strengthened target by removing the uncertainties associated with baseline projections needed for the previous NDC target.

Source: Ge and Levin (2018).

in advance of adoption of the Paris Agreement, with little guidance or clarity on what the final architecture of the Paris Agreement would require.

3.2 Confirming the Analysis and Data Underpinning the NDC

In most cases, the goals, targets, policies, and actions contained in an NDC were informed by analysis and data collected at the time of development, and based on a variety of factors and assumptions about future conditions.

As countries develop their plans for implementation, it is helpful to confirm that the underlying models and assumptions relied upon for the development of NDCs remain current. Given the time that has elapsed since the NDCs were first developed, some of the underlying assumptions and analysis upon which the NDCs were formulated may have changed. This could be the result of additional technical or other information becoming available, models changing as a result of technological innovations and cost reductions, changes in political priorities, or the development of a long-term low-emissions development strategy (e.g., pursuant to Article 4, paragraph 19 of the Paris Agreement). Ensuring alignment between long-term strategies and the medium-term targets established through NDCs can be useful to sequence actions and milestones in a way that

BOX 3.2 DEVELOPMENT OF LONG-TERM LOW-EMISSIONS DEVELOPMENT STRATEGIES

The Paris Agreement and accompanying decision text invite all countries to communicate midcentury "low greenhouse gas emissions development strategies" (long-term strategies) by 2020. These strategies underpin the transformative potential of the Paris Agreement, where all countries can develop a long-term vision for climate and development, one that is aligned with collective global goals and national priorities. To date, 10 countries have officially communicated long-term strategies to the UNFCCC: Benin, Canada, the Czech Republic, France, Germany, Mexico, the Republic of the Marshall Islands, Ukraine, the United Kingdom, and the United States.

Establishing a long-term strategy provides several important domestic benefits that can also help guide NDC implementation. For example, the strategy can

- reveal the real economic benefits of investing in long-term climate action;
- set a longer-term agenda, providing political certainty for bold and concrete action by all actors;
- help inform both near- and long-term investments and be used as a tool to catalyze sustainable economic transformation and support economic stability;
- provide a foundation to conduct long-term planning in the context of climate risks;
- provide a framework for low-emissions development that allows for a flexible implementation approach;
- foster cross-sectoral coherence and coordination and be used as a tool to engage and catalyze external stakeholders, supporting policy progress on a range of issues, including development, climate change mitigation, and adaptation; and
- support a just transition by sending early and predictable signals to businesses that are tied to a high-carbon economy.

The development of these strategies can support a process by which decision-makers across key sectors are encouraged to rethink policy and technology pathways so that national development objectives align with long-term perspectives. Ensuring alignment with such plans is critical to the NDC implementation process, so that long-term transitions avoid lock-in of carbon-intensive and vulnerable pathways.

Source: Levin et al. (2018).

maximizes benefits for both agendas and avoids lock-in effects in the short and long runs (Box 3.2).

Reviewing the analysis underpinning the NDC may lead to a better understanding of the relevance of key sectors and regions to supporting effective implementation and the expected cost of doing so. Depending on the extent of new information and changes to the underlying assumptions, countries may need to determine whether a revision of the NDC is warranted (Chapter 6). Indeed, some countries have decided to revise their NDCs ahead of implementation (Box 3.3).

BOX 3.3 EXAMPLES OF REVISED NDCS

Parties to the Paris Agreement have been requested to communicate or update their NDCs by 2020 and to continue to do so every five years thereafter to enhance ambition.

However, many countries have already chosen to revise their NDCs, through changing their GHG targets or by adding additional targets or policies and measures. So far, of the 169 countries that have communicated an NDC, 15 have offered a plan that differs from their initial INDC. These include Argentina, the Bahamas, Belize, Benin, Canada, France, Indonesia, Mali, Morocco, Nepal, New Zealand, Pakistan, Sri Lanka, Uruguay, and Venezuela. Three examples are explored below:

Indonesia revised its baseline emissions level from 2,881 $MtCO_2e$ in the INDC to 2,869 $MtCO_2e$ in its NDC while sticking to the same target of reducing emissions 29 percent unconditionally (and up to 41 percent conditionally) from business-as-usual levels. This means that Indonesia's GHG target now translates into a lower level of absolute emissions in the target year.

Morocco strengthened its GHG target by stating further reductions, moving from an unconditional 13 percent reduction from business-as-usual emissions levels by 2030 (and a 31 percent conditional reduction) in its INDC to a 17 percent unconditional reduction (41 percent conditional) in its NDC. In addition, Morocco included a detailed portfolio of 55 unconditional and conditional mitigation actions, along with cost- and emissions-reduction potential estimates for 2030. Examples of actions affording the highest emissions-reduction potential include putting in place multiple wind farms as well as thermodynamic concentrated solar power and photovoltaic power plants in multiple areas by 2020; importing liquefied petroleum gas (LPG) and use of LPG for electricity generation in combined cycle power plants to reach 3,550 MW by 2025; and recycling household waste through coincineration and mechanical biological treatment.

Uruguay updated its NDC by adding additional non-GHG targets for several sectors, including energy; transport; agriculture; and land use, land-use change, and forestry, accompanied by detailed measures including increasing capacity of renewable energy, adoption of biofuel in gasoline and diesel, and maintenance of 100 percent of the native forest area by 2025.

Source: Ge and Levin (2018).

3.2.1 Key Analysis Underpinning the Mitigation Component

For most NDC actions and targets focused on mitigation, key analytical aspects that may need to be revisited include the following:

- *Greenhouse gas inventory data and emissions projections:* Updated inventory data may reveal that emissions trends in certain sectors differ markedly from trends in previous updates. In this case, if greenhouse gas inventory data were used in developing the NDC, it may be worth reconsidering the role of the affected sectors in the selection of NDC mitigation actions to achieve the target. In addition, it is helpful to update emissions projections in the reference scenario to reassess the extent to which a sector or particular policies can contribute to overall emissions levels (Puig et al. 2013).

- *Underlying cost assumptions and technology learning rates:* The learning rate for a technology is calculated as the percentage reduction in technology unit costs associated with each doubling of installed cumulative capacity. These rates can be used to characterize the likely short-term costs of using a particular mitigation technology. Where country-specific rates are available, they are preferable to more generic international estimates. To the extent that updated estimates of learning rates are available, they can be used to reassess the envisaged scale of deployment of the technology (Winkler et al. 2009).

- *Implementation costs and barriers:* Implementing new policies and adopting new technologies often requires additional institutional, human, and information capacities. The costs associated with these types of requirements can be large and tend to be neglected in the planning stage, which tends to focus on the costs of the technology itself. If new evidence is available domestically or can be obtained from relevant experiences in other countries, it may be worth revisiting the assumptions made, for which implementation costs might represent a substantial share of overall costs (Kolstad et al. 2014).

3.2.2 Key Analysis Underpinning the Adaptation Component

Where Parties have chosen to communicate information on adaptation goals, actions, and priorities in their NDCs, they may wish to review this information prior to formulating development implementation plans. Reviewing the analysis underpinning the adaptation component can involve revisiting the following:

- *Climate scenario and vulnerability assessments:* Estimates of future climate change impacts on a given location are derived from forecasts of changes in key climatic variables (most often temperature and precipitation), coupled with data reflecting social vulnerability (IPCC 2014). Data on vulnerability should be disaggregated by gender, location, age, and ethnicity (IPCC 2014; UNDP 2016c). If improved meteorological data sets have become available or data and information on the plausible socioeconomic and climatic developments have been updated, estimates of impacts—and associated adaptation actions to address such impacts—may need to be reviewed and potentially revised (Schoof 2013; IPCC 2014).

- *"Low-regrets" approaches:* Given the uncertainties associated with adaptation to climate change, decision-makers are increasingly relying on "low-regrets" approaches to planning. These approaches help identify short-term policies that are expected to yield satisfactory results with a high level of certainty under the most plausible future socioeconomic and climatic scenarios. In addition to helping identify short-term policies, low-regrets approaches can be used to chart possible policy options for the medium term. They do so by assessing the extent to which implementing a certain policy measure may preclude changing policy course in the medium term, if and when new evidence becomes available that suggests such a change in course (Watkiss and Cimato 2016). To the extent that adaptation actions in a country's NDC were chosen without taking uncertainties into account, it may be worth reviewing the selection through the lens of low-regrets approaches.

- *National adaptation plans (NAPs):* There should be alignment between the goals, targets, and priorities for adaptation communicated in the NDC and any NAP. If a country has undertaken a NAP process following communication of its NDC, there could be scope to update the NDC accordingly in terms of the analysis of trends, impacts, and vulnerable sectors and groups that has likely taken place through the NAP process. Parties planning their adaptation response through a NAP process typically conduct a stocktaking exercise to ascertain how the process should build on existing initiatives, such as strategies, policies, adaptation programs, and plans that are ongoing or already in place.

The updating of analysis on mitigation and adaptation will facilitate implementation because countries will then be able to better design strategies that are in line with achieving their goals. That being said, depending on the extent of changes to the underlying analysis, a country may need to determine whether there is an opportunity to revise the NDC itself accordingly (see Chapter 6).

3.3 Identifying and Prioritizing Policies and Measures to Deliver the NDC

In most cases, countries face several implementation options for achieving their NDCs. In large part, these implementation options will stem from the nature of each country's NDC, namely whether it consists of

- economy wide target(s) (e.g., articulated as base-year emissions targets, baseline scenario targets, intensity targets, trajectory targets, and fixed-level targets);
- sectoral non-GHG target(s) (e.g., renewable energy targets [e.g., expressed as percentage of installed capacity or penetration rates] and forestry targets [e.g., expressed in hectares or cubic meters of biomass]); and
- policies and actions (e.g., reduction or phaseout of fossil fuel subsidies, restoration of land, building climate-resilient infrastructure, and improvement of water management).

To achieve economy-wide GHG targets, a country may find it necessary to first disaggregate that economy-wide target into more specific targets at the sectoral or subnational level—preferably with intermediate milestones prior to the 2025 or 2030 NDC target years for the NDC, and considering existing sectoral and subnational plans. Decisions on this disaggregation can be informed by emissions data by jurisdiction, the mitigation potential of sectors, a desire to equally distribute reductions across sectors, and existing sectoral plans and policies.

Once disaggregated (or where the NDC already includes sectoral GHG and non-GHG targets), it is useful to identify the specific policies and policy instruments relevant to achieve those targets. The policies and policy instruments relevant to achieve certain targets will depend in large part on the country's national circumstances. However, there are a number of resources available for countries to consider, including the following:

- The International Energy Agency policy database, which provides examples of policies and measures for climate change, renewable energy, and energy efficiency (IEA 2009, 2011);
- The New Climate Economy reports, including ***Better Growth, Better Climate: The New Climate Economy Report*** (2014); ***Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate*** (2015); ***The Sustainable Infrastructure Imperative: Financing Better Growth and Development*** (2016); and ***Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times*** (2018);
- The annual ***Emissions Gap Report*** of UN Environment Programme (e.g., UNEP 2016);
- UN Women's Leveraging Co-benefits between Gender Equality and Climate Action for Sustainable Development (2016); and
- The NDC Partnership Knowledge Portal.[9]

[9] Available at NDC Partnership, "Knowledge Portal," https://ndcpartnership.org/knowledge-portal.

Types of policy instruments relevant to achieving policy objectives are identified and discussed in Table 3.1 below.

Once potential policies and associated policy instruments have been identified (either in the NDC itself or through a subsequent identified process), it is beneficial to undertake a prioritization exercise. Analyzing the trade-offs and benefits associated with various policy options (including an analysis of the alignment with sustainable development objectives as discussed in Chapter 2) can bring additional benefits beyond a further articulation of the NDC. It can help inform stakeholders and secure their support by involving them, strengthen coordination among all groups involved in policy implementation, identify limitations in the institutional and regulatory frameworks, and shed light on capacity gaps. It may also result in additional opportunities for action to be identified, and may lead to improved effectiveness in implementation. See Section 3.7 for a detailed exploration of stakeholder engagement for NDC implementation.

TABLE 3.1 TYPES OF POLICY INSTRUMENTS FOR ACHIEVING POLICY OBJECTIVES

Type of Instrument	Description
Regulations and standards	Regulations or standards that specify abatement technologies (technology standards) or minimum requirements for energy efficiency, pollution output, flood proofing, or other activities. These typically include penalties for noncompliance.
Taxes and charges	Levies imposed on each unit of activity by a source, such as a fuel tax, carbon tax, traffic congestion charge, or import or export tax.
Subsidies and incentives	Direct payments, tax reductions, or price supports from a government for implementing a specified practice or performing a specified action. Subsidies that support practices or business decisions not aligned with the NDC targets should be removed.
Emissions trading programs	Programs that establish a limit on aggregate emissions from specified sources; require sources to hold permits, allowances, or other units equal to their actual emissions; and allow permits to be traded among sources. These programs are referred to as emissions trading systems or cap-and-trade programs.
Voluntary agreements or measures	Agreements, commitments, or measures undertaken voluntarily by public or private sector actors, either unilaterally or jointly in a negotiated agreement. Some voluntary agreements include rewards or penalties associated with participating in the agreement or achieving the commitments.
Information instruments	Requirements for public disclosure of information include labeling programs, emissions reporting programs, rating and certification systems, benchmarking, and information or education campaigns aimed at changing behavior by increasing awareness.
Research, development, and deployment (RD&D) policies	Policies aimed at supporting technological advancement through direct government funding or investment or facilitation of investment in technology research, development, demonstration, and deployment activities.
Public procurement policies	Policies requiring that specific attributes (such as greenhouse gas emissions) be considered as part of public procurement processes.
Infrastructure programs	Provision of (or granting a government permit for) infrastructure, such as roads, flood protection, water, urban services, and high-speed rail.
Implementation of new technologies, processes, or practices	Implementation of new technologies, processes, or practices on a broad scale (e.g., to reduce emissions).
Financing and investment	Public sector grants or private sector grants or loans (e.g., in support of development strategies or policies).

Source: Adapted from Gupta et al. (2007).

TABLE 3.2 CRITERIA FOR PRIORITIZING MITIGATION POLICIES

Criterion	Possible Subcriteria
Greenhouse gas reduction potential	• Facilitate transformational impacts (i.e., long-term, significant changes) that enable a shift to a low-emissions economy over the long term. • Achieve significant greenhouse gas reductions relative to a baseline scenario. • Target high-emitting or fast-growing sectors and gases (based on the national greenhouse gas inventory). • Target reductions in key decarbonization metrics, such as CO2 per kilometer traveled by vehicles, CO2 per megawatt hour of electricity production, or greenhouse gas per metric ton of cement or steel produced.a • Eliminate key barriers to greenhouse gas reduction.
Feasibility	• Ensure that actions are aligned with national economic and development priorities and objectives. • Ensure that actions can be implemented and enforced, given the current and anticipated political, legal, and regulatory context. • Ensure stakeholder support.
Benefits and costs	• Deliver multiple benefits, including greenhouse gas reduction and various economic, social, and environmental benefits (such as reduced energy costs, improved air quality, improved public health and reduced health care costs, job creation in new sectors, and reduced traffic congestion) and achievement of the SDGs. • Deliver a positive economic return (e.g., through financial savings from reduced energy costs, reduced costs of energy subsidies, job growth through new industries, productivity gains that increase GDP and create jobs, and reduced health care costs from air pollution). • Determine whether measures are cost-effective in reducing greenhouse gas emissions and achieving other benefits for a given amount of resources (e.g., as determined through greenhouse gas abatement cost curves or marginal abatement cost curves). • Leverage private sector investment in low-carbon development and technologies. • Increase women's economic returns and reduce their workloads.
Other	• Ensure that actions - have been shown to be effective in other jurisdictions; - are measurable; - are expected to have a fair distribution of impacts across society; - are expected to expand and entrench support from domestic constituencies and lock in low-emissions technologies and behavior; - align with long-term mitigation goals in the Paris Agreement; - align with national long-term low-emissions development pathways; and - synergize with adaptation policies.

Note: a Höhne (2014b).

Source: Adapted from EPA (2014).

Various criteria can be used to prioritize specific mitigation and adaptation policies, as presented in Table 3.2 and Table 3.3 below. Agreement on the criteria to guide the prioritization exercise is also a key step that should be undertaken with stakeholders in a transparent and participatory manner. The criteria chosen should reflect the priorities of the country and ensure alignment of the chosen policies with long-term national objectives.

Table 3.4 below is an example of how some of the criteria identified in Table 3.3 could be applied to assess and prioritize a set of proposed measures relevant to an NDC goal or objective for adapting to climate change in the agricultural sector.

The example looks at adaptation actions for the agriculture sector but could be tailored to include any set of proposed measures (adaptation or mitigation or sectoral or crosscutting) and applying any relevant criteria. Such tools are particularly useful to generate consensus and buy-in in a multistakeholder setting, as they first require discussion of and agreement on what criteria are relevant.

It can be beneficial to assess how prioritized practices that reduce emissions of greenhouse gases can help increase resilience to climate change impacts, and vice versa. See Box 3.4 below for an example of synergies between mitigation and adaptation policies in the agriculture and forestry sectors.

TABLE 3.3 CRITERIA FOR PRIORITIZING ADAPTATION POLICIES

Criterion	Possible Subcriteria
Timing/urgency	• Accelerate actions whose further delay could increase vulnerability or lead to increased economic or social costs at a later stage or reverse human development gains.
Feasibility	• Ensure - alignment with national economic and development priorities and objectives; - social and political acceptance; - stakeholder support; and - technological feasibility.
Benefits and costs	• Determine cost of proposed strategies, including human and other resources and, where relevant, economic costs and benefits. • Assess whether the strategies would have negative or positive impacts on other sectors or systems, including on vulnerable populations or the environment and ecosystems, or synergies with other multilateral environmental agreements. • Increase women's economic returns and reduce their workloads
Efficacy	• Evaluate - the extent to which the measure can reduce risk; and - the extent to which efforts are relevant to projected climate risks and impacts.
"Low regrets"	• Evaluate the extent to which the action will have a positive result even if climate change impacts do not occur. Such measures are especially useful when the type or degree of climate change impact is still highly uncertain.
Flexibility	• Favor measures that allow for adjustment or change in the future if climate change impacts are different from what had been expected.
Other	• Ensure that actions - have been shown to be effective in other jurisdictions; - are measurable; - are expected to result in fair distribution of impacts across society; - are expected to expand and entrench support by domestic constituencies; - align with long-term adaptation goals in the Paris Agreement; and - synergize with mitigation policies.

Source: Adapted from UNFCCC (2012a).

A number of decision-support tools exist to help countries evaluate potential policy instruments. These tools include cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), and multicriteria decision analysis (MCDA), among others. These tools are best employed using participatory approaches that engage all key stakeholders. Use of these tools can help decision-makers prioritize options by providing qualitative and quantitative data on the efficiency, acceptability, and impacts of options. See Table 3.5 for a comparison of these approaches.

In addition to the consideration of the decision-making frameworks, it is particularly important to ensure that the prioritization of measures takes into account the necessary long-term transitions to meet the goals of the Paris Agreement. An NDC can be met in many different ways; for example, an emissions target could be met by substituting natural gas for coal power generation and improving the efficiency of conventional vehicles—locking in emitting infrastructure—or it could be met by switching to carbon-free electricity and electrifying the transport sector—locking in infrastructure consistent with long-term decarbonization.

To support the selection of appropriate policy measures that will transform economies toward long-term decarbonization, decision-makers may want to expand the evaluation of policy options to consider not only linear trajectories but also more

complex, nonlinear, or unintended results and policy interactions. While it will be critical to advance major decisions that can more immediately lead to the desired impacts, it is also important not to overlook smaller changes in policy settings and calibrations that build up over time to result in larger-scale change that either reinforces or counteracts carbon-intensive behavior (Levin et al. 2012). See Box 3.5 for an example of how China is prioritizing its policy measures to implement its NDC.

3.4 Assessing the Human and Information Capacities Required for NDC Implementation

Building capacity to support effective NDC implementation represents a significant challenge for most developing countries. Understanding capacity gaps is an indispensable first step to developing a plan to build capacity in both the short and long terms. Countries should assess the capacities they need to implement their NDCs by identifying the types of activities involved and determining the capacity requirements for each activity.

TABLE 3.4 ASSESSMENT OF ACTIONS FOR ADAPTING TO CLIMATE CHANGE IN THE AGRICULTURE SECTOR

Proposed Meassures	Low Cost?	Technically Feasible	Additional Positive Benefits (Social, Economic, Enviromental)?	Likely to Be Effective?	Achievable in the Short-, Medium-, or Long-Term?
Provide forecast and information on water availability	Variable	Yes	Yes	Yes, if information is used for decision-making	Short
Develop improved varieties and genetic seed banks	No	Yes	Depends	Yes, though testing will be needed	Long
Create public-private partnerships to coordinate and mobilize resources	Variable	Yes	Yes	Not all the time	Medium
Introduce agroforestry systems	Yes	Yes	Yes, positive environmental impacts	Yes	Medium
Improve post harvest storage and management	Variable	Yes	Yes	Somewhat, has to be done in conjunction with resilient seed	Short-Medium
Strengthen lockal technical capacities (e.g., best practies)	No	Yes	Yes	Yes, if designed appropriately	Short-Medium
State-led public policy on agriculture, nutrition, food security	No	Yes	Posible positive health benefits	No, not most of the time	Long
Improve water resources management	Variable	Yes	Yes	Yes, if done correctly	Short-Medium
Improve irrigation	Yes	Yes	Yes, for example could reduce confilict over water by increasing efficiency of use	Yes, but depends on how much is done	Medium
Improve land-use planning	Yes	Yes, with data and proper analysis	Yes, if considering other factors	Yes, if enforced	Long

Source: Adapted from Adaptation Partnership (2012).

BOX 3.4 PROMOTING SYNERGISTIC MITIGATION-ADAPTATION POLICIES IN THE AGRICULTURE AND FORESTRY SECTORS

Certain agriculture and forestry management practices have the potential to simultaneously promote mitigation and adaptation. They include agricultural practices that increase carbon sequestration in soils and decrease tillage intensity as well as forestry practices that prevent deforestation (notably through payments for ecosystem services) or restore degraded natural forestland.

Failure to reap the benefits of synergy reflects compartmentalization in policies, institutions, and investment channels. To avoid this, several steps can be undertaken, such as (a) analyzing linkages and trade-offs in the project planning stage, (b) developing project-specific metrics for monitoring progress toward exploiting synergies, and (c) reviewing uncertainties related to potential project outcomes with regard to either mitigation or adaptation.

Source: Bakkegaard et al. (2016).

TABLE 3.5 SELECTED DECISION-SUPPORT TOOLS

Tool	Criterion	Pros	Cons	Application
Cost-benefit analysis (CBA)	Optimality: maximize utility.	Assesses aggregated benefits (across the environmental, social, and economic dimensions) of policy options with a single indicator.	Single solution; difficulty in representing plural values; high level of aggregation; does not allow for inclusion of nonmonetized costs of benefits; assumes all costs or benefits have same impact on society; difficulty in contending with uncertainty; can distort the future.[a]	Well-specified interventions with tangible economic benefits and costs. Determines the net benefits to society (the difference between total social benefits and total social costs) of policy options. Can be applied in conjunction with tools that help value nonmarket goods and services such as social and environmental benefits relevant to the decision-making process.[b]
Cost-effectiveness analysis (CEA)	Least cost: minimize costs of the interventions	Simple approach; does not require that nonmonetary benefits be quantified in monetary terms; fewer subjective elements.	Results in multiple indicators when assessing more than one impact category; requires discount rates.	Well-specified interventions with a primary intended outcome.
Multicriteria decision analysis (MCDA)	Satisfy multiple objectives.	Compares the favorability of policy options based on multiple criteria. Allows for stakeholder participation and consideration of different objectives. Does not require that nonmonetary benefits be quantified in monetary terms; does not require discount rate.	Subjective judgments required, which can hinder replication.	Multiple and systemic interventions involving assessment based on several criteria.

