NDC Invest:

Supporting Transformational Climate Policy and Finance

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NDC INVEST IDB

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Foreword

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The climate emergency presents tremendous challenges. We are already suffering many impacts from our changing climate. Between 1990 and 2007, over 163 million people were affected by extreme weather events, and 84,000 died in Latin America and the Caribbean (LAC). The COVID-19 pandemic just makes this worse and it, like climate change, affects vulnerable populations disproportionally. This is a particular concern for LAC, where about 30 percent of the population lives below the poverty line.

There is no time to spare. Current trends put us on a path to a global temperature rise of 3°C, well beyond the 1.5°C safer limits. Investment decisions made now will directly affect our capacity to limit the worst climate impacts, so the next nine years are crucial. The time for action is now, and the opportunities it can bring are enormous. Decarbonized and resilient economies mean sustainable and resilient cities, cleaner air and better health, decongested cities and improved productivity, as well as healthy forests and sustainable agricultural practices. The transformation will also offer important economic benefits and lead to more and better-quality jobs.

The tools to address climate and development challenges exist. Countries committed to updating their nationally determined contributions (NDCs) every five years to increase their ambition to address climate change; the next sizable deadline is this year's COP26. Furthermore, the Paris Agreement invites countries to develop long-term decarbonization strategies and engage in long-term adaptation planning processes. Countries in LAC are undertaking efforts in these areas, and as they do there is a big opportunity to align these instruments to broader development agendas and bring countries closer to a prosperous future and, more immediately, to a sustainable recovery from the impacts of the pandemic.

Through NDC Invest, we at the Inter-American Development Bank Group offer our knowledge, technical assistance, and financial tools to support countries in implementing their goals under the Paris Agreement, centered around the Sustainable Development Goals. Our areas of work are extensive, and in an effort to facilitate our support in this time of urgent action we