Notes:

[a] Ackerman (2008).

[b] Bakhtiari (2016).

Sources: Adapted from Scrieciu et al. (2014) and ICAT (2019).

In broad terms, countries should assess their capacity across two main dimensions:

- Human capacity: This generally includes two sets of issues. The first relates to the availability of a sufficient number of staff members with the relevant skill sets (technical, management, and participatory skills, ranging from climate science, gender mainstreaming, and results-based management to communication) in the government agencies charged with NDC implementation. The second refers to know-how and to the enabling framework (physical infrastructure, institutional arrangements, and financial means) required to put that know-how into practical use (Bakhtiari *et al.* 2018).

- Information capacity: Quantitative data and other types of information are required to determine the most appropriate course of action for NDC implementation. Information capacities can be enhanced by making use of quantitative data already available; setting up new data collection mechanisms; and collecting qualitative data through expert workshops, interviews, and surveys. A combination of all three types of mechanisms is likely to be required.

Some countries outline their constraints, gaps, and related financial, technical, and capacity needs in the NDC or other relevant national plans (including national communication or the NAP process). Where available, these documents can be good entry points for identifying capacities that need to be strengthened, rather than starting from scratch. Experiences with previous national and sectoral climate change strategies may provide insight into the extent of stakeholder consultations required (UNITAR 2013).

BOX 3.5 CHINA'S NDC IMPLEMENTATION PROCESS

China submitted its first NDC on June 30, 2015, including the following targets: (1) achieve peak carbon dioxide emissions by 2030 and make best efforts to peak early; (2) lower emissions per unit of GDP by 60–65 percent from the 2005 level; (3) increase the share of nonfossil fuels in primary energy consumption to around 20 percent; and (4) increase the forest stock volume by around 4.5 billion cubic meters compared to the 2005 level.
To achieve its NDC targets, China's implementation process included prioritizing policy measures in 15 areas: (1) national strategy, (2) regional strategy, (3) the energy system, (4) the industrial system, (5) construction and transportation, (6) forest carbon sinks, (7) lifestyles, (8) resilience, (9) development model, (10) technology support, (11) finance support, (12) emissions trading, (13) statistical accounting, (14) social participation, and (15) international cooperation.

Early progress has been promising. China is expected to exceed the target of 40–45 percent of national appropriate mitigation actions by 2020. On the energy front, the share of nonfossil energy in primary energy consumption has reached 13.3 percent, and the installed capacity of renewable energy power generation has reached 558 million kilowatts; generating capacity reached 1.49 trillion kilowatt hours, accounting for 24.8 percent of the total generating capacity. In terms of forestry, the amount of forest reserves has increased by more than 2.68 billion cubic meters compared to 2005, exceeding the 2020 target in advance. Policy frameworks have been gradually established and improved to support the achievement of the NDC targets. All 31 provinces (autonomous regions and municipalities, excluding Hong Kong, Macao, and Taiwan) have completed provincial plans. Sectors as wide-ranging as industry, energy, construction, transportation, and forestry have issued special plans, work plans, or implementation plans to address the goals stated in China's NDC. Despite early efforts, implementation of the NDC remains an ongoing effort, with particular need to maintain coordination across all relevant ministries and departments.

Source: GIZ China personal communication (2019).

Countries can harness a wealth of experiential learning, including the following:

- National capacity self-assessments supported by the Global Environment Fund and undertaken by the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP)[10]
- Capacity assessments under the Climate Investment Funds' Pilot Program for Climate Resilience (AFDB n.d.)
- The capacity development program of the Food and Agricultural Organization (FAO n.d.)
- UNDP and UNEP's NAP Global Support Programme and the Integrating Agriculture in National Adaptation Plans (NAP–Ag) capacity development approaches under the NAP process.

Box 3.6 provides an example of a skill gap assessment undertaken in Niger.

[10] For further information, see the UNDP's catalog of "NCSA Final Reports, Action Plans and CCR," [h]ttp://www.undp.org/content/undp/en/home/librarypage/environment-energy/integrating_environmentintodevelopment/ncsa-final-reports--action-plans-and-ccr.html.

Such an assessment may enable countries to identify existing mechanisms they can use to fulfill relevant functions, rather than creating new mechanisms or institutions and exacerbating existing capacity issues. Aligning implementation of development and climate priorities (see Chapter 2) and coordination groups may also help reduce unnecessary burdens on existing institutions and increase effectiveness.

When identifying how the capacity of key government actors and institutions can be strengthened, it is also important to consider how local actors, such as research organizations, academics, universities, and civil society, can play a role in filling capacity gaps. Often these actors will have specific technical expertise and data that can support government efforts in NDC implementation. Creating opportunities for partnerships between government agencies and local organizations and secondments for individuals within government can help build long-term capacity. Similarly, when undertaking training programs for government staff, it is advisable to consider including a broader set of actors. Options to do so range from strengthening existing national curricula and training systems to organizing generic awareness-raising and education campaigns (Bakhtiari ***et al.*** 2018).

See Appendix A for a list of select support programs for NDC implementation.

BOX 3.6 IDENTIFYING SKILLS GAPS IN NIGER

Before launching its NAP, Niger worked with UNDP, the United Nations Institute for Training and Research (UNITAR), and the Global Water Partnership on a stocktaking report and recommendations for a roadmap for advancing the NAP process. The approach to understanding capacity development was based on the three-level institutional structure drawn from the UNDP capacity development framework.[a] That framework identifies three levels of capacity: the individual, the organization, and the enabling environment (or "system level"), which includes the political, social, economic, policy, legal, and regulatory systems within which organizations and individuals operate.

Niger developed a skills assessment framework that identifies technical, management, and participatory skills required for the NAP process. It also prepared a tool that identifies the skills that climate-related personnel need to have.[b]

Notes:

[a] UNITAR (2015).

[b] UNITAR (2015).

Source: Mackay et al. (2015).

3.5 Assessing the Institutional Framework and Identifying Roles and Responsibilities

An institutional framework is the set of formal organizational structures, rules, and informal norms that enable a government to manage climate change. It typically involves a lead oversight body (responsible for coordination and quality control), independent regulators (nongovernmental body entrusted with supervisory tasks), and executive and legislative bodies.

Identifying roles and responsibilities

One of the challenges that countries may face in undertaking NDC implementation is overcoming existing deep-rooted policy directions that may trump efforts to implement common policies under the NDC. A government agency in charge of transport policy, for example, may push to expand the road network rather than improve public transit. Such trade-offs need to be examined and conflicting policy objectives addressed. A lead NDC oversight and coordination body is well placed to lead the task of resolving any conflicting policy objectives—making sure to engage public and external stakeholders.

Responsibilities for NDC coordination may include the following:

- Preparing, when necessary, an NDC implementation plan and monitoring its implementation.
- Attracting international financial support for implementation of the NDC.
- Establishing means of coordination and identifying areas of coordination (e.g., implementation of actions, transparency, finance, capacity-building, technology transfer, gender equality, etc.).
- Creating adequate enabling conditions for actions.
- Setting up procedures for decision-making and stakeholder engagement.
- Maintaining strong political will at the highest levels by providing leadership for the implementation of the NDC.
- Engaging national statistics institutes to centralize and authorize data, identify and collect gender-disaggregated data, and manage information related to climate change.
- Ensuring coordination with the NAP steering mechanism and SDG coordination frameworks, as applicable.
- Guiding and monitoring progress toward NDC goals.

Given the crosscutting nature of NDC implementation and need for political buy-in at the highest levels, it may be beneficial to consider attributing such responsibilities to the prime minister or president's office and/or ensuring joint responsibility of finance and planning ministries. Engaging the ministry of finance is key to ensuring alignment of national budget frameworks with both the NDC and SDG agendas and to developing fiscal, regulatory, and financial incentives that can spur private actors to shift toward sustainable investments. It is also important to engage

ministries not traditionally associated with climate change policy, such as gender, social development, and health, and to engage a cross section of stakeholders from different sectors, interest groups, and socioeconomic levels. In Cambodia, for example, a representative of the Ministry of Women's Affairs is a member of the National Climate Change Committee. The ministry has contributed gender assessments of sectoral climate change strategic plans in agriculture, forestry, fisheries, and other sectors (Ministry of Women's Affairs 2014).

Additional considerations regarding accountability and authority lines will be influential in the ultimate effectiveness of the bodies charged with or established for the purpose of NDC coordination.

A number of possible questions may inform these decisions:

- To whom does the body report?
- Does the body play a ministerial or advisory role?
- Does it have authority to make decisions about the allocation of funds and other issues?
- Can it stipulate provisions for specific roles and responsibilities?
- Should decisions of the body be made public?

To be effective, the body charged with NDC coordination should have the authority to address coordination dysfunctions, including duplication of activities, inequitable distribution of national and international resources, and poor access to information and knowledge.

To promote transparency and help set expectations, the roles and responsibilities of the body charged with oversight and coordination should be documented and publicly accessible, or set through explicit legislation (refer to Section 3.6, which examines the legal and regulatory framework for NDC implementation). Establishing coordination mandates through legislation can be an effective strategy to ensure transparency, independence (from political and private influence), and the necessary accountability mechanisms (see Box 3.7).

Reviewing and strengthening the institutional framework

Reviewing and, if necessary, strengthening the institutional framework is a precondition for the successful implementation of an NDC, and will be critical in enabling countries to enhance their action over time through subsequent NDCs. An institutional framework "fit for purpose" to support NDC implementation can be based on the following strategies (Sands and Peel 2012):

- Build on existing institutions, strengthen existing structures, and use experience from related planning processes. Changes in roles and responsibilities within existing institutional structures may be necessary.
- Identify or establish a coordinating body to manage and enhance cooperation for a whole-of-government approach.
- Ensure that laws mandate the stable and transparent operation of the institutional framework.
- Establish mechanisms for public participation to facilitate dialogue among stakeholders and promote coordination.
- Create incentives, avenues, and accountability mechanisms for the cooperation and participation of line ministries, regional authorities, elected bodies (including parliaments and municipal councils), and nongovernmental actors, including women's organizations.
- Integrate gender and minority perspectives into the institutional framework.
- Fill capacity and information gaps.

A stocktaking of existing institutional arrangements should be one of the first steps the lead NDC oversight and coordination body can undertake in

BOX 3.7 INSTITUTIONAL ARRANGEMENTS IN GHANA

To support with the process of creating institutional arrangements for NDC implementation, Ghana's Ministry of Environment, Science, Technology, and Innovation, the UNEP DTU Partnership, and UNEP conducted a study of existing public administrative arrangements to better understand their structure, legal mandates, roles, and responsibilities in connection with supporting NDC implementation. The desktop studies, online surveys, a stakeholder workshop, and a third-party technical review helped identify gaps and challenges the institutions foresaw and enabled them to recommend improvements to more effectively implement NDCs. For instance, a survey question on ways to change institutions to respond to NDC mandates led the majority of institutions to recommend setting up a climate change desk, office, or contact person to promote the efforts of NDC planning and implementation in the sectors.

Another highlight of the study was the analysis of institutional mandates. For example, once climate change actions are included in Ghana's medium-term plans—prepared by the National Development Planning Commission—the line ministries and local government are required to include them in their respective annual plans and budgets. Similarly, to make budgeting systems more response to climate change, the Ministry of Finance issues budget guidelines for the ministries, departments, and agencies, as well as for metropolitan, municipal, and district assemblies. This country example shows the importance of analyzing institutions' processes to plan, prioritize, budget, implement, and report on actions in order to appropriately define roles and responsibilities for each institution that will be involved in the implementation of NDCs.

Source: MESTI (2017).

reviewing the appropriateness of its institutional framework for NDC implementation. This stocktaking involves three core steps:

1. Mapping existing institutions and ministries relevant to NDC implementation (e.g., climate change authorities, sectoral line ministries, planning and finance ministries, gender and social inclusion ministries, ministries charged with SDG implementation, NAP steering mechanisms, subnational governments, etc.).

2. Identifying the current responsibilities of these institutions.

3. Identifying current mechanisms for coordination among them.

Based on this mapping, institutions and ministries relevant to the implementation of the NDC can be identified. Examples of relevant institutional approaches to NDC implementation are explored in Boxes 3.8 and 3.9.

Following the initial mapping of existing institutions and roles, countries should assess where the institutional framework may need to be strengthened to respond to the needs of NDC implementation. This may include strengthening existing mandates for information sharing and data collection, coordination, monitoring of progress and budgeting, or creating new mandates that are specific to NDC implementation.

BOX 3.8 SETTING UP INSTITUTIONAL FRAMEWORKS IN KENYA, SWEDEN, AND COLOMBIA

Kenya's Climate Change Act of 2016 provides a legal framework for climate action in the country, as well as the mandate for climate-related institutional arrangements. Implementation requires action by most ministries, with leadership resting with the president. The National Climate Change Council, which brings together a wide range of representatives of national stakeholders (including representation from marginalized populations, civil society, and academia), acts as a consultative body to the government. There has also been increasing collaboration between the Climate Change Department in the Ministry of Environment and Forestry and the Ministry of Devolution and Planning, which leads implementation of the SDGs. Kenya's Strategy for Mainstreaming Gender in Climate Change establishes a framework for incorporating gender concerns into all policies, programs, and actions. It is a parallel document to the Kenya Climate Change Action Plan, which mandates gender mainstreaming in all implementing bodies and governance structures of the national government body in charge of climate change management. One of the key objectives of these institutional arrangements is the decentralization of climate action and the incorporation of subnational authorities in NDC planning efforts—including the National Climate Change Council. County chairmen sit on national committees to facilitate communication and ensure an integrated, multilevel governance approach. Kenya is also running a campaign to have all counties devote at least 5 percent of their budgets to climate change.

Sweden's institutional framework relies strongly on county administrative boards, which collaborate with relevant regional and local actors to prepare regional climate and energy strategies. To develop the 2002 and 2008–9 legislative packages on climate change, the government relied on agencies such as the Swedish Energy Agency and the Swedish Environmental Protection Agency, which prepared studies about past performance that informed the development of new policies. Subsequently, an ad hoc, cross-party parliamentary committee produced a policy proposal. A board that included a range of authorities and stakeholders provided feedback on the proposal. This structure allows all draft government bills to be circulated to the relevant entities before they are discussed and voted on in parliament. This inclusive decision-making approach results in a high degree of agreement about climate change policy.

In 2016, following the Paris Agreement, Colombia's Decree 298 established the country's National Climate Change System (SISCLIMA).[a] This system is comprised of government, private, and nonprofit entities involved in the management of climate change mitigation and adaptation in the country (e.g., through policies, resources, planning, information generation, etc.). It is coordinated at the national level by the Intersectoral Commission on Climate Change, and at the territorial level by nine regional nodes. It also comprises five committees (Technical, Financial, International Affairs, Information, and the Advisory Council). SISCLIMA coordinates public and private sector climate change efforts at the national, regional, and local levels; articulates climate change plans in the context of economic, social, and environmental development; identifies and promotes climate change mitigation and adaptation opportunities; harmonizes climate change monitoring efforts; and promotes citizen participation in climate change efforts.

Note: [a] IDEAM (2014).

Sources: UNDP (2018a); OECD (2014a).

BOX 3.9 PERU'S MULTISECTORAL WORKING GROUP TO COORDINATE NDC IMPLEMENTATION

Peru's Ministry of Environment (MINAM) has led a process of institutional change to allow key sectors to contribute to the country's NDC implementation. An NDC Multisectoral Working Group (GTM-NDC) has been established, integrating 14 government entities. The GTM-NDC is in charge of generating NDC-related information and is coordinating the development of sectoral action plans, which will describe the mitigation and adaptation measures to be implemented in the country. As part of the working group, four specialists—supported by UNDP and housed at the Ministries of Transport and Communications, Housing Construction and Sanitation, Agriculture and Irrigation, and the Forest and Wildlife Service—generate information for the design and implementation of prioritized measures. The GTM-NDC has identified 61 mitigation measures and 96 adaptation measures and has also identified key actors and enabling conditions for their implementation. A public consultation process called "Dialoguemos" (Let's talk) has contributed to this work by involving other stakeholders in the NDC process.[a]

Note: [a] See Ministerio del Ambiente (n.d.).
Source: UNDP (2018a).

3.6 Assessing the Legal and Regulatory Framework

A country's legal and regulatory framework consists of the infrastructure (mechanisms, instruments, and institutions) necessary to support the control, direction, or implementation of a proposed or adopted course of action. In the case of NDC implementation, it is the framework that enables a country to implement its international obligations as well as other national priorities related to emissions reduction and adaptation to climate impacts. The framework includes the development of proposed or adopted actions, rules, principles, or laws while supporting a process for their guidance, implementation, and monitoring.

Countries should review their regulatory frameworks to ensure that these can help drive NDC implementation and bring about the agreed policy objectives (see Section 3.3).

Each country will have a unique legal and regulatory framework that will reflect its history, legal tradition, and form of government. Key elements to consider when reviewing a country's legal and regulatory framework relevant to NDC implementation include the laws, decrees, acts, judicial decisions, and administrative rulings that govern public policy with regard to mitigation of and adaptation to climate change.

Legal and regulatory instruments can play a number of crucial roles in responding to climate change and ensuring robust and effective governance systems. These include, but are not limited to

1. determining the appropriate legal status of entities expected to play different roles in implementing climate policy;
2. establishing mechanisms for strengthening coordination among key line ministries (e.g., energy, health, infrastructure, transportation, and agriculture);
3. harmonizing or laying out common objectives and clarifying roles and responsibilities vis-à-vis those objectives;
4. ensuring public participation in decision-making processes (e.g., through mandatory consultation processes and periods and/or multistakeholder advisory committees);
5. ensuring access to information and relevant data for climate change (e.g., requiring information sharing within government and mandating that relevant climate data be made accessible to the public);

6. ensuring budget allocation for climate priorities and monitoring and evaluation of expenditure against those priorities (e.g., establishing compliance mechanisms to review sectoral budgets against policy or budgetary objectives); and

7. establishing mechanisms to monitor and evaluate the results and to regularly review instruments with a view to determining if any adjustments are needed.

Legal and regulatory frameworks for climate change take many forms but can be grouped into two main categories: (1) comprehensive legislation, such as national framework climate change laws, or (2) sectoral or thematic laws, such as energy laws, or climate risk-management laws. Countries with national framework legislation on climate change often have additional sectoral or thematic legislation to support the implementation of the general provisions or principles established in the framework legislation; many countries will only have sectoral or thematic legislation. See Box 3.10 for an overview of the approaches followed by Mexico, the Philippines, and South Africa to developing frameworks to guide decision-making on climate change.

Reviewing the regulatory framework is challenging because it entails a range of intertwined elements, including policy objectives and institutional structures and processes (see Box 3.11). Not unlike the steps outlined above (Section 3.5), it requires a mapping of existing (versus required) regulatory provisions, as well as an assessment

BOX 3.10 EXAMPLES OF FRAMEWORKS IN MEXICO, THE PHILIPPINES, AND SOUTH AFRICA

In April 2012, the Mexican government passed the General Law on Climate Change, one of the most holistic regulatory arrangements for climate change. It provides a framework for all institutional and financial aspects of climate change mitigation and adaptation. In addition, it sets Mexico's emissions reduction target for 2030 (22 percent reduction in emissions below baseline levels). The law makes climate change a long-term priority for the country by requiring future governments to abide by it. In 2018, Mexico revised its General Law on Climate Change to align it with the Paris Agreement, making it the first country to bring its law into conformity with the accord.

The Climate Change Act of the Philippines, adopted in 2009, explicitly highlights the linkages between mitigation and adaptation goals and targets. It stresses the need for coordination between adaptation and disaster risk-reduction policies. The act underlines the need to amend relevant legislative acts to ensure a regulatory framework conducive to implementing policies that reflect the above linkages. It also establishes a strong gender mandate. A complementary law, the Disaster Risk Reduction and Management Act, commits the country to "conduct early recovery and post-disaster needs assessment institutionalizing gender analysis."

In 2011, South Africa adopted its National Climate Change Response. This document provides the framework for all climate change actions in the country, setting out both conditional and unconditional mitigation targets, as well as South Africa's climate change adaptation goals. Its role is similar to that of the National Climate Change Response Strategy in Kenya and the Climate Change Act in the Philippines, although South Africa's response is not a law but a white paper. Nonetheless, it mandates that all state-owned enterprises and governmental departments review their policies regularly to ensure that concerns about climate change are integrated into all governmental policies and plans.

Sources:
IDLO (2012);
OECD (2013c).

of a more qualitative nature, which helps identify (and eliminate) inconsistencies and contradictions. The existence of implementation barriers must also be evaluated. Implementation barriers may be faced by existing as well as proposed legislation or regulation. In understanding potential barriers to implementation, it is necessary to distinguish between direct and indirect legal and regulatory intersections for climate (Worker and Northrop 2018).

- Direct intersections encompass those laws that explicitly address climate change policy, such as climate targets or renewable energy regulation, or consider climate change within a separate legal framework, such as transportation or planning.

- Indirect intersections include laws or policies that are focused on pursuing a different regulatory function, such as land management, corporate accountability, and financial disclosure, or even procedural aspects, such as government procurement regulations, but that nonetheless can significantly affect or potentially undermine a country's ability to achieve its mitigation and adaptation goals.

It is also necessary to review permitting procedures, existing laws, and investment frameworks at the relevant sectoral and jurisdictional levels. This review, in the context of a country's NDC implementation, may build on existing reviews under other processes. For instance, many countries using the UNFCCC-endorsed NAP approach for adaptation planning are working to improve the regulatory framework as a priority activity under the NAP advancement process.

Once gaps or barriers in the regulatory framework are identified, changes can be introduced to address them. See Box 3.12 for several examples of how countries are approaching this effort. Approaches can take the form of amendments to existing legislation, introduction of new legislation, or both. Consideration must be paid to whether the objective that is being sought would be most efficiently and effectively achieved through legal means or whether a policy-based option would be more suitable. While economy-wide framework legislation is often the aspiration, this may not be politically feasible and is not a guarantee of achieving the NDC (Worker and Northrop 2018).

BOX 3.11 STEPS IN REVIEWING THE LEGAL AND REGULATORY FRAMEWORK

1. *Screen climate and nonclimate laws and policies for their appropriateness for implementing the NDC*. This includes whether the legal and regulatory framework contains the necessary policy instruments to achieve the NDC (see Table 3.1) and whether it establishes and supports the institutional structures and stakeholder engagement required for NDC implementation (see Sections 3.5 and 3.7).
2. *Examine implementation barriers*. Review of the regulatory framework offers the possibility to break down implementation barriers related to existing and upcoming sector-specific legislation and/or departmental rules and procedures.
3. *Integrate the regulatory framework into development processes*. A comprehensive regulatory framework will integrate the NDC into sectoral and economy-wide development plans and policies.

BOX 3.12 EFFORTS TO ALIGN NATIONAL REGULATORY FRAMEWORKS WITH THE PARIS AGREEMENT

Bhutan has completed its combined Biodiversity and Climate Public Expenditure and Institutional Review (CPEIR) based on Biodiversity Finance (BIOFIN) and CPEIR frameworks. This review drew on the recommendations of a prior Public Environmental Expenditure Review and will be institutionalized within the Ministry of Finance to periodically track expenditures related to climate and biodiversity. Comprehensive costing of Bhutan's National Biodiversity Strategy and Action Plan (NBSAP) complements the reviews. The country's NDC is expected to outline strategies and investment frameworks for Bhutan, including innovative financing options.

In Bolivia, a review of policy and strategic documents on climate change was carried out in the context of the country's NDC. The review includes an analysis of progress on climate change from 1994 to the present, a revision and systematization of national and sectoral climate change policy documentation, and a proposal for a climate change policy that includes 17 guidelines in accordance with Bolivia's 2012 Law 300 titled "Framework Law of Mother Earth and Integral Development to Live Well" and the corresponding institutional structure.

The Lao People's Democratic Republic (PDR) has recently developed and approved a Disaster Risk Management (DRM) Law, and the country is currently working on a Climate Change Decree. These will strengthen the Lao PDR's policy and regulatory framework and will be aligned with the country's NDC. In 2016, following the Paris Agreement, several consultations for disaster risk management and climate change were held to improve key stakeholders' understanding of the Agreement and how the Lao PDR's NDC affects different sectors. The consultations served to raise awareness of disaster and climate issues at the national, provincial, and district levels. The DRM Law and the upcoming Climate Change Decree will serve to ensure policy coherence, specify mandates, engage stakeholders, and account for gender considerations in implementing the NDC.

Source: UNDP country offices.

3.7 Engaging Stakeholders

Stakeholder engagement is necessary to establish a two-way information flow between government agencies and the public on climate policies that can identify vulnerabilities, stakeholder concerns, and how different policies may distribute benefits and costs across the population (Worker and Northrop 2018).[11] Broad and inclusive participation of stakeholders in decision-making can support credibility and legitimacy for the NDC and increase the likelihood of achieving the targets. Given the potential for trade-offs to occur across policy objectives, it is critical to have the support of those likely to be affected. Stakeholder engagement can also enhance awareness about the challenges and opportunities associated with climate change. It can help policymakers obtain relevant information that only certain stakeholders may be able to provide. See Box 3.13 for an example of how Lebanon has engaged business.

Strong engagement of stakeholders can be built through careful planning, appropriate budgeting, coordination, relationship-building with key messengers, and an iterative, flexible approach. See Box 3.14 for an example of how Mongolia is engaging stakeholders. Worker and Northrop (2018) identify the following components of good practice in developing long-term and effective modes of engagement:

1. Develop a draft plan with clear objectives, opportunities for influence, and timelines, and make the draft plan publicly available for feedback. Include any institutions or stakeholders who are critical for it to be perceived as legitimate and well-informed.

2. Recognize that public participation is likely to raise concerns that fall outside of one

[11] Stakeholders may include individuals, civil society organizations, academia, the private sector, and subnational governments.

BOX 3.13 LEBANON'S INNOVATIVE APPROACH TO ENGAGING BUSINESS IN CLIMATE CHANGE

Lebanon has developed an innovative stakeholder engagement model by launching the Lebanon Climate Act, which stipulates the establishment of a network of companies and institutions actively engaged in climate change efforts. The act provides "a space for businesses to showcase and support climate action and, through concrete initiatives and multistakeholder approaches, contribute in a sustainable and profitable manner to a strong and effective response to climate change." Lebanon has also developed a guidebook for businesses, *How to Create Value from Climate Change: A Guide for Your Company in Lebanon*. The whole initiative follows a model that seeks to identify and support champions.

Sources: Lebanon Climate Act (2016); European Commission and Lebanon Climate Act (2017).

BOX 3.14 MONGOLIA'S WHOLE-OF-GOVERNMENT APPROACH TO NDC IMPLEMENTATION

In Mongolia, the government is taking an unprecedented whole-of -society approach to coordinating on NDC implementation and ensuring that all stakeholders are kept informed of progress and how it impacts them.

To generate national support, the Ministry for Environment and Tourism (MET) first brought together 200 stakeholders from across government, business, civil society, and development partners in October 2017 to chart a path for NDC implementation. The forum laid the groundwork for a comprehensive climate action plan, approved one year later. Mongolia plans to use the NDC Partnership Plan to integrate climate policies, programs, and budgets across government and align these with the country's Sustainable Development Vision 2030. Development partners will work with ministries on improving climate governance, accessing climate finance, and building transparency and capacity in delivering programs and projects.

With support from the NDC Partnership, the government of Mongolia has tasked the MET with setting up the National Climate Committee and a supporting technical working group to coordinate all climate activity. Chaired by the minister of environment and tourism, the committee will include cross-government, civil society, and private sector members. The working group will cast its net even wider, also including government stakeholders, development partners, and academic organizations.

In addition, the NDC Partnership is supporting development of an online platform for the government to share key information on climate actions and progress. The goal is to improve coordination across all levels of government and with development partners.

Source: NDC Partnership (2019).

agency's jurisdiction and that coordinated approaches from implicated agencies can address these concerns.

3. Identify governance arrangements for ensuring accountability in implementing the plan, publicizing feedback, and providing responses to input.

4. Identify and map stakeholders and groups, including
    a. communities, groups, and individuals whose communities, livelihoods, or health are vulnerable to expected climate impacts (or who have historically been marginalized);
    b. stakeholders who are likely to be directly affected by climate policies;

c. local institutions and authorities who are respected and have credibility with specific stakeholder groups; and
d. those who have legal or customary claims to land, forests, or other resources that may be affected.

5. Create an information and communications campaign prior to beginning the process so as to build awareness and understanding of how the NDC relates to national policy and affects key groups.
6. Ensure that participation occurs early in the NDC implementation process and that there are frequent opportunities across a range of geographies and times of day, and that accessibility concerns have been addressed (multiple locations and times of day or virtual participation). For instance, having a few large forums in a capital city is not adequate.
7. Record, respond to, and publish public input to build trust in the process.

BOX 3.15. EXAMPLES OF STAKEHOLDER ENGAGEMENT IN NDC DEVELOPMENT AND IMPLEMENTATION

Costa Rica's NDC itself includes a commitment to open government and public participation in achieving its climate goals.[a] As part of the implementation of its open government policy, Costa Rica followed a wide-ranging stakeholder participation process in the development of its NDC, citing as a benefit clearer definitions of the sectoral programs and plans that would be required to meet national climate goals. Costa Rica conducted an external audit of the NDC development process to ensure that it was participatory and inclusive. It convened a national multistakeholder workshop with government departments, international NGOs, and national civil society organizations to identify priority gender and climate change issues and actions. In terms of NDC implementation, Costa Rica has created the open access National Environmental Information System and is implementing an open data policy for climate-relevant data. It has also created two open participation councils, one of which is focused on technical and scientific issues, and a multistakeholder platform to inform climate planning and management. Its permanent Climate Change Citizen Consultation Council brings together citizens' groups, the private sector, and academia to contribute to policies and processes emerging from sectoral workshops.

In developing its NDC, the government of the Gambia arranged workshops for a wide range of stakeholders in each of the country's eight main regions to improve their understanding of climate change and obtain their feedback on the preparation process.

Ghana's NDC implementation plan serves as a governmental blueprint and provides step-by-step guidance on how to translate NDC commitments into costed priority activities to be implemented by sectoral line ministries. The plan also specifies the roles of state and nonstate actors in implementing NDC actions, recommendations for mobilizing and coordinating support, and strategies for tracking and communicating the outcomes of NDC actions and overall progress toward NDC targets. In developing this comprehensive implementation plan, Ghana hosted regional "roadshows" to engage a wide range of stakeholders in the NDC process.[b] The roadshows aimed to exchange knowledge and create NDC awareness among key stakeholders, such as regional government officials, traditional authorities, private sector representatives, civil society, research institutions, and the general public. The roadshows, which covered all regions of Ghana, drew more than 1,000 participants.

Following the Paris Agreement, Paraguay undertook a rigorous and inclusive stakeholder participation process to "unpack" the country's NDC targets, resulting in the identification of 110 specific climate actions to achieve these goals.[c] This effort was undertaken in the context of the global Sustainable Development Goals and Paraguay's National Development Plan 2030 in order to ensure synergies with national development priorities. This process involved representatives from all sectors at both the national and subnational levels, including participation in four regional workshops and two national prioritization workshops held in 2016. The actions have been integrated into a draft NDC implementation plan that focuses on the contribution of sectors, as well as monitoring mechanisms to quantify emissions through a national inventory system.

Stakeholders will have varying levels of knowledge about the NDC process, and the level of involvement of different groups or individuals will also vary. In Vietnam, for example, the national women's union works with the Ministry of Labor, Invalids, and Social Affairs on issues related to education, community affairs, and the capacity-building of women. It worked closely with the ministry to develop a gender and climate change plan for 2017–20 (UNDP 2016a). Smaller, less organized groups with limited resources (such as indigenous groups or representatives of families in low-income neighborhoods) likely have much less time, knowledge, and experience. A stakeholder engagement campaign should take these differences into account. Doing so may require financial support for disadvantaged groups to hire an independent expert who can participate in the consultations on their behalf or to facilitate childcare or transportation to ensure that women are able to attend sessions.

Box 3.15 provides some examples of engagement processes undertaken for developing NDCs.

Samoa has conducted numerous consultations and training workshops to raise the awareness of stakeholders and local communities about the country's NDC, as well as its monitoring plan and Renewable Energy Registry (given the energy focus of the NDC). As part of these efforts, an NDC awareness campaign was directed in particular at primary schools and colleges on the island of Savai'i, reaching over 1,000 students. The campaign aimed to increase younger generations' awareness of Samoa's global climate change commitment, as well as efforts that can contribute to achieving the NDC.

Following the adoption of the Paris Agreement, Sierra Leone's Climate Change Secretariat and Environment Protection Agency (EPA) conducted a large media campaign to raise awareness of the agreement. This campaign consisted of 12 radio discussions and four television programs to educate the general public. It also included training for 50 media practitioners to support effective reporting on the country's implementation of its Climate Change Policy Framework, the Paris Agreement, and the NDC. Among Sierra Leone's other efforts to socialize its NDC was training for teacher coordinators. The objective was to empower teacher coordinators to provide tailored educational messages on the Paris Agreement to students, who in turn would become "ambassadors" in their respective communities. Sierra Leone's EPA also engaged local authorities and communities through the "Village to Village" campaign from April to October 2016, which included documentaries and discussions. Through this effort, communities pledged ownership of the country's NDC.

Chile's HuellaChile platform, launched in 2015, engages organizations in sustainability efforts that contribute to Chile's NDC implementation.[d] Initially conceived just for the private sector, the platform has since been enhanced to promote the voluntary participation of both private and public entities in quantifying, reporting, and reducing their greenhouse gas emissions. The Ministry of Environment, with support from UNDP, encourages organizations' participation through four levels of recognition in managing GHG emissions: quantification, reduction, neutrality, and excellence. The platform offers a free online GHG emissions calculation tool, which is linked to the Ministry of Environment's national Registry of Emissions and Transfer of Pollutants. Outreach events, including training workshops on the calculation tool, were a key component of the development of the HuellaChile platform

Notes:

[a] Ministry of Environment and Energy (2015).

[b] UNDP (2016b).

[c] UNDP (2017c).

[d] Ministerio del Medio Ambiente (n.d.).

Source: UNDP.

3.8 Drafting an NDC Implementation Plan

Whatever process a country decides to undertake to implement its NDC, it may be beneficial to draft an NDC implementation plan to support coordination and ensure transparency. The development of the plan itself does not constitute NDC implementation. It is a tool to support a more effective implementation process, not the end goal.

For countries that do choose to document the NDC implementation plans, this can be a standalone plan or can be integrated throughout other relevant strategies and plans (see examples of each approach in Boxes 3.16 and 3.17).

An implementation plan can be used to

- clearly identify the actions and measures to be implemented;
- define roles and responsibilities of key bodies (e.g., coordination mechanisms, agencies, ministries, departments);
- identify resources (capacity and financial support) available and needed for implementation;
- specify time frames for implementation of specific policies and measures;
- outline expected impacts of implementation policies and actions;
- assess the feasibility and risks of implementation policies and actions;
- identify capacity needs for implementation and gaps in knowledge and data;
- identify necessary regulatory and legal frameworks;
- identify relevant stakeholders and the plan for stakeholder engagement;
- identify coordination mechanisms (for stakeholders within and outside of government);

BOX 3.16 MONGOLIA'S WHOLE-OF-GOVERNMENT APPROACH TO NDC IMPLEMENTATION

Trinidad and Tobago demonstrated its commitment to the Paris Agreement, low-carbon development, and achievement of the objective of 10 percent renewable energy by 2021 by delivering one of the world's first NDC implementation plans. Trinidad and Tobago's NDC Implementation Plan was presented in a public webinar on July 25, 2018, and received a great deal of positive feedback. The plan was developed using a combination of qualitative and quantitative approaches for data collection and analysis, namely:

1. Desk review of climate reports and findings;
2. Stakeholder identification among key high-emitting sectors, such as power generation, transport, and industry;
3. Data collection from stakeholder outreach to assess institutional capacity and capacity-building prioritization, notably by using a participatory, results-oriented self-evaluation (PROSE) approach; and
4. Qualitative data analysis; strengths, weaknesses, opportunities, threats (SWOT) analysis; issue tree analysis for institutional capacity assessments; and rapid feasibility assessment to determine the feasibility of proposed carbon-reduction measures, including nationally appropriate mitigation actions.

Primary components of the NDC Implementation Plan were recommendations made to strengthen institutional arrangements and capacity, and to mainstream climate change issues into existing policy and legislative frameworks to create the enabling environment for NDC implementation. Also included were sectoral plans for three target sectors, the Climate Finance Plan, and the Capacity-Building Action Plan.

Source: Environmental Policy and Planning Division et al. (n.d.)

- specify how progress will be monitored and reported; and
- identify linkages between the policies and actions implemented to achieve the NDC and the SDGs.

Where possible, there should be clarity on the sequencing of policies and actions, including key milestones to track progress and support reporting obligations. However, it is not necessary to include project-level information on individual actions; separate documents could provide detailed implementation information.

BOX 3.17 COLOMBIA'S SECTORAL APPROACH TO PLANNING FOR NDC IMPLEMENTATION

Colombia is taking a sectoral approach to NDC implementation. As part of its Low-Carbon Development Strategy, the country developed eight sectoral mitigation action plans (SMAPs) from 2014 to 2016. These SMAPs served as the sectors' main strategies for putting forward mitigation efforts in line with sectoral development priorities and were instrumental in designing the mitigation component of Colombia's NDC, a 20 percent emissions reduction target. This national mitigation target has since been disaggregated to the sectoral level, with each sector expected to achieve its own 20 percent reduction in emissions.

Upon the approval of the National Climate Change Policy (December 2016) and in the context of SISCLIMA (National Climate System), Colombia is now transforming its SMAPs into integral climate change plans, to be developed and implemented by sectors and territories, including both mitigation and adaptation actions, which will include more clearly defined responsibilities, timelines, and implementation routes to achieve the national-level mitigation and adaptation targets.

Source: UNDP.

Public engagement will be crucial throughout the process. A workshop, or series of workshops, can be convened by the body responsible for NDC coordination and implementation to present the structure of the plan and explain to stakeholders what key information and data will be needed to build the NDC plan (e.g., a description of each policy and action, period of implementation, resources needed, etc.). During the workshop(s), it is essential to clearly identify who will be responsible for preparing and providing pertinent information and data. This will give clarity to all the stakeholders about the information they should prepare and allow them to organize internally. A mechanism for submitting the agreed-upon information and data to the relevant coordinating body should also be agreed to. Stakeholders participating in this workshop(s) would be key representatives from line ministries, regional and local governments, civil society, and the private sector.

Planning for NDC implementation should not be seen as a separate planning process alongside existing ones. It should build on existing planning processes and take into account the priorities identified in other national strategies and plans, such as national climate strategies, national development strategies or plans, sectoral strategies or plans, and national adaptation plans.

The final plan should be endorsed by all stakeholders involved in its implementation, including parliament or similar political institutions to ensure buy-in and support. The plan should also be made publicly available. Through the NDC Partnership, several countries have established

BOX 3.18 VANUATU'S NDC IMPLEMENTATION ROADMAP

In March 2019, Vanuatu released its NDC Implementation Roadmap, which provides the pathway for the implementation of Vanuatu's NDC target to transition to 100 percent renewable energy in the electricity sector by 2030.

A key element of the roadmap is an analysis of the progress made since the NDC was first communicated, and how these measures will result in reducing the gap between Vanuatu's business as usual (BAU) and its NDC target. Based on this update, the roadmap identifies different policy options for achieving the NDC.

The plan includes the following elements:

1. Overview of Vanuatu's NDC
2. Vanuatu's BAU electricity demand scenario
3. Gap analysis
4. Planned renewable energy projects
5. Proposed mitigation interventions
6. Costs and financing
7. The way forward

Vanuatu's NDC Implementation Roadmap is a living document that will be updated when further information and clarity on the various policy opportunities to support implementation become available. This will be informed by the MRV system, which will track progress and provide corrective action necessary to achieve the target.

Sources: Vanuatu NDC Implementation Roadmap (2019).

NDC implementation plans, which can provide helpful examples for other countries. Box 3.18 looks at Vanuatu's NDC Implementation Roadmap; Box 3.19 provides an example from Vietnam.

There is no one-size-fits-all NDC implementation plan, nor should there be, given the unique nature of each NDC and the national circumstances under which it will be implemented. However, drawing from the NDC implementation plans that have been prepared to date, Box 3.20 outlines a set of potential elements that countries can consider including in their NDC implementation plans.

BOX 3.19 VIETNAM'S NDC IMPLEMENTATION PLAN

Vietnam's NDC is comprised of two main components: mitigation of greenhouse gas (GHG) emissions and adaptation to climate change. Accordingly, its NDC Implementation Plan lays out a set of tasks and measures aimed at achieving both mitigation and adaptation. The plan sequences the implementation of these tasks and measures according to two time frames: 2016–20 and 2021–30.

In addition to dedicated sections outlining tasks and measures for mitigation and adaptation, the NDC Implementation Plan includes the following sections aimed at building a supportive enabling environment for implementation:

- Implementation resources: The tasks and measures for human resource development and for development and transfer of technology and financial mobilization needed to ensure attainment of the commitments stated in the NDC. The resources should also include those necessary to take advantage of the opportunities presented by the Paris Agreement to develop the country.
- Transparency system (MRV system): The tasks and measures needed to monitor and supervise the implementation of GHG emissions mitigation, to adapt to climate change, and to ensure adequate resources for implementation.
- Institutional and policy: The tasks and measures needed to develop and revise legal documents and technical guidance; to define the responsibilities of line ministries, sectors, and localities; and to strengthen coordination in handling interregional and interdisciplinary issues.

In the Implementation Plan, Vietnam commits to implement the Paris Agreement on the basis of mutual respect and to promote and take into consideration obligations related to human rights, the right to health, and the rights of local communities, children, the disabled, and those in vulnerable circumstances, as well as gender equality, women's empowerment, and generation equality.

To this end, the Implementation Plan includes a discussion of the impacts of NDC implementation on the economy, society, and the environment, as well as an analysis of the advantages and disadvantages of implementation.

Sources: Government of Vietnam (2016).

BOX 3.20 POTENTIAL ELEMENTS TO INCLUDE IN AN NDC IMPLEMENTATION PLAN

Overview of the NDC

- NDC implementation period
- Sectors included, sectors excluded (and why)
- Data sources and/or scenarios relied upon
- Information on BAU projections and associated assumptions
- Summary of NDC mitigation components (targets, policies, and measures included in the NDC)
- Summary of NDC adaptation components (goals, priorities, policies, and measures included in the NDC)
- Body responsible for overall NDC implementation
- Key institutional arrangements for overall NDC implementation
- Key legal and policy underpinnings of NDC implementation

Proposed interventions underway or planned to implement the mitigation component

- Description of policies, actions, or measures
- Key activities related to their implementation
- Entity responsible for implementation for each activity
- Key stakeholders and institutional arrangements
- Total costs and breakdown of financing sources for each policy, action, or measure
- Capacities required for implementation
- Implementation period and milestones for each policy, action, or measure
- Expected outcomes and relationships to achievement of the NDC
- Risks

Proposed interventions underway or planned to implement the adaptation component

- Description of policies, actions, or measures
- Key activities related to their implementation
- Entity responsible for implementation of policies, actions, or measures
- Key stakeholders and institutional arrangements
- Total costs and breakdown of financing sources for each policy, action, or measure
- Capacities required for implementation
- Implementation period and milestones for each policy, action, or measure
- Risks

Monitoring progress of NDC implementation and achievement of the NDC

- Entity responsible for overall NDC monitoring
- List of key indicators for monitoring progress in NDC implementation (including definition of the indicator, frequency of measurement, entity responsible for data collection, and source of information)
- Description of the institutional arrangements for monitoring and reporting

For more tools and resources, see NDC Partnership (n.d.a).

SELECT TOOLS AND RESOURCES FOR "GETTING READY FOR IMPLEMENTATION"

- *Institutional Capacities for NDC Implementation: A Guidance Document* (Bakhtiari et al. 2018): This nontechnical guide describes the types of capacities needed, identifies areas where developing country government capacities are generally limited, and provides recommendations for building these capacities.
- *Designing and Preparing Intended Nationally Determined Contributions (INDCs)* (UNDP and WRI 2015): This report guides countries in the preparation and design of INDCs, including detailed technical guidance and process-related considerations.
- **"Planning for NDC Implementation: A Quick-Start Guide"** (CDKN and Ricardo 2016): The "Quick-Start Guide" outlines the key steps that countries can go through to implement their NDCs.
- **Global Climate Change Institutional Capacity Assessment Tool** (Climatelinks n.d.): This structured tool assesses an organization's or institution's capacity to address climate change issues. It can be used as a baseline assessment tool to inform assistance and enable an evaluation of impact at a later date.
- **"Guidelines for a Just Transition toward Environmentally Sustainable Economies and Societies for All"** (ILO 2015): These guidelines aim to support progress toward a low-carbon economy while also promoting social protection and the creation of decent jobs on a large scale.
- *Developing a National Greenhouse Gas Inventory System* (EPA 2011): This guide assists inventory teams in assessing and documenting the strengths and weaknesses of existing institutional arrangements and in planning arrangements for future inventory development to ensure continuity and integrity of the inventory, promote institutionalization of the inventory process, and facilitate prioritization of future improvements.
- *Institutional Arrangements for National Adaptation Planning and Implementation* (Adaptation Committee 2014): This thematic report aims to raise awareness of existing institutional arrangements that have been set up to support adaptation at different governance levels, identify the main challenges those institutions face, and highlight key lessons learned from their work that can be drawn upon to identify a set of concrete measures to enhance the effectiveness of institutional arrangements.
- **Systemic Capacity Assessment Tool** (UNDP 2005): This Excel tool walks the user through conducting an assessment of the enabling environment and key capacities of a national or subnational entity.

For more tools and resources, see NDC Partnership (n.d.a).

CHAPTER 4: FINANCING NDC IMPLEMENTATION

QUESTIONS THIS CHAPTER HELPS ADDRESS:

What are the key steps involved in preparing a financing framework for NDC implementation?

What are the lessons learned on tracking climate expenditures and costing an NDC?

What financing flows, solutions, and mechanisms can be considered?

What is the role of the private sector in financing NDC implementation?

4.1 Setting the Stage: Climate Finance Landscape and the Paris Agreement

This chapter broadly outlines the steps, strategies, and lessons learned needed to develop financing frameworks for NDC implementation. While the Paris Agreement constitutes the departure point, the chapter takes a comprehensive look at how countries, the private sector, the financial sector, and our society at large can work together to mobilize new resources for climate action, realign existing expenditures to where they are most needed, invest today to avoid future costs, and deliver better on what has been already provided for. These steps or core components are:

1. Mapping and understanding the governance of climate finance;

2. Tracking public and private climate expenditures and investments;

3. Costing NDC (and other relevant plans), including the investment pipeline; and

4. Devising smart financing strategies for priority interventions.

By the end of the chapter, readers should have a general understanding of the purposes, actions, and challenges of financing NDCs. While steps are presented in a logical order, the sequencing in practice is likely to differ among countries. Building systems and capacities to mobilize, measure, track, and report climate finance is a continuous and iterative process, entailing forward and backward moves, with contextual and time-bound opportunities or shocks. Several supporting and planning tools are referenced through the chapter to allow deeper dives into subject areas. The Climate Toolbox developed by the NDC Partnership contains a detailed catalog[12] of tools, platforms, and advisory support facilities in a searchable database.

Public investment, green fiscal reforms, and international assistance remain the pillar of the climate finance agenda. However, only through a massive realignment of private capital can NDC aspirations be achieved. Unconditional pledges made by governments to date are not adequate to limit global warming to the 2°C threshold (EBRD 2017). Private capital must be mobilized at the national and international level (see Box 4.1), driven by an enabling domestic climate policy and changes in investor and company practices (EBRD 2017). Private capital already constitutes most of the renewable energy investment globally—over 90

[12] See https://ndcpartnership.org/ndc-toolboxfor further information.

BOX 4.1 THE CONTRIBUTION OF THE PRIVATE SECTOR

In most countries it is now cheaper to build wind power plants than coal-fired ones. Financial markets have expanded product coverage and access to finance for climate-related investments made by companies and project developers, ranging from exclusion lists to safeguards to climate-related impact investing. Markets for climate-oriented technologies and products have graduated profitable businesses at scale, but the size of the economic and financial shifts required to reorient our economies to a low-carbon future remains gigantic. Investing in climate solutions and actions is both a risky management strategy and a business opportunity for private capital. Over US$1 trillion has been invested in climate-related projects globally in renewable energy, off-grid solar and energy storage, agribusiness, green buildings, urban transportation, water, and urban waste management. This is largely below what market opportunities are estimated to be. The International Finance Corporation (IFC) has estimated that $23 trillion in climate-smart investment opportunities exist in emerging markets. This figure results from an assessment of national climate change commitments in 21 emerging markets comprising 62 percent of the world's population and 48 percent of global GHG emissions. IFC estimates that the investment potential for new green buildings in Kenya alone will be $1 billion by 2020.

Sources: Based on IFC (2016).

percent in 2016 (IRENA and CPI 2018) and two-thirds of total climate finance in 2015 (CPI 2017).

The contribution of countries to climate change, and their capacity to prevent and cope with its consequences, varies enormously (UNFCCC 2018a). Public finance, domestic and international, remains vital where there is no obvious business case or where political and commercial risks make private investment unaffordable. The Paris Agreement thus foresees financial assistance from Parties with more resources to those less endowed. It both reaffirms that developed countries must continue to provide funding for developing countries to mitigate and adapt to climate change and encourages other countries and actors to provide voluntary support. The necessary investments unfortunately still far exceed the annual $100 billion committed annually by developed countries until 2025. The operation of the Financial Mechanism of the Climate Convention continues to remain partly entrusted to the Global Environment Facility (GEF), while the Green Climate Fund (GCF) has become an operating entity of the Financial Mechanism.

4.2 Mapping the Governance of Climate Finance

More and more countries are developing integrated governance arrangements for climate finance. These arrangements are ultimately about integrating climate change into national planning and budgeting (Figure 4.1 illustrates the governance of climate finance along four dimensions) and creating an enabling environment for private investment. Even if dedicated systems or sophisticated governance arrangements are not yet established, reviewing the existing framework governing a country's climate agenda and its financing will be critical to determining gaps in public finance and opportunities for attracting private finance. Ministries of finance, planning, or economy need to lead or be intensely involved to ensure that NDC-related financing discussions and strategies are linked to actual resource allocations (Stern 2016). Broader coordination comes with fundraising and implementation responsibilities within responsible line ministries according to NDCs' sectorial dimensions. Diverse institutional setups and degrees of decentralization among countries call for

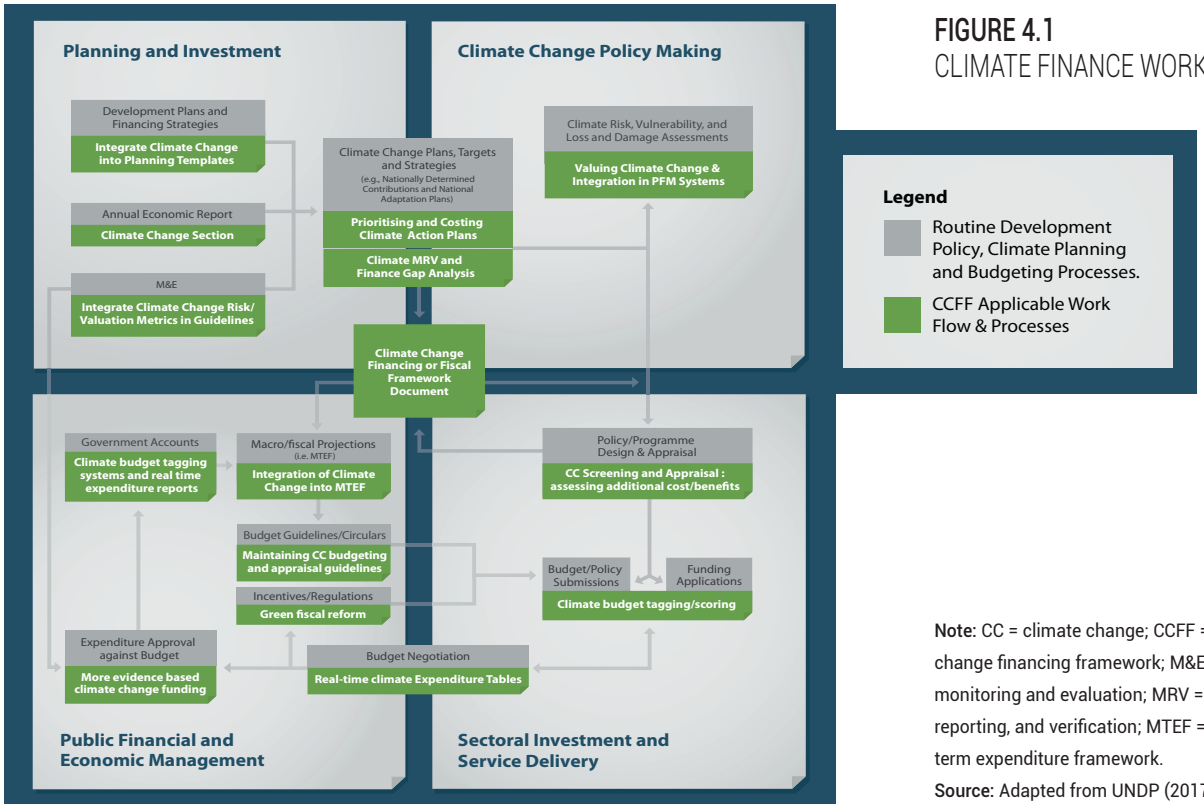


FIGURE 4.1
CLIMATE FINANCE WORKFLOWS

Note: CC = climate change; CCFF = climate change financing framework; M&E = monitoring and evaluation; MRV = monitoring, reporting, and verification; MTEF = medium-term expenditure framework.
Source: Adapted from UNDP (2017a).

highly contextualized governance frameworks. Effective governance is key to avoiding inefficient spending and duplicative processes in investment identification, screening, and accounting, as well as in ensuring that climate financial flows are integrated horizontally across sectors and vertically from central to subnational levels. The analysis of regulatory and institutional arrangements, including the public budget formulation and execution process, is necessary to map existing sources of finance and scope for prospective ones. Investment laws, policies, and regulations relevant to the financing of climate-actions should be also reviewed.[13]

[13] Case studies and examples are provided in Curnow and Hodes (2009).

Where possible, the positive or negative impacts of reforms should be estimated using modeling tools. Green fiscal reforms, for example with introduction or revision of a carbon tax, can lead to fiscal consolidation, spur innovation, and help identify smarter ways to influence consumption patterns, all impacts that can be estimated. Fiscal policies and instruments include reforms of taxes, levies, and subsidies. Chile, for example, has enacted a tax on emissions from boilers and turbines for plants greater than 50MW.

By setting appropriate economic incentives and price signals, green fiscal reforms can help shift consumption and investment patterns.[14] Greening

[14] The Partnership for Action on the Green Economy released an e-course hosted by UNITAR on green fiscal reforms (https://www.unitar.org/event/full-catalog/green-fiscal-reform). The Green Fiscal Policy Network also maintains an extensive database on green fiscal reforms (http://www.greenfiscalpolicy.org/).

BOX 4.2 UNDERSTANDING CLIMATE FINANCE FLOWS

Public Finance (domestic)
Public finance is about the formulation and implementation of fiscal policies; effectiveness in the allocation and management of public resources; the investment policies of public finance institutions, sovereign wealth funds, and state-owned enterprises; and the rules and incentives governing public-private partnerships. In some countries public resources are considerable and rapidly growing, while in others they are severely constrained. Climate expenditures as a share of public spending vary widely but can reach as high as 20 percent in climate-vulnerable countries such as Nepal.

In some countries, a large share of the public budget is channeled by national development finance institutions and state-owned enterprises. For example, Ecuador intends to reach its NDC energy emissions-reduction goal of 25 percent partly through a nationally appropriate mitigation action (NAMA) on optimization of electricity generation and energy efficiency with the state oil company, Petroamazonas.[a] More than 44 countries can rely on sovereign wealth funds, which often are capitalized with revenues from fossil fuels. The Norway Government Pension Fund has started to divest itself of shares in companies associated with unsustainable palm oil production, introducing new investment criteria to filter out companies whose activities entail unacceptably high GHG emissions.

Associated public finance reforms can also support reporting frameworks that foster more targeted, results-based approaches. These include everything from direct climate budget support mechanisms to performance- or results-based schemes linked to, for example, certified emissions reductions and other climate-indexed outcomes. Public finance plays a key role in attracting private investment: it shapes the policies and incentives that in turn shape markets.

Official Development Assistance (ODA) and International Climate Funds (international)
Countries can more ambitiously focus ODA[b] and public international finance on NDC implementation. Negotiations and dialogues with development partners can help direct flows to where existing gaps are greatest or where such funding will be most catalytic. International climate funds have been established to pool and disburse international public finance on climate.[c] The GCF is the largest, with an ambition to allocate US$100 billion a year in climate finance to developing countries by 2020.

fuel subsidies is one of the most obvious and impactful examples: consumer subsidies to fossil fuels stand at $548 billion (IEA 2014) and up to $5.3 trillion (IMF 2015) if all negative externalities are accounted for. Notable examples of reforms include Indonesia, Egypt, and India. Modeling and scenario analysis can also help identify ways to lower the cost of private capital investments, particularly in renewable energy. Tunisia, for example, has identified public de-risking measures to promote private sector investment in wind and solar photovoltaic. For solar, an investment of $54 million was estimated to be able to catalyze €0.53 billion in private investment and lower generation costs from 7.1 euro cents to 5.6 euro cents per kilowatt hour (UNDP 2018).

4.3 Tracking Climate Expenditures and Investments

This step is about mapping climate expenditures and financial flows that are directly or indirectly aligned to NDC goals. This includes a wide array of domestic and external sources, either public or private. Despite the significant ability of tracking and reporting to help align external support to national systems, only a handful of countries have established sound national tracking and reporting. This often starts with conducting public expenditure reviews and building databases on public, private, domestic, and international financial flows (see Box 4.2). Furthermore, the Paris Agreement calls for transparent reporting of climate finance flows.

Climate-vulnerable countries like Zambia, the Philippines, and Cambodia have already prioritized climate change in ODA allocation. Countries can design systems or platforms to track ODA and climate finance. Cambodia's National Council on Sustainable Development, for example, instituted a system for routing and tracking ODA along with ordinary budgetary flows as a pillar of its Climate Change Financing Framework. It uses the criteria for tracking ODA-based climate finance and guidelines to improve the targeting and effectiveness of ODA to advance national strategies, including the National Adaptation Plan.

ODA is also critical to identifying opportunities for government cost-sharing and blended finance approaches. More strategic use of ODA can bring multiple development benefits, for example in biodiversity conservation (SDG 14 and 15) and gender equality (SDG 5). On the latter, 41 percent of ODA allocated to adaptation and 18 percent to mitigation have already included gender equity objectives.

Private Finance (domestic, international)
Financing NDC-related investments at a massive scale will require a behavioral shift in how financial institutions manage climate risks and invest. This paradigm shift is also becoming evident thanks to the actions prompted by the signing of the Paris Agreement, but it remains uncertain. Commercial banks, for example, have pledged up to $200 billion in additional financing for clean-energy investments. BNP Paribas (2017) has announced it will no longer do business with companies primarily involved in oil and gas from shale and/or oil from tar sands. In total, the divestment movement has led wealth and asset managers to divest over $6 trillion from fossil fuels (Arabella Advisors 2018). The largest banks and insurers have started to incorporate climate risk assessments in their practices. Many stock exchanges have joined the Sustainable Stock Exchanges Initiative and introduced mandatory disclosure provisions. The green bond market has boomed from zero in the early 2000s to $1.45 trillion in climate-aligned bonds by 2018 (Climate Bonds Initiative 2018).

Notes:
[a] Ecuador's NAMA seeks to guarantee the efficient use of nonrenewable natural resources in the oil sector through the development and implementation of an innovative management model and construction of an electric power transmission system. This will allow for large-scale introduction of energy from hydroelectric power plants, and gas that is normally flared into the atmosphere will be converted into a local power source.
[b] ODA is constituted by flows to countries provided by official agencies, each transaction of which is administered to promote the economic development and welfare of developing countries and is concessional in character. See the definition and coverage of ODA at www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm.
[c] For an overview of international climate finance sources for mitigation, see UNEP and GEF (2012).
Source: Authors.

Climate Public Expenditure and Institutional Review (CPEIR) has produced detailed information on public financial flows in more than two dozen developing countries. A CPEIR[15] usually also encompasses a review of the climate policy and monitoring framework and budget planning processes, as well as an institutional analysis (see Section 4.2). The core contribution is, however, the quantification of the climate-aligned allocations and expenditure as a share of the total budget and GDP. CPEIRs set a baseline for public spending and highlight patterns and gaps in budgetary allocations. In Latin America, countries have viewed CPEIR as an important entry point to map the mainstreaming of climate into the national development agenda. Table 4.1 shows the diversity of climate-relevant spending as a function of total GDP among key ministries in three Latin American countries.

Public climate expenditure reviews can be turned into routine exercises if integrated in state budgeting processes. This is often referred as "climate tagging" or "climate budgeting." Routine climate budgeting can yield several advantages. Public budgets are an important source of financing for NDCs: at least 20 countries have thus far pledged to finance a share of their NDCs from their national budgets. Indonesia, Nepal, Pakistan, and the Philippines have taken this further and instituted budget markers. In Indonesia, budget reforms have enabled the integration of climate tagging in the public finance management software, allowing climate expenditure reports to be automatically generated. Indonesia's climate budget tagging has been used to identify the project pipeline for investing the proceeds of the country's first $1.25 billion Green Sukuk.[16] Colombia has worked with WRI and its partners on a new system that helps measure, report, and verify how much funding goes toward climate change projects. The system registered over 15,000 climate actions, valued at $9.56 billion from public sources in 2011–17 (Republic of Colombia 2018).

[15] Guidance material includes the CPEIR Methodology Guidebook (UNDP)(www.asia-pacific.undp.org/content/rbap/en/home/library/democratic_governance/cpeir-methodological-guidebook.html)and the CPEIR Sourcebook (World Bank) (www.greengrowthknowledge.org/sites/default/files/downloads/resource/World_Bank_CCPEIR_Sourcebook_0.pdf). A web-based data platform of CPEIRs is available at www.CFADE.org.

[16] "Sukuk is an Islamic bond that can generate returns to investors without contravening Islamic sharī'ah law, which prohibits interest. A sukuk sells a certificate, with proceeds used to purchase an asset that is mutually owned by both buyer and seller." World Bank Group, "Learn about Green Sukuk," https://www.worldbank.org/en/news/infographic/2017/09/19/malaysia-green-sukuk.

TABLE 4.1 SYNTHESIS OF CPEIRS CONDUCTED IN ECUADOR, EL SALVADOR, AND HONDURAS

Country	Institution	Climate Expenditures (percent)
Ecuador	Ministry of Electricity and Renewable Energy	75.8
	Ministry of Agriculture, Livestock, Aquaculture, and Fishing	9.5
	Ministry of Agriculture, Livestock, Aquaculture, and Fishing	8.4
	Ministry of Environment	2.8
El Salvador	Ministry of Economy	31.5
	Ministry of Public Works, Transport, Housing, and Urban Development	27.9
	Ministry of Governance	16.2
	Ministry of Health	14.3
Honduras	National Electric Energy Company.	44.4
	Secretariat of Public Education	23.7

Source: UNDP (2018b).

BOX 4.3 MAKING CLIMATE BUDGETING GENDER-RESPONSIVE IN CAMBODIA, KENYA, AND ECUADOR

Integrating NDC actions into the budget is an opportunity to consolidate and integrate gender-responsive considerations. This involves synergizing how both gender and climate are factored into budget decisions and developing targeted funding windows to address common priorities.a Cambodia, Kenya, and Ecuador were forerunners. Cambodia's Ministry of Agriculture and Forests has screened and appraised climate-relevant programs for climate change and gender responsiveness. Kenya is also developing guidelines to ensure that line ministries formulate projects that are both gender-responsive and sensitive to climate change as part of routine national budget processes. In Ecuador, gender-tagging criteria will be included in the climate-tracking process.

Note:

[a] For guidelines, see Budlender (2014); and UNDP (2016c).

Sources: Authors; UNDP (2017a).

On their own, however, tracking systems are insufficient. Transparency and accountability ultimately means ensuring that allocations generate results. Nonexecutive actors such as civil society organizations, the media, and legislatures can play critical roles in advocating for scaling up climate finance, monitoring spending on the ground, and identifying delivery problems and even misuse of funds. For climate expenditure to be effective and effectively monitored, local governments also need to be given the same opportunity to build capacities, and the same tools to deliver climate finance, as national governments. See Box 4.3.

Accounting for private investment flows is more challenging. Similarly to CPEIR, the Private Sector Climate Expenditure and Institutional Review (PCEIR) was designed to track private financial flows (Oxford Consulting Partners 2015). In Ecuador, private climate spending in prioritized sectors[17] represented close to two-thirds of total private environmental spending in 2014, increasing substantially in percent of GDP from 0.07 in 2010 to 0.56. In Vietnam, it has been helpful to model how pricing reforms could incentivize larger private and foreign investment flows.[18] Other diagnostic methods have been used. For example, Côte d'Ivoire has attempted to map all REDD+ investments, including by parastatals, private agribusinesses, and forestry companies.[19]

Mapping and analysis of expenditures and financial flows serve several functions. First, they can build political stamina to step up climate action. Second, they can highlight how NDCs might be realistically resourced over time based on past records, and which actions are likely to be the most bankable. Third, they can help countries meet international reporting and compliance requirements under the UNFCCC process.

4.4 Costing NDC Actions and Developing an Investment Pipeline

Costing NDC actions means assessing the scale of finance needed to realize NDC goals—an amount estimated to be as much as $4.4 trillion globally (Weischer et al. 2016). This will include financing of conditional and unconditional NDCs,

[17] Mitigation: Energy, LULUCF; Adaptation: Water, Agriculture, Livestock, Aquaculture and Fisheries.

[18] Preliminary results from Vietnam's PCEIR, conducted by its Ministry of Planning and Investment with support from UNDP and USAID, are outlined here: http://ledsgp.org/wp-content/uploads/2017/10/Vietnam_private-climate-expenditure_FINAL.pdf.

[19] For details, see https://climatepolicyinitiative.org/publication/landscape-redd-aligned-finance-cote-divoire.

as countries hope to be able to increase ambition if further support is secured. Pursuing such analysis can help mobilize international investments. Financing scenarios can also help policymakers gauge the order of magnitude of NDC financing needs in relation to GDP, current climate budget expenditures, or ODA. Finally, it can help countries set priorities, mobilize resources, and initiate policy and regulatory responses. In comparing the incremental difference between sources and uses, the extent of climate mitigation and adaptation financing gaps can be estimated.

Prioritization is often required to undertake costing. Prioritizing actions based on their bankability or feasibility is also one way to deal with large financing gaps. The next step is undertaking more rigorous appraisal of these actions and measures. An example of how metrics have been applied to prioritizing public investments in Indonesia is provided in Box 4.4.

There is no single methodology for costing NDC actions. Several approaches can be used to construct a budget for a strategy or a programmatic intervention. The most common challenge is costing goals or commitments that are only generically framed. The costing of public policies often requires detailed sessions to determine how certain targets can be met and to identify the best means to do so. The costing of single actions usually comprises identifying the cost for subactions, including upfront capital costs, ongoing maintenance costs, capacity-building or training, and the human resources needed to implement the action (CDKN 2016).

Certain NDC actions can be better framed as investment proposals, implying the detailed costing of an investment pipeline. Where relevant, they should also consider actions to be implemented and financed at the local level, in the context of climate and energy plans aligned with the national NDC. In investment projects that can bear financial returns, costing goes along with bankability, thus helping the identification of projects that are attractive to private investors. The demand from developing countries for support in establishing a sound project pipeline is high, from the project design—that is, where to start—up to how assess, prioritize, and approve proposals. International organizations have developed tools and financing facilities in response. For example, the Inter-American Development Bank has created NDC Invest (see Box 4.5) to support countries in Latin America. Another example is GET.invest, a European program that helps mobilizing investment in decentralized renewable energy projects. The program's finance catalyst advisory team helps small and medium-sized enterprises focused on renewable energy in sub-Saharan Africa link projects to financing and structure deals.[20]

[20] See GET.invest, "Finance Catalyst," https://www.get-invest.eu/finance-catalyst/, accessed March 2019; GET.invest is hosted in the GET.pro platform, implemented by GIZ, and funded by the European Union, Germany, Sweden, the Netherlands, and Austria.

BOX 4.4 MAKING CLIMATE BUDGETING GENDER-RESPONSIVE IN CAMBODIA, KENYA, AND ECUADOR

Indonesia has for many years refined the prioritization of climate public investments by applying metrics related to the cost-effectiveness of GHG mitigation. This work has led to the adoption of the Mitigation Fiscal Framework by its Ministry of Finance. The most efficient climate mitigation actions are assessed as a function of the marginal abatement cost of reducing a unit of GHG emissions measures, and the cost-effectiveness is determined by dividing the effectiveness of an action by its costs. This complements the country's budget marker, which tracks public expenditure on mitigation.

Source: Climate Policy Initiative (2014).

BOX 4.5 NDC INVEST

NDC Invest is a one-stop shop offered by the Inter-American Development Bank to countries for accessing resources to transform their national climate commitments into investment plans. It comprises four components:

- NDC Programmer: to develop investment plans and programs that reflect climate needs and circumstances.
- NDC Pipeline Accelerator: to support priority studies and additional activities to ensure technical and financial feasibility for bankable and sustainable projects.
- NDC Market Booster: to offer nonreimbursable and reimbursable grants for innovative business models, financial instruments, and other market development services.
- NDC Finance Mobilizer: to mobilize funding from internal and external sources to help countries enhance credit and reduce risks in the priority investments needed to meet their NDC commitments.

Source: Inter-American Development Bank (2018).

Sectors, such as renewable energy or sustainable transport, often have their own specific costing models and practices. More generally, the investment and financial flow assessment methodology (I&FF) can be used to build supply and demand scenarios and establish a high-level estimate of financial needs. It can also help identify potential funding pathways. As of 2017, 17 countries used I&FF to conduct 46 sectoral assessments. In the Dominican Republic and Liberia, the results were used to refine budgetary planning; in Costa Rica they helped develop an investment plan for a transport NAMA.

Decision-makers can use various tools and draw on the associated lessons and experiences to develop an investment pipeline. For example, the NAMA Facility is supporting financing schemes for 21 projects in 17 countries, which can help countries move from policies and measures to concrete financing schemes for project finance. Assistance is also available from multilateral development banks and other project development facilities. The UNFCCC (2007) has published guidance on financial planning for low-carbon infrastructure and technology transfers, summarizing innovative financing structures, and providing recommendations on how to make projects bankable.

4.5 Devising Smart Financing Strategies for Priority Interventions

Decision-makers need to navigate through many options and solutions when developing financing strategies for NDC implementation. The climate finance agenda is not only about mobilizing new resources but also about spending public resources in smarter ways and better aligning public and private capital with NDC goals. Integrated financing frameworks can feature comprehensive roadmaps for aligning a country's climate policy to its budget and thus provide the country's leadership with a better grasp of how to synchronize various NDC actions and investment objectives. The purpose is often to structure an effective delivery architecture to mobilize and better manage climate finance. This normally entails a link to a key public budget framework or a national development plan. Subnational planning is also critical. Nepal, for example, committed to deliver 80 percent of climate financing at the local level under the direction of the National Planning Commission.

While public planning documents naturally emphasize public financing, the identification of investments to be funded jointly or exclusively with private capital should be pursued. A country with high public debt and deficit may have limited space

for public investment. Despite increased interest and a better alignment of interests and values (see Box 4.1), private investment opportunities will continue to be concentrated in investment-grade countries and capital regions in the short term. Private capital flows in riskier environments may still only be unlocked by blending private capital with public finance and ODA. Increasingly, countries and donors are aligning blended finance[21] vehicles with the two SDGs most closely related to climate: Goal 7 and Goal 13. The GCF alone has announced a $500 million initiative to catalyze private capital to climate action.[22] Moreover, development partners have established facilities to support the blending of public and private funding for climate action, including the NDC Support Programme (UNDP), the NDC Support Facility (World Bank), NDC Assist (Germany), NDC Invest (IADB), the Adapt Action facility (France), and the Global Climate Change Alliance + and EuroClima+ (European Union). Boxes 4.6 and 4.7 describe examples of resources that can be used by governments to help finance NDC-related implementation activities.

Effective NDC financing strategies call for a retooling of traditional and innovative financial and risk-mitigation solutions to be first "fit for purpose" and second for an enhanced "tailoring" that maximizes local ownership and sustainability. UNDP's Financing Solutions for Sustainable Development,[23] the World Bank Group's Open Knowledge Repository,[24] and the UNEP Finance Initiative and Inquiry[25] reports provide reviews and best practices covering a variety of instruments and solutions, such as carbon markets, guarantees, green bonds, municipal financing, and climate insurance. Moreover, the NDC Partnership's Climate Finance Explorer lists potential sources of finance, that is, specific programs where climate funding can be accessed.

Not all financing strategies are based on issuing new financial instruments. Regulatory reforms can set boundaries and send signals to markets. They may include standards, quotas, licenses, laws, or other restrictions. Examples include minimum standards for energy efficiency, banning certain types of technology, or setting targets and objectives for GHG emissions reductions. Most important, regulations can help create new markets and spur private investment. In sectors where the investment horizon is long (e.g., renewable energy or sustainable transport), the quality and predictability of the regulatory regimes is a precondition for investments to take place.

[21] Blended finance is the use of catalytic capital from public or philanthropic sources to increase private sector investment in developing countries to realize the SDGs (definition used by Convergence 2018).

[22] For more information, see Convergence (2018).

[23] UNDP, "SDG Financing Solutions," www.sdfinance.undp.org.

[24] https://openknowledge.worldbank.org.

[25] https://www.yumpu.com/en/document/read/28402313/unep-innovative-climate-finance

BOX 4.6 FINANCING SOLUTIONS FOR SUSTAINABLE DEVELOPMENT

The Financing Solutions for Sustainable Development platform (www.sdfinance.undp.org) aims to demystify in clear, simple language the world of complex financing solutions, many of which pertain to climate action. The online platform can be used by government officials involved in NDC implementation to help match various financing models and instruments with different types of activities and investments. It profiles financial instruments such as green bonds, social impact bonds, payments for ecosystem services, impact investment, and others, discussing their potential, feasibility, risks, and limitations, along with specific case studies to help illustrate their potential relevance.

The platform features an SDG 13 (Climate Action) entry page: www.sdfinance.undp.org/content/sdfinance/en/home/sdg/goal-13--climate-action.html.

Source: Authors.

BOX 4.7 CLIMATE FINANCE EXPLORER

The Climate Finance Explorer uses filters to help identify potential sources of climate funding and other support suitable to help finance adaptation or mitigation projects, programs, or other activities. Filters start with the selection of the type of institution (e.g., private or public) that is seeking support and the geographic location where the project will take place. The Explorer then moves into the type of support envisaged (e.g., types of instruments) and the purpose of the project. The result is a list of potential sources, each provided with descriptive information, including on the source, eligibility criteria, details on what is provided, and the process for accessing the resources. Searchers can also compare up to three different sources at a time to understand better how they differ from one another.

Source: NDC Partnership (n.d.b)..

Countries have enacted policies and incentives to encourage private investment in NDC-related sectors, often under the umbrella of national and sectoral development plans. Introducing mandatory climate-related reporting in financial institutions and corporations is a second example. This provides transparent information to funds aligned with financial markets and environmental and social governance. Taking a cue from France and Sweden, regulators could require institutional investors to disclose their carbon footprint. Public enterprises and companies that benefit from state subsidies or guarantees could be mandated to disclose the potential long-term risk and impact of their investments. Some stock exchanges, such as South Africa's, have already mandated that publicly listed companies annually report their sustainability policies and corporate social responsibility measures. The requirement has incentivized several companies to join voluntary transparency and reporting schemes, such as the Global Reporting Initiative and the Carbon Disclosure Project.

Some commonly used financing options or solutions are profiled below, with no intention to present a comprehensive listing:

- *Carbon pricing.* Carbon markets aim to reduce greenhouse GHG emissions cost-effectively by setting limits on emissions and enabling the trading of emission units, which are instruments representing emissions reductions. Trading enables entities that can reduce emissions at lower cost to be paid by higher-cost emitters to reduce emissions even further, thus lowering the economic cost of reducing emissions. Climate crediting mechanisms similarly enable entities whose cost of reducing emissions is high to pay low-cost emitters for carbon credits that they can use toward meeting their emissions -reduction obligations, or for voluntary or trading purposes. These mechanisms (e.g., the Clean Development Mechanism) put a price on carbon, helping to internalize the environmental and social costs of carbon pollution, and permit trading, which lowers the economic cost of reducing emissions. Market mechanisms could reduce the cost of achieving the conditional NDC targets by around 33 percent by 2030 and 50 percent by 2050 (EBRD 2017). Emissions trading enabled by the Kyoto Protocol helped the EU Emissions Trading System achieve a cost of compliance over 2008–12 that was less than half of the estimated €33 per metric ton in the impact assessment used by the European Union to pass the legislation (UNFCCC 2018b). Article 6 of the Paris Agreement contains provisions in this regard, building on the experience of the Kyoto Protocol and other schemes, Further guidance is expected to be announced as part of the Paris Work Programme and in follow-up to COP24.

Although there is still uncertainty about how these mechanisms will be shaped, roughly half of all NDCs point to their expansion. In addition to carbon markets, several countries have adopted carbon taxes.

- *Public guarantees.* A guarantee is a promise by a guarantor to one or more beneficiaries that the guarantor will pay the beneficiary a specified amount in the event of a default. Guarantees can cover lenders or bond investors. Guarantee schemes can make commercial lending possible, more attractive, or more affordable by lowering investors' risks. The NAMA Facility and some development banks offer "first-loss" guarantees to equity or debt funds, to help attract more private capital into low-carbon or energy-efficient investments by transferring a portion of potential losses away from the primary investors or project developers.[26] This can be effective in crowding in private capital: increased use of guarantees has been estimated to represent potentially an additional $100–165 billion in private sector investment in sustainable infrastructure over the next 15 years (IRENA 2016; Bielenberg et al. 2016). For example, the Federated States of Micronesia issued a sovereign guarantee for the investment made in a wind-solar-diesel hybrid project. Guarantees are also increasingly used by development partners, including the Overseas Private Investment Corporation, which offers political risk insurance coverage to renewable energy investments.

- *Green bonds.* Green bonds can mobilize resources from domestic and international capital markets for climate change adaptation, renewables, and other environment-friendly projects. Their only difference from conventional bonds is the specification that the proceeds be invested in projects that generate environmental benefits.[27] The Climate Bonds Initiative estimates that the market for climate bonds will soon climb to as high as $1 trillion per year. Emerging markets like China, Brazil, India, and Mexico are at the forefront of action. Developing a robust indigenous green bonds market is part of China's strategy to redirect capital to urgent environmental projects, including renewable power generation. In Brazil, subnational bond markets are being established to fund investments that protect forests and reduce tropical deforestation. Despite positive trends and opportunities, barriers such as high transaction costs to issue and certify, limited appetite on the part of institutional investors, low levels of awareness of the instrument among nonfinancial stakeholders, and lack of locally appropriate standards for credible certification have all limited replication of issuances.

- *National climate funds.* A national climate fund is a mechanism that facilitates the collection, blending, and coordination of climate finance. It can play a role in collecting and distributing funds to climate change–related activities; facilitate the blending of public, private, multilateral, and bilateral sources of finance; coordinate countrywide climate change programs; and strengthen national institutions and financial management through the creation of national implementing entities to deliver climate change projects (Nachmany et al. 2015). National climate funds often draw on proceeds from newly created taxes and charges to avoid reducing government spending elsewhere. For example, the Seychelles Conservation and Climate Adaptation Trust was established in 2015 thanks to the savings accrued from a debt for marine conservation swap. Another example is the Mali National Climate Fund, which was established to foster coordinated implementation of climate action.

- *Climate insurance.* Insurance can buffer public coffers from the worst effects of catastrophic climate-related disasters by absorbing, transferring, and pooling risks. Insurance products can help better manage risks in low-carbon mitigation investment. In adaptation programs, they can price climate

[26] For more information, see CPI 2013.

[27] See Deutsche Bank, "Investing in Green Bonds: Promoting Sustainable Projects," https://socialmedia.db.com/infographics/green-bonds/green-bonds.htm; and Climate Bonds Initiative, home page, www.climatebonds.net.

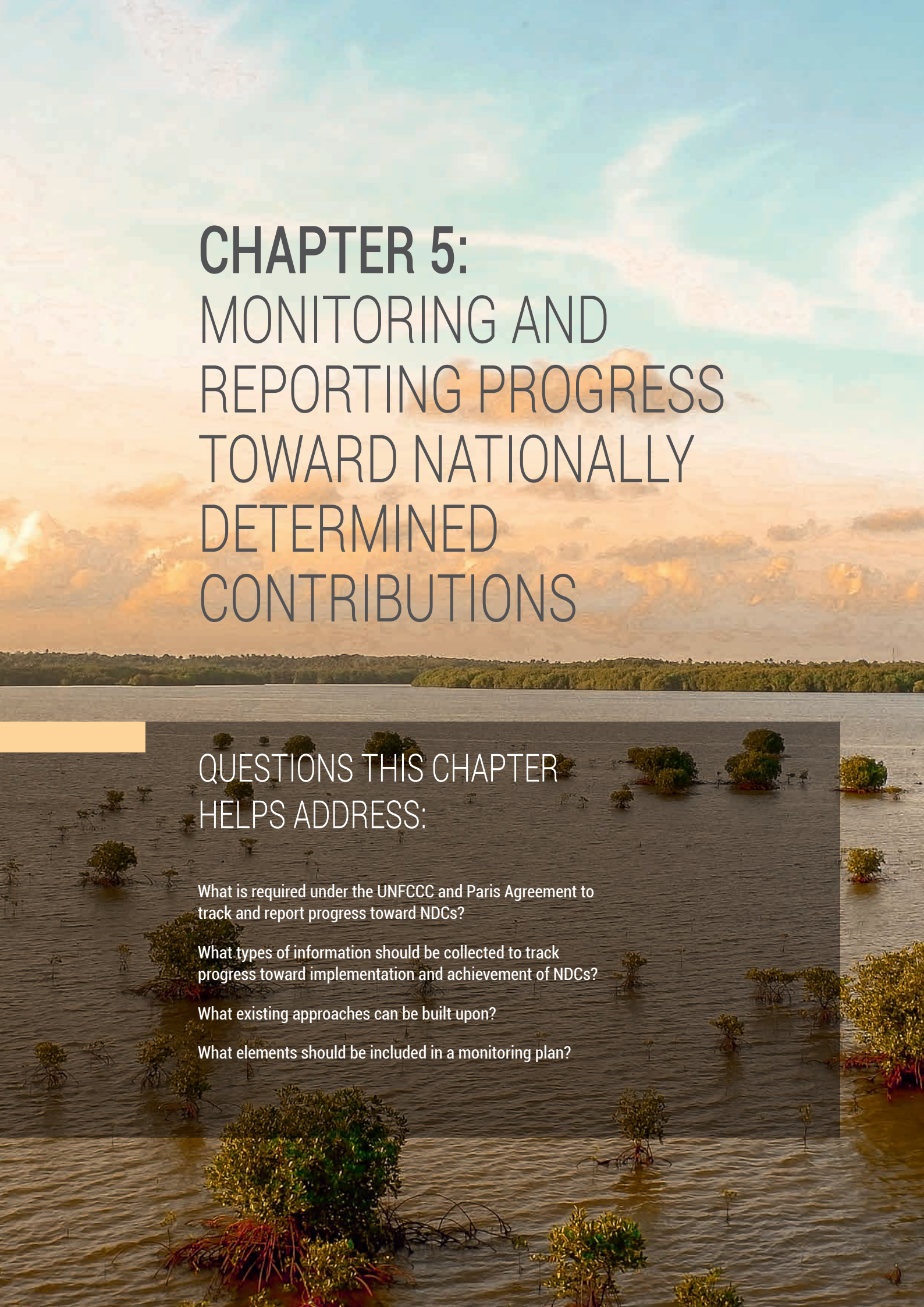
risks and protect the insured individuals or entities. Public and private agencies, including conglomerates such as SwissRe, have analyzed country readiness to access insurance markets to close the "protection gap." Moreover, innovative insurance schemes, such as parametric insurance, have emerged. Parametric insurance beneficiaries get paid out for losses not according to actual losses from catastrophic events but rather upon predetermined clauses. These parametric triggers are often related to weather data, such as a certain level of rainfall. Other innovations are tackling affordability: the enabling of in-kind labor contributions instead of cash premiums to buy drought insurance has increased access to insurance in poor and remote communities living in Ethiopia.

While comprehensive public and private investment roadmaps for NDC can lead to more strategic, coherent, and effective management of resources, many countries will continue to fund projects sector by sector or according to geographical and administrative boundaries. Plans, projects, and investment proposals differ in ambition, regulatory environment, and commercial and policy risks. The financing will naturally take different forms and draw on different sources. Ultimately, any financing strategy needs to be specific, contextualized, sustainable, and locally owned.

SELECT TOOLS AND RESOURCES FOR "FINANCING NDC IMPLEMENTATION"

- *A Methodological Guidebook: Climate Public Expenditure and Institutional Review (CPEIR)* (UNDP 2015b): This guidebook seeks to equip relevant stakeholders (governments, donors, CPEIR practitioners) with information on a step-by-step process, methodologies, and tools to conduct a CPEIR.
- *Blending Climate Finance through National Climate Funds: A Guidebook for the Design and Establishment of National Funds to Achieve Climate Change Priorities* (UNDP 2011): The purpose of this guidebook is to assist countries in designing a National Climate Fund.
- **Climate Finance Readiness Training** (GIZ n.d.b): The Climate Finance Readiness Training Toolkit includes different methods and tools to prepare a country for climate finance readiness.
- **Climate Budget Tagging (CBT)** (UNDP 2015a): This tool enables users to monitor and track climate-related expenditures in the national budget system.
- **Climate Finance Ready** (Adaptation Fund and CDKN n.d.): This website contains resources on climate finance, including case studies, research reports, and recent news articles.
- **Climate Investment Funds Knowledge Center** (CIF 2018): This website houses a collection of reports, tools, case studies, fact sheets, investment plans, learning events, and other policy guidelines to assist policymakers in NDC implementation.
- *Toolkit to Enhance Access to Adaptation Finance* (OECD 2015): This guidance document includes a "toolkit" with steps to enhance adaptation finance by seizing opportunities to access finance.
- **"Understanding 'Bankability' and Unlocking Climate Finance for Climate Compatible Development"** (Ellis and Pillay 2017): A paper discussing "bankable" projects that details the range of the different financing mechanisms available to countries, what their requirements are, and how they can potentially be combined to assist countries in implementing their NDCs.
- *Methodology Guidebook for the Assessment of Investment and Financial Flows to Address Climate Change* (UNDP 2009): This guidebook supports developing countries in undertaking bottom-up, national sectoral analyses of the costs of adapting to the impacts of climate change and mitigating GHG emissions.

For more tools and resources, see NDC Partnership (n.d.a, n.d.b).



CHAPTER 5: MONITORING AND REPORTING PROGRESS TOWARD NATIONALLY DETERMINED CONTRIBUTIONS

QUESTIONS THIS CHAPTER HELPS ADDRESS:

What is required under the UNFCCC and Paris Agreement to track and report progress toward NDCs?

What types of information should be collected to track progress toward implementation and achievement of NDCs?

What existing approaches can be built upon?

What elements should be included in a monitoring plan?

Monitoring and reporting is a key step in the NDC implementation process. It can serve multiple domestic and international purposes, such as

- providing a clear understanding of climate action and support;
- informing national policymaking and domestic and international investment plans;
- tracking progress toward implementing and achieving the NDC to date and identifying the additional effort needed by the end of the NDC implementation period;
- deciding whether to continue, discontinue, or enhance existing actions or implement new actions;
- identifying and promoting synergies between actions taken to achieve the NDC and actions taken to achieve the SDGs or advance other development objectives;
- enhancing domestic and international transparency; and
- fulfilling Paris Agreement provisions on accounting (Article 4) and transparency (Article 13) and informing the global stocktake.

This chapter is structured in two parts: Section 5.1, which provides an overview of the Paris Agreement's enhanced transparency framework, and Section 5.2, which provides additional guidance on monitoring and reporting that may be helpful for countries when implementing their NDCs.

5.1 Enhanced Transparency Framework under the Paris Agreement

The Paris Agreement's Enhanced Transparency Framework for action and support and recently adopted modalities, procedures, and guidelines (MPGs) provides a foundation for monitoring and reporting related to NDC implementation (UNFCCC 2019a). The overarching objective of the enhanced transparency framework is to build mutual trust and confidence and to promote effective implementation. There are two specific aims: (1) to "provide a clear understanding of climate change action in the light of the objective of the Convention as set out in its Article 2, including clarity and tracking of progress toward achieving Parties' individual nationally determined contributions under Article 4" and (2) to provide clarity on support provided and received by relevant individual Parties (UNFCCC 2015, Article 13, paras. 5 and 6).

Several principles guide the transparency framework (UNFCCC 2019a, Annex, Section I. B.):

- Building on and enhancing the transparency arrangements under the Convention, recognizing the special circumstances of the least developed countries (LDCs) and small island developing states (SIDS), and implementing the transparency framework in a facilitative, nonintrusive, nonpunitive manner, respecting national sovereignty and avoiding placing undue burden on Parties.
- The importance of facilitating improved reporting and transparency over time.
- Providing flexibility to those developing country Parties that need it in the light of their capacities.
- Promoting transparency, accuracy, completeness, consistency, and comparability.
- Avoiding duplication of work and undue burden on Parties and the secretariat.
- Ensuring that Parties maintain at least the frequency and quality of reporting in accordance with their respective obligations under the Convention.
- Ensuring that double counting is avoided.
- Ensuring environmental integrity.

Reporting under the Enhanced Transparency Framework

Under the Enhanced Transparency Framework, countries will transition from reporting biennial reports (BRs) and biennial update reports (BURs)

to reporting biennial transparency reports (BTRs) starting, at the latest, by December 2024. BTRs will build on reporting content from the BRs and BURs. It will be important to report BRs through 2022 and BURs through 2024 and to continue improving domestic transparency arrangements in the transition to enhanced transparency requirements.

As per the adopted MPGs, in the biennial transparency report (Article 13, paras. 7–10)

(a) each Party shall provide a national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs);

(b) each Party shall provide the information necessary to track progress in implementing and achieving its NDC under Article 4 of the Paris Agreement;

(c) each Party should provide information on climate change impacts and adaptation under Article 7 of the Paris Agreement;

(d) developed country Parties shall provide the information on financial, technology transfer, and capacity-building. Other Parties that provide support should provide such information and, in doing so, are encouraged to use the adopted MPGs; and

(e) developing country Parties should provide information on financial, technology transfer, and capacity-building support needed and received under Articles 9, 10, and 11 of the Paris Agreement.

Some reporting formats still need to be developed, including (UNFCCC 2019a, para. 12)

- common reporting tables for the electronic reporting of national inventories;
- common tabular formats for other information to be reported, including a structured summary to track progress made in implementing and achieving the NDC; and
- outlines of the biennial transparency report, national inventory document, and technical expert review report.

These items are to be developed by the Subsidiary Body for Scientific and Technological Advice for consideration and adoption by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) in 2020.

Guidance for accounting for Parties' second and subsequent NDCs has also been agreed to and countries are to report their accounting approaches in their biennial transparency reports to inform the tracking of progress of implementation and achievement of NDCs (UNFCCC 2019b, Annex II). While implementation of the Paris Agreement's accounting and transparency requirements are very important to understanding global climate change action and support flows, monitoring and reporting progress could also serve several domestic purposes.

Countries should build on experiences and lessons learned from existing reporting processes under the Convention, including national communications, national inventory reports, and BRs or BURs. Reporting in line with the current reporting system provides a strong foundation for fulfilling reporting requirements under the Paris Agreement.

Technical Expert Review and Facilitative Multilateral Consideration of Progress

Reviewing and considering the reported assessment of progress toward NDCs can foster learning and continual improvement and enhance knowledge, skills, and processes related to monitoring, evaluation, and reporting. It can also increase confidence in the reported results of stakeholders—such as donor agencies and financial institutions providing financial support. Parties have adopted new guidance for technical expert review (TER) and a facilitative multilateral consideration of progress (FMCP), as specified in Article 13. Existing procedures help improve reporting and improve the understanding of reported information. Current procedures include international assessment and review

(IAR) comprised of a technical expert review and multilateral assessment, and international consultation and analysis (ICA) comprised of a technical analysis and facilitative sharing of views.

The IAR and ICA processes will be replaced by new TER and FMCP procedures. These processes will help to improve reporting related to NDCs and overall transparency.

The TER will consist of

(a) a review of the consistency of the information submitted by the Party under Article 13, paragraphs 7 and 9, of the Paris Agreement with these MPGs, taking into account the flexibility accorded to the Party under Article 13, paragraph 2, of the Paris Agreement;

(b) consideration of the Party's implementation and achievement of its NDC under Article 4 of the Paris Agreement;

(c) consideration of the Party's support provided, as relevant;

(d) identification of areas of improvement for the Party related to implementation of Article 13 of the Paris Agreement; and

(e) for those developing country Parties that need it in the light of their capacities, assistance in identifying capacity-building needs.

The FMCP will be undertaken with respect to the Party's efforts under Article 9 of the Paris Agreement and the Party's respective implementation and achievement of its NDC.

Continuing to participate and share experience through existing practices (IAR and ICA) can help countries prepare for future procedures under the Paris Agreement.

Tracking progress of NDCs

As noted above, each Party will be required to report information necessary to track progress made in implementing and achieving its NDC under the Paris Agreement. Each Party will need to identify the indicator(s) in its BTRs that it has selected to track progress toward the implementation and achievement of its NDC. Indicators shall be relevant to a Party's NDC under Article 4 and may be either qualitative or quantitative (UNFCCC 2019a, Annex, Section III. C. para. 64). It is therefore important that Parties consider this requirement as they prepare second and subsequent NDCs. Countries should select such indicators carefully as they will be expected to report on them through BTRs.

Indicators could include, as appropriate, for example (UNFCCC 2019a, Annex, Section III. C. para. 66),

- net GHG emissions and removals;
- percentage reduction of GHG intensity;
- relevant qualitative indicators for a specific policy or measure;
- mitigation co-benefits of adaptation actions and/or economic diversification plans; or
- others (e.g., hectares of reforestation, percentage of renewable energy use or production, carbon neutrality, share of nonfossil fuel in primary energy consumption, and non-GHG related indicators).

The level of progress may be determined by comparing the most recent information for each selected indicator with the information provided as the reference point(s), level(s), baseline(s), base year(s), or starting point(s) (UNFCCC 2019a, Annex, Section III. C. para. 67). This will indicate the amount of change that has occurred since implementation began.

Each Party is also expected to provide information on mitigation policies and measures, actions, and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans, related to implementing and achieving and NDC under Article 4 of the Paris Agreement. In particular, each Party shall provide, to the extent possible, estimates of expected and achieved GHG emissions reductions for its actions, policies, and measures (UNFCCC 2019a, Annex, Section III. D).

To further contextualize the tracking of progress, each Party is also expected to report national circumstances and institutional arrangements and provide a description of its NDC, including any updates. Parties that also submit standalone inventories should include a summary of greenhouse gas emissions and removals. Countries are also expected to provide projections of greenhouse gas emissions and removals, although developing country Parties that need flexibility in light of their capacities are instead encouraged to report these projections (UNFCCC 2019a, Annex, Section III). In the event developing countries choose to apply this flexibility, they need to concisely clarify capacity constraints and provide self-determined estimated time frames for improvements in relation to those capacity constraints. In addition, in order to facilitate continuous improvement, each Party should, to the extent possible, identify, regularly update, and include as part of its BTR information on areas of improvement in relation to its reporting (UNFCCC 2019a, Annex, Section I, C and D).

Climate change impacts and adaptation

Under the Paris Agreement, Parties should report in their BTRs information related to climate change impacts and adaptation, including (UNFCCC 2019a, Annex, Section IV)

- national circumstances, institutional arrangements, and legal frameworks;
- impacts, risks, and vulnerabilities, as appropriate;
- adaptation priorities and barriers;
- adaptation strategies, policies, plans, goals, and actions to integrate adaptation into national policies and strategies;
- progress on implementation of adaptation;
- monitoring and evaluation of adaptation actions and processes;

- information related to averting, minimizing, and addressing loss and damage associated with climate change impacts;
- cooperation, good practices, experience, and lessons learned; and
- any other information related to climate change impacts and adaptation under Article 7 of the Paris Agreement.

The modalities, procedures, and guidelines for reporting on climate change impacts and adaptation under Article 7 further elaborate a list of information that each Party should provide, as appropriate, related to monitoring and evaluation of adaptation actions and processes (UNFCCC 2019a, Annex, Section IV. F. para. 113):

(a) Achievements, impacts, resilience, review, effectiveness and results.

(b) Approaches and systems used, and their outputs.

(c) Assessment of and indicators for (i) how adaptation increased resilience and reduced impacts; (ii) when adaptation is not sufficient to avert impacts; and (iii) how effective implemented adaptation measures are.

(d) Implementation, in particular on (i) transparency of planning and implementation; (ii) how support programs meet specific vulnerabilities and adaptation needs; (iii) how adaptation actions influence other development goals; and (iv) good practices, experience, and lessons learned from policy and regulatory changes, actions, and coordination mechanisms.

Financial, technology transfer and capacity-building support

The MPGs for the enhanced transparency framework lay out the information on financial, technology transfer, and capacity-building support provided that developed country Parties shall include in their BTRs. Other Parties that provide support should provide such information and, in doing so, are encouraged to use the MPGs. Information to be reported includes

- national circumstances and institutional arrangements;
- underlying assumptions, definitions, and methodologies;
- information on financial support provided and mobilized under Article 9 of the Paris Agreement;
- information on support for technology development and transfer provided under Article 10 of the Paris Agreement; and
- information on capacity-building support provided under Article 11 of the Paris Agreement.

The MPGs also specify the information on financial, technology transfer, and capacity-building support needed and received that developing country Parties should provide in their BTRs. Such information includes

- national circumstances, institutional arrangements, and country-driven strategies;
- underlying assumptions, definitions, and methodologies;
- information on financial support needed by developing country Parties under Article 9 of the Paris Agreement;
- information on financial support received by developing country Parties under Article 9 of the Paris Agreement;
- information on technology development and transfer support needed by developing country Parties under Article 10 of the Paris Agreement;
- information on technology development and transfer support received by developing country Parties under Article 10 of the Paris Agreement;

- information on capacity-building support needed by developing country Parties under Article 11 of the Paris Agreement;
- information on capacity-building support received by developing country Parties under Article 11 of the Paris Agreement; and
- information on support needed and received by developing country Parties for the implementation of Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building.

5.2 Additional Guidance on Monitoring and Reporting

The remaining sections of this chapter provide guidance on monitoring and reporting that may be helpful for countries when implementing their NDCs, for both mitigation and adaptation. The following sections are not part of the Enhanced Transparency Framework or requirements under the Paris Agreement; instead, they build on the discussions during the dialogues and country experiences. The information in this section can be used to inform domestic transparency efforts and strengthen countries' ability to meet international requirements.

5.2.1 Building on Existing Approaches

Regularly monitoring and reporting progress to domestic and international audiences is helpful to demonstrate progress, meet stakeholder demands for information, and build trust. Countries have gained significant experience in monitoring and reporting on progress of mitigation and adaptation efforts. Countries should build on experiences and lessons learned from existing transparency arrangements under the Convention—national communications, national inventory reports, and BRs or BURs—and review procedures—IAR and ICA—as well as monitoring in the land sector through REDD+.

Monitoring and reporting should build on existing data-collection infrastructure and processes and be incorporated into the system of national accounts or national monitoring systems to maximize efficiency. In many cases, existing systems can be leveraged to monitor progress toward the NDC. As a first step, it is useful to take stock of existing systems and processes for monitoring and reporting that can be built on. Examples of systems include those for

- developing the national greenhouse gas inventory;
- developing biennial reports or biennial update reports and national communications to the UNFCCC;
- tracking progress of NAMAs, NAPAs, and NAPs;
- monitoring and reporting procedures for the SDGs and other national development goals;
- tracking progress toward existing policies and measures, including pre-2020 actions;
- monitoring, reporting, and verification (MRV) systems, such as emissions registries and systems used for Clean Development Mechanism (CDM) projects;
- systems for tracking climate finance and support received; and
- statistical agencies and systems of national accounts that collect activity data for related purposes (e.g., census data or household survey questionnaires).

Methods and procedures for tracking adaptation interventions and planning may already be in place from a country's periodic national communications and the formulation and implementation of its NAP. Some countries identify in their NAP baseline information and priority adaptation actions on which to focus NDC-level adaptation M&E. A country may identify climate change vulnerabilities and impacts through a vulnerability and impact assessment, which can provide useful baseline data and inform the prioritization of actions. Priority regions, sectors, and actions may also be identified. The NAP planning process may

even define an M&E system for adaptation, which current and future reporting processes can utilize.

In addition to data collection and monitoring approaches, an effective national MRV system requires effective institutional coordination, clear roles and responsibilities, laws and mandates to govern monitoring and reporting processes, and stakeholder engagement (see Chapter 3 for a description of these steps as part of NDC implementation more generally).

Box 5.1 describes Namibia's approach to monitoring and reporting progress, building on existing approaches.

BOX 5.1 MONITORING AND REPORTING PROGRESS IN NAMIBIA

For many developing countries, current monitoring, reporting, and verification (MRV) capacity is insufficient to meet existing reporting requirements, let alone the future requirements under the Enhanced Transparency Framework. In preparing its third biennial update report (BUR), Namibia examined current national MRV capacity. It was determined that the current system needs strengthening, which led to the design of an improved MRV concept that will enable Namibia to meet the requirements of the Paris Agreement.

An initial MRV system has been in place in Namibia, building on a national monitoring and evaluation (M&E) system to track progress on goals and strategies of the national development plan. However, this ad hoc arrangement is heavily reliant on consultants for the preparation of reports and is not sustainable or sufficient to meet UNFCCC reporting requirements. In light of current and future reporting requirements and difficulties experienced in integrating climate change MRV into the current M&E system, a separate, three-part MRV system will be needed. This system will include three components: MRV of emissions, MRV of mitigation (including nationally appropriate mitigation actions), and MRV of support.

Namibia is considering several changes to the current arrangements for developing GHG emissions inventories, including to assign compilation responsibility to the Climate Change Unit (CCU) of the Ministry of Environment and Tourism and to develop a memorandum of understanding with the National Statistics Agency, which already has a legal framework to collect data. Essential ministries will have to assign a responsible officer and an alternate to monitor ministerial activities in relation to the SDGs and collect relevant data for the GHG inventory. One ministry will be assigned to lead on each IPCC sector.

Reporting on mitigation actions was challenging for the first two BURs, as there was no formal recording system for tracking actions. Namibia intends to develop and implement a system comprising only the stakeholders concerned with mitigation activities to track these under the responsibility of the reinforced CCU. Reporting templates will be available to ministries, and this collected information will be reviewed by a working group, quality controlled, and sent to CCU for analysis and databasing for use when preparing the reports.

Namibia does not yet have a functional system for tracking and reporting of support received. Since most climate support is project-based, MRV for support will follow a similar approach to the MRV mitigation component as already described. However, responsibility will be taken by the Ministry of Finance in close collaboration with the Environment Investment Fund and the Ministry of Environment and Tourism's CCU. User-friendly templates will have to be designed for tracking support received during the project cycle for reporting.

These MRV enhancements, building on lessons learned from current practice, will bring Namibia closer to being able to fulfill reporting under the Paris Agreement but will require time and thorough capacity-building and support.

Source: Republic of Namibia (2018).

5.2.2 Developing a Monitoring Plan

At the beginning of the NDC implementation period, it is useful to develop, as part of the broader NDC implementation plan, a coherent plan for monitoring progress. Institutional responsibilities and processes should be defined that specify the "what," "who," "when," and "how" of monitoring, including what information should be collected, who is responsible for collecting it, when it should be collected, procedures for collecting it, and where it should be stored. Much of this detail will be required or useful to include in future BTRs, so having a plan for monitoring progress will put countries in a good place when the time comes to report.

Progress should be evaluated regularly, such as annually, during the implementation period, as well as at the end of the implementation period, using a consistent approach. While information will only be reported to the UNFCCC biennially, Parties may choose to evaluate progress on an annual basis domestically.

A monitoring plan should take into consideration the guidance provided under the Enhanced Transparency Framework and may identify several elements, such as

- targets to be monitored;
- data or indicators to be tracked over time, including baseline and target values
- sources of data;
- clearly assigned institutional roles, including the entities or institutions responsible for collecting and compiling data;
- roles and responsibilities of relevant personnel involved in monitoring, competencies required, and training needed to ensure personnel have necessary skills;
- frequency of monitoring, to ensure timeliness and consistent time series of information (which should at least be consistent with the current frequency of reporting in accordance with respective obligations under the Convention);
- measurement or data collection methods (e.g., surveys, censuses);
- agreed methodologies, standards, protocols, and emission factors;
- methods and processes for generating, storing, collating, and reporting data;
- databases, tools, and software systems to be used for collecting, managing, and archiving data;
- procedures for internal auditing, quality assurance, quality control, record keeping, and internal documentation procedures; and
- verification procedures to be used.

5.2.3 Identifying Data to Collect

Mitigation

Monitoring is necessary to determine whether efforts taken to reduce emissions are achieving the desired results, as stated in the NDC. Many countries already have significant experience in monitoring mitigation targets.

The national greenhouse gas inventory is fundamental for tracking progress toward mitigation targets. It is the source of determining national GHG emissions and removals, which is an effective quantitative indicator for many types of commitments. Several steps can be taken to improve the inventory's quality as part of the NDC monitoring process in line with the principle of improved reporting and transparency over time (Box 5.2).

Table 5.1 provides suggestions for various types of information useful for monitoring progress. This is not a list of what Parties will be required to report under the modalities, procedures, and guidelines for the transparency framework for action and support, but it provides an overview of information that may be useful to collect for monitoring progress.

BOX 5.2 MEANS OF IMPROVING NATIONAL GHG INVENTORY QUALITY

- Increase the frequency of compiling the inventory, moving toward annual inventories.
- Move from the 1996 version to the 2006 version of the IPCC *Guidelines for National Greenhouse Gas Inventories*,[a] as will be required for all countries' inventories reported under the modalities, procedures, and guidelines for the transparency framework from 2024.
- Move to higher-accuracy methods within the IPCC guidelines (e.g., moving from tier 1 to tier 2 to tier 3 methods).
- Cover seven gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Developing country Parties that need flexibility in light of their capacities in reporting all seven gases should highlight areas of improvement and identify reporting-related capacity-building support needs.
- Use the 100-year time-horizon global warming potential (GWP) values from the IPCC Fifth Assessment Report, or 100-year time horizon GWP values from a subsequent IPCC assessment report as agreed upon by the CMA, to report aggregate emissions and removals of GHGs, expressed in CO_2e.
- Use country-specific and regional emission factors rather than international default emission factors, where they are more accurate.
- Validate or supplement top-down national statistics through bottom-up data from facilities and companies (e.g., through a greenhouse gas reporting program for large facilities).
- If methodological improvements are made, perform recalculations in accordance with the IPCC guidelines, ensuring that changes in emission trends are not introduced as a result of changes in methods or assumptions across the time series.[b]

The platform features an SDG 13 (Climate Action) entry page: www.sdfinance.undp.org/content/sdfinance/en/home/sdg/goal-13--climate-action.html.

Notes:

[a] IPCC (2006).

[b] For more information, see IPCC (2006, vol. 1, chap. 5).

Source: Authors.

Some information is relevant for all types of mitigation contributions. For example, a country with a national greenhouse gas emissions reduction target may find it useful not only to track total emissions through the national greenhouse gas inventory (a top-down approach) but also to track more detailed information, such as sectoral indicators and policy-level information in order to understand why emissions are changing and to inform mitigation strategies (a bottom-up approach).

Countries may not have all the information outlined in Table 5.1, but they should collect as much relevant information as they can. Common data underpin many of the elements in Table 5.1, such as the activity data used to estimate emissions (e.g., the quantity of fuel consumed, waste generated, area forested, and distance traveled by vehicles). This type of data may already be collected by various government ministries as part of their ongoing activities unrelated to climate change.

Appendix B provides further information and examples of how the information collected can be used to track progress toward various types of mitigation contributions.

TABLE 5.1 INFORMATION USEFUL FOR MONITORING PROGRESS TOWARD MITIGATION CONTRIBUTIONS

Type of Information	Purpose and Description
National greenhouse gas emissions from the national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases	Track trends in net GHG emissions and removals, as well as emissions and removals disaggregated by sector, greenhouse gas, and, if data are available, subnational region, as well as intensity metrics such as per capita and per GDP emissions and removals. The inventory should be updated as frequently as feasible (e.g., annually).
Information on any sector-, category-, or activity-specific assumptions, methodologies, and approaches	Track information, as applicable to a country's NDC, on any sector-, category-, or activity-specific assumptions, methodologies, and approaches. This may include the approach used to address emissions and subsequent removals from natural disturbances on managed lands, the approach used to account for the emissions and removals from harvested wood products, and the approach used to address the effects of age-class structure in forests.[a]
Information on internationally transferred mitigation outcomes (ITMOs), if relevant	Track international transfers of ITMOs and describe how double counting of net GHG emissions reductions has been avoided, including in accordance with guidance to be developed under Article 6.
Information on policies and measures, actions, and plans related to implementing and achieving NDC	Track progress of actions, including through evaluation of • a list of actions that are planned, adopted, or implemented; • progress toward qualitative or quantitative indicators related to implementation of actions and outcomes of actions; • estimates of the impact of key policies and actions on national GHG emissions (ex post between the policy implementation date and the current date and ex ante through the end of the NDC implementation period), to determine whether actions are delivering or expected to deliver the emissions reductions necessary to achieve the NDC; and • mitigation co-benefits of adaptation actions and/or economic diversification plans.
Projections of greenhouse gas emissions and removals	Forecast future emissions scenarios—including business-as-usual scenarios based on currently adopted and implemented actions and scenarios that include additional mitigation options that can be pursued—to determine how close or far the country is from achieving targets.
Sustainable development indicators related to actions taken to achieve the NDC to assess progress made in achieving SDGsw	Demonstrate domestic social, economic, and environmental benefits that mitigation actions are delivering, to build support for mitigation actions and ensure that actions are delivering multiple benefits across national priorities and objectives, including progress toward the SDGs. Benefits may include job creation, poverty reduction, air quality improvement, improved health, and cost savings, among others.
Additional sectoral indicators to assess performance of mitigation efforts underlying the NDC (to supplement indicators selected to track progress toward the implementation and achievement of the NDC)	Track trends in sectoral indicators to ensure that mitigation efforts are having the desired effects at the sectoral level and that key indicators are moving in the right direction. Examples include • annual statistics on the emissions intensity of various economic sectors and the economy as a whole (CO_2e/GDP); • the emissions intensity of the energy supply (CO_2e/MWh); • share of nonfossil fuel in primary energy consumption; • the share of electricity generated from different energy sources • vehicle-kilometers traveled by different transport modes; and • hectares of reforestation. A country may establish targets for sectoral indicators as a means of tracking progress toward broader goals. These can be used for domestic tracking purposes without being reported internationally.
External emissions drivers	Help understand why emissions are changing by tracking trends in drivers such as gross domestic product (GDP), population, energy prices, and weather.
Conditions related to the NDC, if relevant	If countries have separate conditional and unconditional contributions, track progress toward each contribution separately, where feasible, including tracking whether the stated conditions in the NDC have been met. It may be necessary to define the conditions more clearly in order to determine whether the conditions have been met. If the stated conditions are met, progress should be monitored toward achieving the conditional target.

Note: [a] UNFCCC (2019a, Annex, Section III. C. para. 75 [d]).

Source: Authors.

Adaptation

Under the Enhanced Transparency Framework, Parties are encouraged to report on a variety of adaptation-related information (explained in Section 5.1). This section provides further guidance on monitoring and evaluation of adaptation efforts. The information in this section is not part of the Enhanced Transparency Framework or requirements of the Paris Agreement.

Indicators for adaptation actions and goals are a key element of a domestic monitoring and evaluation system, as they enable monitoring and tracking of progress. They need to be chosen carefully to ensure that they can answer the questions about progress and impact, and that the data required are available at the right scale. If used appropriately, indicators can greatly increase understanding of a complex adaptation intervention's progress and success. Despite having a key role in monitoring, however, indicators alone cannot result in good monitoring; the project design, methods chosen, and capacity for learning from findings are equally important.

To provide examples of the kinds of indicators used in adaptation, GIZ's "Repository of Adaptation Indicators" (2014) highlights indicators from regional, national, and subnational M&E systems currently being piloted or implemented that have been reviewed in the GIZ study ***Monitoring and Evaluating Adaptation at Aggregated Levels: A Comparative Analysis of Ten Systems*** (GIZ and IISD 2014a). These indicators are intended to be representative, not exhaustive, and are a helpful starting point for showcasing the kinds of indicators currently being used in the adaptation space.

GIZ uses four categories to differentiate the focus of the indicator: climate parameters, climate impacts, adaptation actions, and adaptation results. The first two types of indicators are often used in vulnerability assessments:

- Climate parameter indicators: Information about observed climatic conditions that help track the climatic context within which adaptation strategies are being implemented. Examples include change in annual precipitation and number of hot days.
- Climate impact indicators: Information about the observed impacts of climate variability and change on socioecological systems to help track the climate context within which adaptation strategies are being implemented. Examples include number of hectares of productive land lost to soil erosion, losses of GDP in percentage per year due to extreme rainfall, and number of people permanently displaced from homes as a result of flood, drought, or sea-level rise.

To gauge the effectiveness of adaptation interventions, the following two sets of indicators are used:

- Adaptation action (implementation) indicators: Information to help track the implementation of adaptation strategies. Examples include uptake of soil conservation measures, percentage of the population living in flood and/or drought-prone areas with access to rainfall forecasts, and percentage of new hydroelectric projects that consider future climate risks.
- Adaptation results (outcome) indicators: Information to help monitor and evaluate the outcomes of adaptation strategies where outcomes are broadly understood in terms of increased adaptive capacity (often framed as development outcomes), decreased sensitivity to climate stress, or some combination thereof. Examples include percentage of farmland covered by crop insurance, increase in percentage of climate-resilient crops being used, and percentage of livestock insured against death due to extreme and slow-onset weather events.

The GIZ repository of indicators also includes a category for capacity-building and mainstreaming indicators, which are applicable across interventions in a given sector. Unlike the sectoral indicators, almost all of the indicators in this category are definitively about climate or adaptation, and the indicators in this category mostly focus on adaptation action. Examples of indicators in this category include the number of existing meteorological stations per territorial unit in the country, the degree of integration of climate change in national and sectoral planning, and the

number of vulnerable stakeholders using climate responsive tools to respond to climate variability or climate change.

Appendix B elaborates on possible approaches to monitoring and evaluation of adaptation goals and actions.

SELECT TOOLS AND RESOURCES FOR "MONITORING AND REPORTING PROGRESS"

- *Greenhouse Gas Protocol Mitigation Goal Standard* (WRI 2014a): This document provides guidance for designing national and subnational mitigation goals and a standardized approach for assessing and reporting progress toward goal achievement.
- *Greenhouse Gas Protocol Policy and Action Standard* (WRI 2014b): This document provides a standardized approach for estimating the greenhouse gas effect of policies and actions.
- *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (IPCC 2003): This document provides supplementary methods and good practice guidance for estimating, measuring, monitoring, and reporting on carbon stock changes and greenhouse gas emissions from LULUCF activities.
- *Guidelines for National Greenhouse Gas Inventories* (IPCC 2006): These guidelines provide methodologies for estimating national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases.
- **"Made to Measure: Options for Emissions Accounting under the UNFCCC"** (OECD 2013a): This paper identifies necessary building blocks for an emissions accounting framework and assesses progress made in reaching agreement on international accounting and reporting processes.
- **"GHG or not GHG: Accounting for Diverse Mitigation Contributions in the Post-2020 Climate Framework"** (OECD 2014b): This paper explores an effective post-2020 accounting framework and highlights issues that Parties may wish to consider when preparing and communicating their mitigation contributions.
- *Designing and Preparing Intended Nationally Determined Contributions* (UNDP and WRI 2015): This document guides Parties in the preparation and design of INDCs, including detailed technical guidance and process-related considerations.
- **"Climate Policy Implementation Tracking Framework"** (Barua et al. 2014): This framework is designed to provide guidance on selecting milestones and indicators that help track the progress of policy adoption and implementation.
- **AFOLU Carbon Calculator** (USAID n.d.): This calculator employs IPCC-based accounting methods that allow users to estimate the CO2 benefits and potential climate impacts of eight different types of land-based project activities.
- **MRV-Tool** (GIZ 2016): This tool provides developers and implementers of NAMAs with brief step-by-step instructions on how to develop a MRV-System.
- **"Monitoring Implementation and Effects of GHG Mitigation Policies: Steps to Develop Performance Indicators"** (Singh and Vieweg 2016): This working paper outlines three steps in developing indicators for monitoring performance: formulating a list of possible indicators, selecting indicators to monitor performance, and collecting and monitoring data.
- **Initiative for Climate Action Transparency Series of Guidance Documents** (ICAT 2018): This series focuses on guidance for the assessment of the GHG reduction, sustainable development, and transformational change impacts of policies and actions.
- **Adaptation Monitoring and Evaluation Toolbox** (AdaptationCommunity.net n.d.): These tools facilitate M&E of adaptation to climate change at the national level, multi-level, and project level.

For more tools and resources, see NDC Partnership (n.d.a).

CHAPTER 6: REVISING STRATEGIES AND PREPARING FOR SUBSEQUENT NATIONALLY DETERMINED CONTRIBUTIONS

QUESTIONS THIS CHAPTER HELPS ADDRESS:

How can implementation plans be amended to take into account monitoring and evaluation outcomes?

What options exist for updating and enhancing NDCs?

The collective ambition of the first set of NDCs is still far from setting the world on track to meet the Paris Agreement's long-term temperature goal. Indeed, if current commitments are fully implemented, the temperature is on track to rise 2.7°–3.7°C (Levin and Fransen 2015). For this reason, the Paris Agreement included a mechanism that encourages Parties to increase their level of ambition over time (Figure 6.1).

Results from monitoring and evaluation can help a country assess progress and identify the remaining effort needed to achieve its current NDC. Armed with this knowledge, countries can amend their implementation plans if necessary. With a view toward the future, the results can also help countries prepare for their next NDC submission. Next year, 2020, is a critical milestone for updating and submitting new NDCs, as the Paris Agreement invites those with an NDC ending in 2030 to update their NDCs by 2020 and asks those with an NDC ending in 2025 to communicate a new NDC by 2020. Parties will continue to do so every five years.

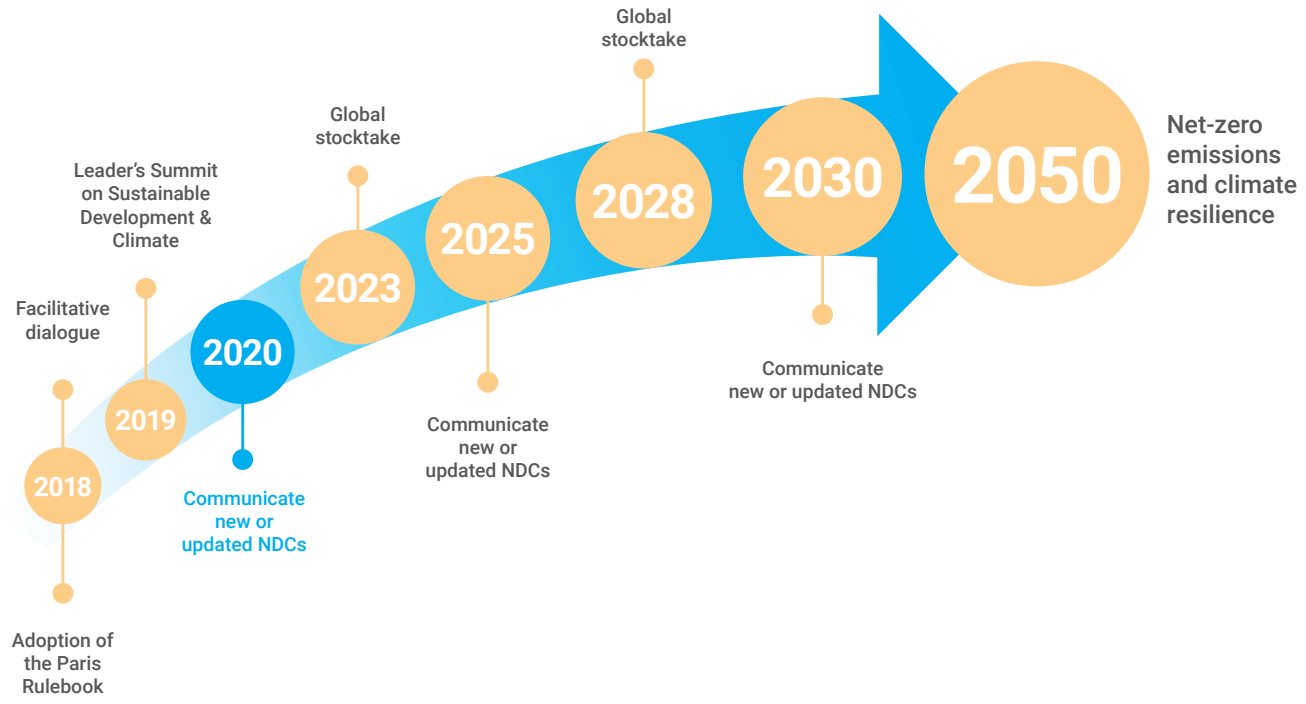
In parallel, Parties have been invited to develop midcentury low greenhouse gas emissions development strategies by 2020. These strategies can inform the direction of the NDC updates over time to ensure that action is taken to achieve the country's long-term vision and that other more carbon-intensive pathways are not locked in.

6.1 Revising Strategies to Achieve the Current NDC

Identifying how policies and plans are or are not delivering their intended results can lend legitimacy and evidence to processes related to adjusting NDC implementation plans.[28] If monitoring reveals that actions are performing well, a country can strengthen those actions; if it reveals that current measures will not achieve the NDC, the country can adjust its strategy and/or pursue additional measures.

[28] The Paris Agreement states that the NDC can be updated and that a Party can at any time adjust its NDC with a view toward enhancing its level of ambition.

FIGURE 6.1 AMBITION MECHANISM OF THE PARIS AGREEMENT



Source: Fransen et al. (2017).

For mitigation, countries can pursue a mitigation assessment to inform the adjustment of strategies and assessment of additional measures. This includes the following activities:[29]

- Develop an informational baseline scenario that represents the growth in emissions most likely to occur in the absence of additional mitigation activities.
- Identify and characterize mitigation options, including policies, actions, and technologies, based on factors such as mitigation potential, cost, ease of implementation, and co-benefits.
- Develop alternative scenarios that represent likely emissions trajectories that would occur if the mitigation strategies were implemented.
- Estimate incremental costs and benefits—including co-benefits and social costs and benefits—of the mitigation strategies.

For adaptation, countries can, for example, pursue the following:

- Identify actions and measures to reduce vulnerability and build resilience in sectors or localities not included in the initial NDC and opportunities to leverage synergies with SDGs and new national development priorities.
- Build on existing adaptation actions and priorities to initiate a comprehensive national adaptation plan (NAP) or other adaptation planning process.
- Monitor and review implementation of the NAP during the first monitoring cycle of the NDC or the iterative NAP timeline in order to identify emerging priorities, take account of progress made to modify priorities, or address additional actions identified through the monitoring cycle.

[29] Detailed technical guidance on mitigation assessments can be obtained from the IPCC and the UNFCCC, among other sources. See Sathaye and Meyers (1995); Tirpak et al. (1995); and UNFCCC (2013).

It is also critical to conduct gender analyses in key sectors, based on qualitative and quantitative data. And it can be useful to encourage cooperative measures with cities, regions, and the private sector in addition to those being pursued for the NDC. Some of these measures, such as encouraging cooperation with cities, regions, and the private sector, may facilitate implementation rather than lead to greater emissions reduction or adaptive capacity.

A formal review mechanism that includes public participation and engagement across government and elected bodies allows countries to assess the extent to which changes in the NDC implementation plan are required and the pros and cons of various ways to revise it. Engaging the public at this stage will help prioritize measures and strengthen support for the revised implementation plan. It can also be very helpful for countries to participate in international peer-review processes, both to learn from the experience of other countries and to obtain peer feedback.

Once an implementation strategy is revised, it should be communicated transparently to the public. If the NDC is adjusted—and it can only be adjusted to be more ambitious—it will also need to be communicated to the UNFCCC.

6.2 Preparing for NDC Updates by 2020

Tracking progress can inform subsequent NDCs, which are to be submitted every five years, with the next opportunity to update an NDC by 2020. The global stocktake will be held two years before NDC submission[30]. Its purpose is to inform Parties' updates and enhancement of actions and support.

According to the Paris Agreement, subsequent NDCs are to go beyond the current NDC and reflect the country's highest possible ambition. The Paris Agreement also states that developed countries should continue taking the lead, by adopting economy-wide, absolute emissions reduction targets. Developing country Parties

[30] For the first NDCs, the Facilitative Dialogue, or Talanoa Dialogue, served a similar purpose.

should continue enhancing mitigation ambition and are encouraged to move toward economy-wide emissions-reduction or limitation targets in light of their national circumstances. See Box 6.1 for an example of how select countries are beginning to enhance their ambition.

Options for increasing mitigation ambition include adding a GHG target; strengthening or adding a sectoral, non-GHG target; strengthening or adding policies and actions; and/or aligning implementation of an existing NDC with long-term goals. Whether these measures lead to additional reductions beyond the NDC depends on their details, as they may only facilitate implementation of the NDC as opposed to delivering additional action (Fransen et al. 2017).

Countries can also strive to strengthen the adaptation component of subsequent NDCs, as applicable. Options for doing so include updating or adding information on trends, impacts, and vulnerabilities; updating or adding national long-term goals or visions; updating or adding current and near-term planning and actions; updating or adding information on gaps and barriers; and/or updating or adding monitoring, evaluation, and learning plans (Fransen et al. 2017).

NDCs can also be enhanced by clarifying how the NDC will be implemented (e.g., including an explanation of the sectoral policies and measures that will be advanced to achieve the NDC). This clarification can also support greater alignment with a country's sustainable-development objectives under the 2030 Agenda for Sustainable Development (Fransen et al. 2017). Future NDCs should link to the SDGs if they are to gain wide support at the highest political levels, as well as among citizens. The role of women as active agents in both mitigation and adaptation must also be recognized.

In preparing subsequent NDCs, countries may wish to improve clarity, transparency, and understanding by assessing gaps in the information provided in their previous NDC and filling these information gaps where possible. This is especially relevant given that the Katowice Decision updated the list of information Parties should provide in their NDCs, which many Parties have provided information on to date, presenting an opportunity for improved transparency. This includes information provided on scope and coverage, assumptions and methodological approaches (e.g., for land-sector emissions and use of internationally transferred mitigation outcomes), and assumptions regarding the reference point, especially for baseline scenario targets and intensity targets (Fransen et al. 2017). Parties may also wish to make technical revisions to their NDCs due to other Katowice decisions, including related to adaptation communications, tracking of progress, and accounting provisions.

Lastly, it is critical that subsequent NDCs take into consideration the long-term goals of the Paris Agreement and be seen in the context of long-term strategies, as discussed in Chapter 1 (and see Box 6.2). This can be informed by Parties' long-term low-emissions development strategies, invited by 2020, which can help inform the ambition of NDCs in line with necessary long-term transitions.

BOX 6.1 INCREASING AMBITION

In 2018 Honduras revised its mitigation target and added a target to restore 1 million hectares of forests by 2030, with support from the NDC Partnership. Uganda has committed to implementing its NDC more quickly. The Republic of the Marshall Islands has developed a 2050 climate strategy that sets out a pathway to achieving 100 percent renewable energy and achieving net zero emissions, going beyond the NDC.

Source: NDC Partnership (2018).

Each subsequent NDC, and its implementation, should prove easier than the last, as domestic planning and stakeholder participation processes are better established, more data become available, and capacity is enhanced. Ideally, at least by the time Parties submit their second NDCs, the NDC process will be more fully integrated into countries' planning processes and reflect a compilation of commitments toward a zero-carbon economy in various national plans and policies. To be successful, both short- and long-term climate action will need to be integrated into sectoral and national planning and development efforts, as well as into investment decisions.

BOX 6.2 FACTORS TO CONSIDER IN DESIGNING FUTURE MITIGATION COMPONENTS OF NDCs

Factors that countries should consider in designing the mitigation components of their future NDCs include the following:

- *Art. 4.1 of the Paris Agreement:* "In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty."
- *When their emissions will peak.* According to the scenarios presented in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change,[a] emissions in all regions of the world must peak by 2020 for a cost-effective, likely chance of limiting warming to 2°C. The sooner emissions peak, the lower the required rate of reducing emissions each year, which can be less expensive and make for a smoother transition.
- *When they will phase out net greenhouse gas emissions*. To have a likely chance of keeping warming to below 2°C, net carbon dioxide emissions have to drop to zero on average by 2070. In scenarios that limit warming to 1.5 degrees C, net carbon dioxide emissions reach net-zero on average by 2050 (in scenarios with low or no overshoot); total GHG emissions reach net-zero between 2063 and 2068. [b] Parties will not reach net zero emissions at the same time, but these scientific guideposts indicate the scale of transformation required over the coming decades.
- *Long-term goals:* The Paris Agreement invites Parties to submit midcentury long-term low-emissions development strategies, which can inform the NDCs to ensure that their longer-term trajectory is feasible and that more carbon-intensive pathways are not locked in.
- *How to design NDCs in a way that advances infrastructure, technology, policy, and behavioral choices that lock in a low—and eventually zero—carbon trajectory.* Delaying transformation raises the cost of doing so, and may make doing so technologically and socially infeasible later.
- *How to ensure a realistic decarbonization rate, so that the annual rate of emissions decline is feasible*.
- *When emissions reduction milestones will be set and how cumulative emissions will be limited*. Temperature increase is directly related to the total amount of emissions in the atmosphere rather than emissions in a given year.[c] Thus, it will be important to set both milestones and consider the implications for a country's overall carbon budget or cumulative emissions.

Notes:

[a] IPCC (2014).

[b] Rogelj et al. (2018).

[c] Stocker et al. (2013).

Source: Authors.

SELECT TOOLS AND RESOURCES FOR "REVISING STRATEGIES AND PREPARING FOR SUBSEQUENT NATIONALLY DETERMINED CONTRIBUTIONS"

- **"Enhancing NDCs: A Guide to Strengthening National Climate Plans by 2020"** (Fransen et al. 2019): This paper helps countries design an enhanced NDC for communication to the UNFCCC by 2020. It proposes an overarching framework that countries can use to think through the process of, and options for, updating their NDC.
- **"Enhancing NDCs by 2020: Achieving the Goals of the Paris Agreement"** (Fransen et al. 2017): This paper presents a menu of options for how Parties can enhance their NDCs by 2020 as well as during future five-year cycles of NDC revision.
- *Designing and Preparing Intended Nationally Determined Contributions* (INDCs) (Levin et al. n.d.): This report guides countries in the preparation and design of INDCs, including detailed technical guidance and process-related considerations.
- *A Guide to INDCs* (Ricardo-AEA and CDKN 2015): This guide aims to support the preparation of INDCs. It offers a practical example of how an INDC could be structured and its key elements.
- **"Process Guidance for Intended Nationally Determined Contributions (INDCs)"** (Höhne et al. 2014a): This paper is provides guidance on the preparation process of INDCs according to the responsibilities and respective capabilities of countries to prepare the INDCs' individual components.

Note: Many of these documents were developed before the Paris Agreement and SDGs were finalized but still are relevant to the design of updated NDCs.

Appendix A: Overview of Select NDC Support Programs

Several NDC support programs exist to help countries through the design, implementation, and review of their NDCs. The **NDC Partnership** is a global coalition of countries and institutions collaborating to drive transformational climate action through sustainable development. Through the Partnership, members leverage their resources and expertise to provide countries with the tools they need to implement their NDCs and combat climate change to build a better future. Through in-country engagement, the Partnership engages directly with ministries and other stakeholders to help governments set priorities and connect them to available resources from across our membership. As every country has its own needs and challenges, the approach adapts to each country's unique situation. The NDC Partnership's Knowledge Portal helps countries accelerate climate action by providing quick, easy access to data, tools, guidance, good practice, and funding opportunities.

Several other support programs exist to help implement climate action, access financial and technical support, and share knowledge and resources. The **World Bank NDC Support Facility** is a multidonor trust fund created and designed to help developing client countries implement climate change targets laid out in the NDCs. Grants provided by the facility contribute to a host of activities, such as enhancing capacity-building, strengthening climate-relevant analytics, improving coordination among development actors, and maximizing financial leverage for in-country climate action. UNDP's **NDC Support Programme** works with countries to implement the Paris Agreement and strategically use their NDCs as a tool for realizing inclusive, zero-carbon, and climate-resilient development.

Several programs support specific regions. 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 deliver their climate change commitments under the Paris Agreement. **NDC Advance**, launched in December 2018, 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. The Inter-American Development Bank (IDB), together with the Inter-American Investment Cooperation, created **NDC Invest**, a one-stop shop for countries to access resources for transforming their national commitments into achievable investments plans. NDC Invest is a platform comprised of four elements: NDC Programmer, NDC Pipeline Accelerator, NDC Market Booster, and NDC Finance Mobilizer. Together, the components aim to enable progress toward both the NDC and IDB lending objectives, as well as toward achievement of the UN Sustainable Development Goals.

Appendix B: Possible Approaches for Monitoring Progress toward Different Types of Commitments

This appendix elaborates on Chapter 5 to illustrate possible approaches for monitoring progress toward three types of mitigation contributions:

- Policies and actions to reduce emissions
- Sectoral (non–greenhouse gas) targets, such as energy efficiency targets, renewable energy targets and forest cover targets
- Greenhouse gas emissions reduction targets

It also provides possible approaches for monitoring and evaluating progress toward adaptation actions and goals.

Mitigation

Policies and actions

Some mitigation contributions are in the form of policies, measures, actions, and plans, which represent intentions to implement specific means of reducing greenhouse gas emissions within a given time frame. Actions can be designed to achieve multiple social, environmental, and

economic sustainable development benefits in addition to climate change mitigation. Parties may also have adaptation actions and economic diversification plans that result in mitigation co-benefits.

Monitoring progress of policies and actions can involve the following elements, on a spectrum from simpler to more complex:

- Tracking the implementation of actions
- Tracking indicators related to the impacts of actions
- Estimating the impacts of policies and actions in terms of greenhouse gas reductions and other sustainable development benefits, including economic and social impacts

Tracking implementation is important to ensure that actions are being implemented as planned. Progress of actions can be tracked along a spectrum from planned actions to adopted actions to implemented actions. It can be useful to identify milestones for policy implementation and track the progress of indicators such as financing; licensing, permitting, and procurement; information monitoring; compliance and enforcement; and other administration activities necessary to ensure implementation (see Barua et al. 2014).

In addition to tracking policy implementation, it can also be useful to track relevant quantitative indicators related to the impacts of policies and actions, to ensure that actions are delivering the intended results (Table B1).

In addition to tracking policy implementation and impact indicators, the most robust approach is to also estimate the impacts of key policies and actions in the NDC relative to a baseline scenario, either ex post (backward looking) or ex ante (forward looking). Doing so reveals whether the policy or action is having the desired effects, whereas tracking indicators alone does not attribute changes to specific policies or actions. Box B1 describes how to estimate the impact of policies and actions. The impact assessment should be repeated at regular intervals to track progress over time.

Monitoring progress toward sectoral, non–greenhouse gas targets

Non–greenhouse gas targets in NDCs include energy-efficiency targets, renewable-energy targets, and forest-cover targets. During the NDC implementation period, monitoring progress involves regularly (e.g., annually) comparing the most recent value of the selected indicator(s) with base-year values and target values. Table 2 provides examples of targets and relevant quantitative indicators. Sustainable development indicators related to each target can be tracked at the same time to track progress toward SDGs.

Sustainable development indicators can be tracked at the same time. For more information, see the UN SDGs website (https://sustainabledevelopment.un.org/sdgs) and the UN SDG indicators website (http://unstats.un.org/sdgs).

Monitoring progress toward greenhouse gas emissions reduction targets

NDCs framed as greenhouse gas targets are commitments to reduce national greenhouse

TABLE B1. EXAMPLES OF INDICATORS RELATED TO IMPACTS OF ACTIONS

Policy	Indicator
Renewable energy policy	Electricity generation by energy source
Public transit policies	Passenger-kilometers traveled by transportation mode, disaggregated by gender and age
Waste management regulation	Metric tons (or percentage) of waste sent to landfills, recycling facilities, or incineration facilities
Afforestation/reforestation policy	Area of forest replanted, by type

Source: Adapted from WRI (2018).

gas emissions to a certain level by a future year. The monitoring approach depends on how the greenhouse gas target is framed.

Greenhouse gas targets can be expressed in the following ways:

- Base-year emissions target: A commitment to reduce, or control the increase of, emissions by a specified quantity relative to a historical base year (e.g., reduce emissions by 25 percent compared to 1990 levels by 2020).
- Fixed-level target: A commitment to reduce, or control the increase of, emissions to a specified emissions quantity in a target year or period (e.g., reach zero net emissions by 2050).
- Base-year intensity target: A commitment to reduce emissions intensity (emissions per unit of GDP or another variable) by a specified amount relative to a historical base year (e.g., reduce emissions intensity by 40 percent compared to 1990 levels by 2020).
- Baseline scenario target: A commitment to reduce emissions by a specified amount relative to a projected emissions baseline scenario (e.g., reduce emissions by 30 percent compared to the baseline scenario by 2020).
- Trajectory target: A commitment to reduce, or control the increase of, emissions to specified emissions quantities in multiple target years or periods (e.g., peak emissions in 2020 and then reduce emissions by 20 percent by 2030 and 80 percent by 2050).

BOX B1. ESTIMATING THE IMPACT OF POLICIES AND ACTIONS

Estimating policy impacts involves the following steps:[a]

1. Clearly define the action to be assessed.
2. Map the causal chain of the action to identify all potential greenhouse gas effects, including intended and unintended effects, and define the assessment boundary around significant effects.
3. Define the baseline scenario and estimate baseline emissions for all affected source and sink categories included in the assessment boundary.
4. Define the policy scenario and estimate policy scenario emissions for the same set of source and sink categories.
5. Subtract baseline emissions from policy scenario emissions to estimate the net greenhouse gas effect of the action.

The Greenhouse Gas Protocol *Policy and Action Standard*[b] provides further guidance on estimating the greenhouse gas effects of policies and actions. The CDM, Gold Standard, and Verified Carbon Standard, among others, provide methods for estimating greenhouse gas reductions from mitigation projects.

The same general approach can also be used to estimate social, economic, and environmental impacts of policies and actions, such as those included in the SDGs. Selected tools include the UNDP Climate Action Impact Tool, the CDM Sustainable Development Co-benefits Tool, and the Initiative for Climate Action Transparency *Sustainable Development Guidance*.

Notes:

[a] WRI (2014b).

[b] WRI (2014b).

Source: Authors.

TABLE B2. EXAMPLES OF NON–GREENHOUSE GAS TARGETS AND INDICATORS

Target	Indicators
Increase share of renewable energy in energy mix to 50 percent by 2025	• Share of renewable energy in the electricity mix • Total generation by source • Installed capacity by source
Increase energy efficiency by 50 percent by 2030	• Total energy demand or consumption • Energy intensity of the economy • Type of energy source
Increase forest cover to 70 percent of land area by 2025	• Percent of land covered by forest • Hectares of land covered by forest • Hectares of land restored or reforested • Cubic meters of forest stock volume • Metric tons of CO2 sequestered per year

Source: WRI (2018).

For greenhouse gas targets other than emissions intensity targets, a relevant indicator is total net GHG emissions and removals within the target boundary, based on the national greenhouse gas inventory. For emissions intensity targets, a relevant indicator is total net emissions within the target boundary per unit of GDP (or other variable). Figure B1 summarizes the steps involved.

Step 1 of monitoring progress toward greenhouse gas targets: Calculate the target level of the indicator

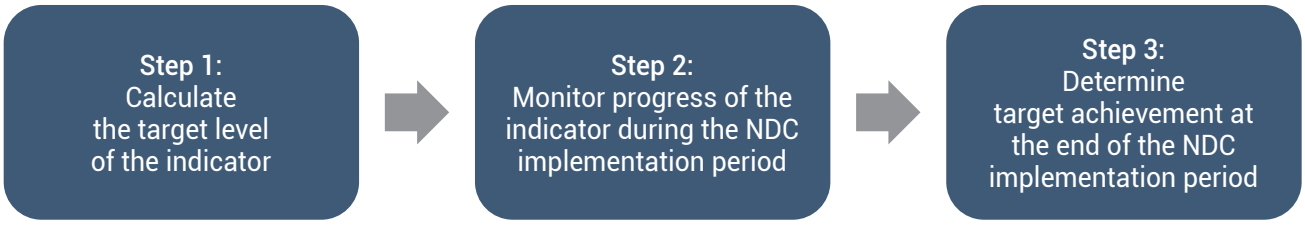
The first step is to determine the quantity of emissions (or emissions intensity) that can be released in the target year (e.g., 2030) if the NDC is achieved. This calculation varies by target type. Figure B2 illustrates and Table B3 provides equations for calculating the target level of emissions. If a country has a target that spans multiple years (i.e., a carbon budget approach), the equations in Table B3 can be applied to multiple years rather than a single year to calculate the target level of emissions over a target period.

The calculation of base-year emissions should be based on the national greenhouse gas emissions inventory from the base year, in turn based on the Guidelines for National Greenhouse Gas Inventories (IPCC 2006). If a country's target does not cover all sectors and greenhouse gases covered by the inventory (e.g., if the target excludes the land sector or covers only carbon dioxide), only the portion of the national greenhouse gas emissions covered by the target in the base year should be used to calculate base-year emissions.

For baseline scenario targets, this step additionally requires developing national GHG baseline scenario projection(s) through the target year. Methodological choices to consider include the following:[31]

[31] For more information, see OECD (2012); and WRI (2014a).

FIGURE B1. MONITORING PROGRESS TOWARD GREENHOUSE GAS TARGETS



Source: Authors.

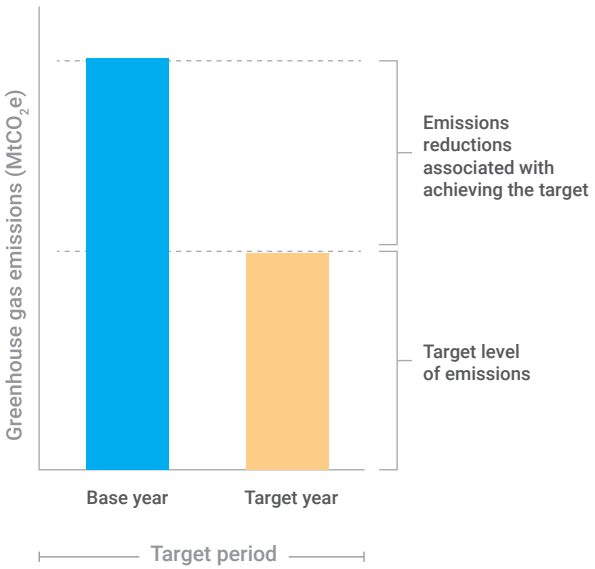
- Which national institutions, models, data sources, and procedures will be used to develop the baseline scenario?
- Which policies and mitigation actions are included in the baseline scenario and what is the cutoff year for inclusion of policies in the baseline scenario?
- What assumptions will be used for key drivers (such as GDP growth rates and energy prices)?
- Will the baseline scenario be static (fixed) or dynamic (updated) during the NDC implementation period? (A static baseline scenario is developed and fixed at the start of the goal period and not recalculated over time; a dynamic baseline scenario is developed at the start of the goal period and recalculated during the goal period based on changes in emissions drivers such as GDP or energy prices.)
- If the baseline scenario will be dynamic, what recalculation policy (established at the beginning of the NDC implementation period) will be followed to determine the conditions that would trigger a recalculation?

Step 2 of monitoring progress toward greenhouse gas targets: Monitor progress of the indicator during the NDC implementation period

During the NDC implementation period, monitoring progress involves regularly (e.g., annually) comparing the most recent value of the selected indicator(s) with base-year values and target values.[32] In the case of GHG targets, the indicator is emissions within the target boundary, based on the national greenhouse gas inventory, which

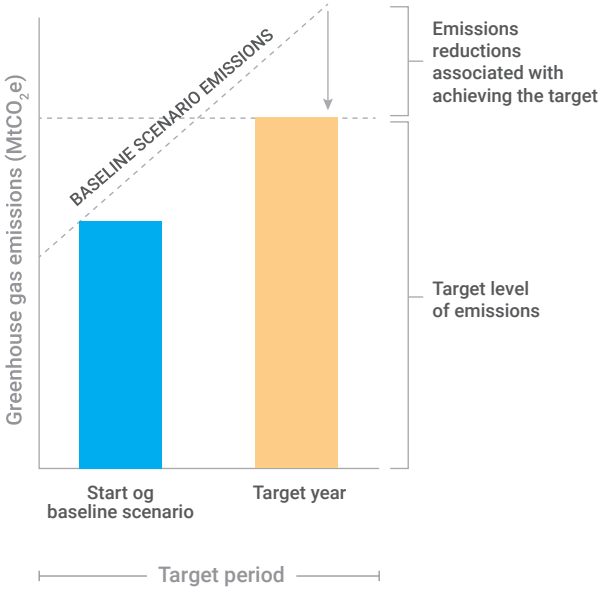
[32] For purposes of tracking progress under the enhanced transparency framework, the level of progress may be determined by comparing the most recent information for each selected indicator with the information provided as the reference point(s), level(s), baseline(s), base year(s), or starting point(s). This will indicate the amount of change that has occurred since implementation began only. However, it is very useful to also assess the amount of change that needs to be achieved in the future if the target is to be achieved.

FIGURE B2A. ILLUSTRATION OF CALCULATING THE TARGET LEVEL OF EMISSIONS FOR A BASE-YEAR TARGET



Source: Authors.

FIGURE B2B. ILLUSTRATION OF CALCULATING THE TARGET LEVEL OF EMISSIONS FOR A BASELINE SCENARIO TARGET



Source: Authors.

should be compared to base-year emissions and the target level of emissions. See Figure B3 for an illustration. For countries with emissions intensity targets, since the selected indicator is emissions intensity, monitoring progress involves comparing the most recent statistics on emissions intensity with the base-year level of emissions intensity and the target level of emissions intensity.

By assessing progress regularly during the NDC implementation period, countries can determine how much progress has been made to date and how much additional progress is needed in order to achieve the NDC. In general, an assessment of progress at each interval should include the following assessments:

- *An assessment of progress made so far:* Compare national greenhouse gas emissions from the start date of the NDC implementation period to the current date. It can also be useful to understand the underlying drivers for why emissions have changed, for example, due to a combination of mitigation policies taken, as well as changes in external factors such as economic growth and energy prices.
- *An assessment of remaining effort still needed to achieve the NDC:* Compare current greenhouse gas emissions from the national inventory to the target level of emissions in the target year (e.g., 2030) to understand the scale of emissions reductions needed. It can be useful to develop an updated business-as-usual emissions projection that includes all currently implemented and adopted policies, as well as various additional mitigation scenarios, to understand the level of effort needed and mitigation options available to meet the target.

Step 3 of monitoring progress toward greenhouse gas targets: Determine target achievement at the end of the NDC implementation period

The last step is to compare the quantity of emissions that counts toward the target in the target year with the target level of emissions in the target year. For countries with base-year intensity targets, this step involves comparing emissions intensity in the target year with the target level of emissions intensity. Determining progress can be simple or complicated, depending on whether

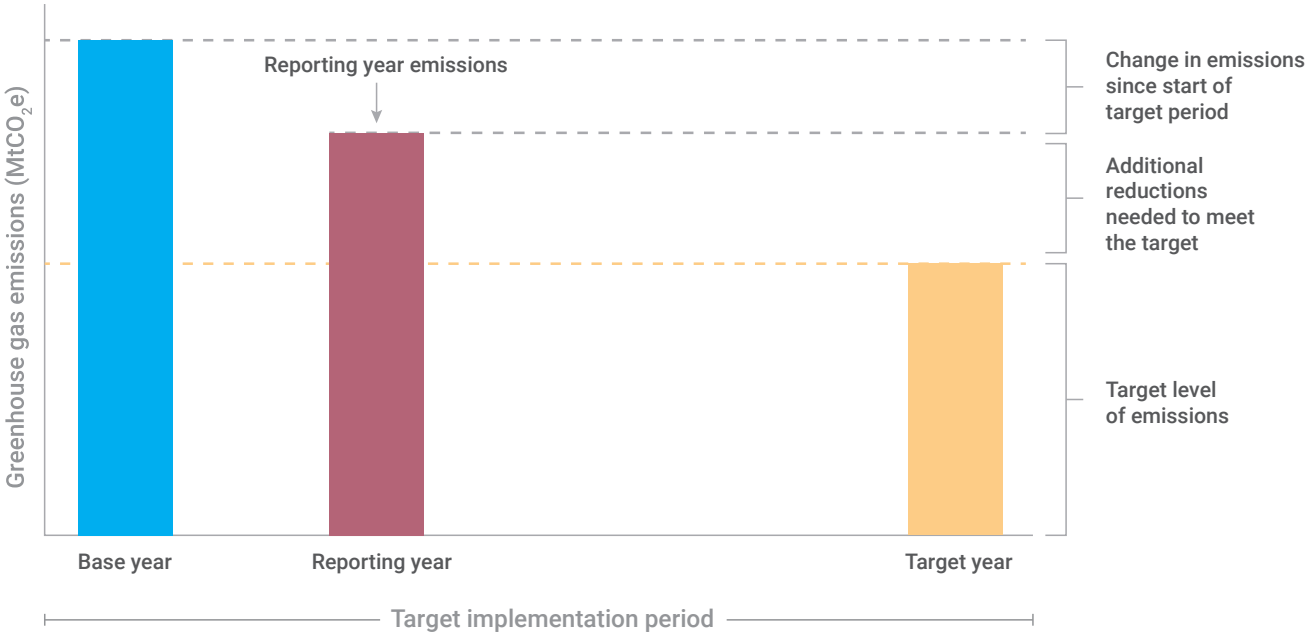
TABLE B3. EQUATIONS FOR CALCULATING THE TARGET LEVEL OF EMISSIONS IN THE TARGET YEAR

Type of Target	Calculation Method
Base-year emissions target	Target level of emissions in target year (Mt CO_2e) = base-year emissions (Mt CO_2e) – [base-year emissions (Mt CO_2e) × percent reduction]
Fixed-level target	Target level of emissions in the target year (Mt CO_2e) = absolute quantity of emissions specified by target level (Mt CO_2e)
Base-year intensity target	Target level of emissions intensity in target year (t CO_2e/level of output) = Base-year emissions intensity (t CO_2e/level of output) – [base-year emissions intensity (t CO_2e/level of output) × percent reduction] Estimated target level of emissions in target year (Mt CO_2e) = target level of emissions intensity in target year × projected level of output in target year
Baseline scenario target	Target level of emissions in target year (Mt CO_2e) = projected baseline scenario emissions in target year (Mt CO_2) – [projected baseline scenario emissions in target year (Mt CO_2e) × percent reduction]
Trajectory target	Target level of emissions in target year (Mt CO_2e) = absolute quantity of emissions specified by target level (Mt CO_2e) (insofar as emissions levels for various milestones along the emissions trajectory have been defined, such as an emissions peak and the level of emissions at the peak)

Note: For dynamic baseline scenario targets, emissions will be subject to change from recalculation of the baseline scenario.

Source: Adapted from WRI (2014a).

FIGURE B3. TRACKING PROGRESS IN RELATION TO THE TARGET LEVEL OF EMISSIONS



Source: WRI (2018), based on WRI (2014a).

the country has used accounting approaches for certain sectors that differ from the national inventory (such as the land sector) and/or used or transferred internationally transferred mitigation outcomes (ITMOs).

In the simple case of a country that has not used accounting approaches for the land sector that differ from the national inventory and has not engaged in ITMOs, the emissions in the target year in the sectors and gases covered by the target are compared to the target level of emissions in the target year. If emissions are lower than the target level of emissions, the mitigation target has been achieved. If emissions are higher than the target level of emissions, the mitigation target has not been achieved.

Depending on a country's NDC and its approach to accounting, additional steps may be required if a country chooses to use sector-, category-, or activity-specific assumptions, methodologies, and approaches, including for the land sector, and/or to transfer or use ITMOs.

If a country treats the land sector like other sectors and does not use or transfer ITMOs, progress toward the target can simply be based on the national greenhouse gas inventory, where emissions in the target year are compared to the target level of emissions (as calculated with the equations in Table B3). However, if a country applies specific accounting approaches for the land sector differently from other sectors or uses or transfers ITMOs, additional accounting and reporting considerations apply. Accurate and transparent accounting of ITMOs is necessary to ensure that any possible double counting of mitigation outcomes between Parties does not occur.

Specific guidance related to the use and transfer of ITMOs is still to be decided under the Paris Agreement; however, any country that participates in cooperative approaches that involve the use of ITMOs will be expected to track international transfers of ITMOs and describe how double counting of net GHG emissions reductions has been avoided, including in accordance with guidance to be developed under Article 6. Such countries will also be expected to report an emissions balance reflecting the level of emissions and removals covered by their NDCs adjusted based on corresponding adjustments undertaken by effecting an addition for ITMOs transferred

and a subtraction for ITMOs used or acquired, consistent with guidance developed related to Article 6 (UNFCCC 2019a, Annex, Section III. C. para. 77 [d]).

In the absence of detailed guidance, the following resources may be helpful on each topic:

- Land sector accounting approaches: see IPCC (2003, 2006); OECD (2013a, 2014b, 2014c); UNDP and WRI (2015); and WRI (2014a, 2018).

- Accounting for ITMOs: see OECD (2013a, 2014b, 2019); UNDP and WRI (2015); and WRI (2014a, 2018).

Adaptation

Adapting to the impacts of climate change is a long-term, iterative process. It is important to monitor progress in order to know what adaptation measures are working and to ensure that long-term, meaningful gains are being made in building resilience.

Adaptation is extremely variable in terms of the types of adaptation interventions, the scales at which they are implemented, the actors involved, and, therefore, the metrics that are appropriate for determining the success of the interventions. Since climate impacts affect individuals and communities differently, adaptation interventions are necessarily specific to a location and context. For this reason, monitoring and evaluation (M&E) is most often concentrated at the project level rather than at the national level. Measuring the effectiveness of location- and context-specific adaptation interventions requires tailored methodologies and indicators.

M&E of adaptation actions

The lack of a single tracking methodology for adaptation makes tracking progress complicated, but many options exist (GIZ 2017a; Bours et al. 2014; AdaptationCommunity.net n.d.). In order to select the most appropriate M&E methodology, it is important to have clarity about both the purpose of the adaptation intervention and the purpose of the evaluation, as well as to choose a methodology that can appropriately respond to the context in which an intervention is being implemented. Another consideration consists of the potential challenges that the M&E system may face. Choosing a methodology that is appropriate to the context and can contend with these challenges is important to the success of the findings. For instance, one of the most difficult challenges is that of implementing projects over fairly short time horizons, while wanting to monitor outcomes and impacts that will only manifest over long time horizons. In these situations, being realistic about what data can be collected and what can be said about attribution is important, and making use of theories of change, process indicators, and process evaluations is helpful.

M&E of adaptation goals

Many NDCs include clear adaptation goals, although these goals take many different forms.

- **Process Goals:** Most NDCs include goals to set in motion or complete elements of a long-term process that countries have identified as central to support successful adaptation, such as initiating a national adaptation plan (NAP) process or mainstreaming adaptation into national development frameworks or sectoral policies, either through the NAP process or separately.

- **Outcome Goals:** Some NDCs include goals that articulate a specific adaptation outcome that a country intends to achieve or need that it intends to fill. These goals are likely to be quantitative, such as Mexico's goal of eliminating deforestation by 2030.

- **Vision Goals:** Other NDCs articulate an overarching vision for adaptation, either in combination with or in lieu of process and outcome goals. For example, the Seychelles aims "to minimise the impacts of climate change through concerted and proactive action at all levels of society" (Republic of Seychelles 2015).

Making goals specific and measurable
The type of adaptation goals in an NDC is a key determinant of the information that should be monitored and the methods used. The information needed to monitor progress against a quantitative outcome goal will be different from that needed to assess progress in ongoing processes to support adaptation, such as a mainstreaming process. All goals should aim to be specific, measurable, and time-bound, in order to facilitate the monitoring and reporting of progress.

Where NDC goals already exist, they should be translated into specific and measurable actions, such as specific process measures and/or quantitative outcomes. Specific steps should be identified to meet them and benchmarks set on the path to achieving these objectives. As goals are revised in subsequent NDCs, countries can make them more specific, measurable, and time-bound in order to increase in ambition.

Monitoring progress in achieving **process goals** may seem like a fairly simple exercise, given that many of the process goals included in NDCs identify discrete, specific actions. While monitoring whether such actions are taken may be straightforward, measuring their effectiveness can be challenging. For example, a country can set the following process goal: "All levels of government have instituted disaster risk management systems by year Y." Even if all milestones are met and the system is put in place, there may not be adequate capacity to use the system, or the system may be ineffective. Methodologies such as the Tracking Adaptation and Measuring Development framework (IIED 2014) can help countries monitor the effectiveness of such process goals.

Outcome- and needs-based goals can be specific and measurable, as in the case of Mexico's goal of eliminating deforestation by 2030 or Ghana's goal of scaling up climate-smart technologies to increase livestock and fisheries productivity by 10 percent. Existing systems for measurement of such outcomes may exist (e.g., within line ministries or through international institutions that track such data globally). Noting gaps in data-collection systems, data storage, and data analysis and crafting plans to fill them are important early steps to enable effective monitoring.

Vision goals are likely to require the most effort to shape into actions that can be tracked in a meaningful way, and may require several steps to ensure they are translated into a form that is specific and measurable. Using the example of the Seychelles' adaptation goal "to minimise the impacts of climate change through concerted and proactive action at all levels of society," the following steps could be taken to ensure meaningful monitoring of progress:

- **Step 1:** Identify the climate change risks and hazards for the country (e.g., sea-level rise and increased storm surge).
- **Step 2:** Determine the sectors and communities most vulnerable to these impacts of climate change (e.g., coastal fishing communities).
- **Step 3:** Using this information, set objectives and adaptation actions that are specific and measurable (many of which could look like outcome or process goals or actions). For instance, the objective could be to reduce the vulnerability of poor and marginalized coastal fishing communities to sea-level rise and increased storm surge within five years. Actions could include mapping the communities most at risk, creating a climate change awareness-building program, and installing an early-warning system.

Vision goals are likely to build on and contribute to goals articulated in national development and climate change plans, policies, or legal frameworks beyond the NDC, and they may include linkages to the delivery of SDGs. Ideally, vision goals should have their own theories of change or causal explanations of how a range of adaptation plans, policies, and programs—at different scales and across sectors—can help achieve the goal. A review and analysis of existing plans, policies, and programs can be carried out to prioritize what to report on. The review should assess process- or outcome-level goals, indicators, and M&E systems at different geographic and sectoral scales, as well as institutional coordination mechanisms in place for sharing of information. Based on this review, a baseline, targets, and indicators can be set for vision goals, alongside sources of information, which can be used to aggregate data.

Beginning to measure NDC adaptation implementation

When considering progress toward national-level adaptation goals in NDCs, countries may require some mechanism by which to collectively assess various project-level adaptation interventions and the success they are having in increasing resilience. Capturing project-level success and feeding it into national reporting systems can be challenging, but it is critical to providing a comprehensive picture of adaptation progress, gaps, and needs. Countries may also use existing subnational, sectoral, or national M&E reporting systems, which may gather data across a range of projects and programs.

No single, overarching metric for adaptation exists. However, countries are already using various approaches to aggregating data and measuring progress that could be usefully applied in measuring progress in NDC implementation. Such approaches include the following (OECD 2017; GIZ and IISD 2014a, 2014b):

- Monitoring climate change and its impacts on socioecological systems, to provide up-to-date context for adaptation actions being tracked.
- Monitoring progress in implementing adaptation actions or monitoring progress in implementing an adaptation plan or strategy, such as a NAP.
- Monitoring the vulnerability or resilience of a system, through regular vulnerability or resilience assessments.
- Monitoring the results of adaptation actions, where results are understood in terms of reduced exposure to climate stresses, enhanced adaptive capacity (often framed in terms of development outcomes), decreased sensitivity, or some combination thereof.

- Applying a range of qualitative and quantitative indicators to measure outcomes and processes. About 70 percent of NDCs with adaptation components include goals that are wholly qualitative; less than 20 percent contain quantitative goals (GIZ 2017b). Many countries have adaptation indicators outside the NDC, defined as part of national development and climate change planning processes.
- Focusing on a particular sector, natural resource, or category of assets at risk (e.g., buildings or infrastructure).
- Aggregating data horizontally (across sectors) and vertically (across geographical areas), with a focus on the former.

Box B2 describes Uruguay's approach to monitoring and evaluating adaptation.

BOX B2. MONITORING AND EVALUATING ADAPTATION IN URUGUAY

In November 2017, Uruguay submitted its first NDC, which contains specific adaptation priorities, targets, plans, measures, and support needs to address the adverse effects of climate change. They are broken down by areas of interest and strategically important sectors and build on the experience and results of previous undertakings. The document, which is also considered to be Uruguay's first adaptation communication, recognizes a series of national adaptation plans (NAPs)—for the agricultural sector, cities and infrastructure, and coastal adaptation—as implementation vehicles of the adaptation component of the country's NDC.

Between 2017 and 2018, with the support of the UNDP-FAO joint NAP-Ag program and of the South American Institute for Resilience and Sustainability Studies (SARAS), Uruguay developed and implemented an assessment system of the vulnerability, adaptive capacity, and resilience of the productive sectors, focused on the definition of a matrix of indicators.

Recognizing the importance of national monitoring of adaptation policies and initiatives, through the development of the matrix of indicators, the Ministry of Livestock, Agriculture, and Fisheries (MGAP) seeks to measure the progress of its programs on adaptation and foster linkages, coherence, and complementarities among the ministry's efforts on NAPs and NDCs under the Paris Agreement, the Sendai Framework, and the 2030 Agenda with its SDGs. These indicators will be incorporated into national and local public policy management tools and plans.

The process of defining indicators involved a variety of approaches, including (1) "adaptation dialogues" or workshops; (2) an international and national literature review; (3) interviews with specialists, academics, and key actors from different sectors to discuss the preliminary matrix of indicators; and (4) validation. These approaches, fostered particularly by the adaptation dialogues, have allowed for valuable inputs into the creation of a matrix of indicators that Uruguay is employing to monitor the climatic vulnerability, adaptation, and resilience of its agricultural sectors. The matrix contains a list of approximately 150 indicators organized around three dimensions (climate, sensitivity, and adaptive capacity). Each indicator includes the following data elements: name, interpretation and sectorial relevance, calculation, source of information, frequency, scale, and observations.

Beyond the selection of indicators, the system allows for the systematic calculation of the baseline and targets against the indicators, based on the MGAP's specific capacities. The government expects that the information generated through the monitoring and evaluation of adaptation projects and policies will allow for greater financial and political support, while at the same time providing information to identify successful adaptation practices, needs, and challenges, allowing the appropriate institutions to investigate if adaptation actions are reducing vulnerability.

Source: UNDP.

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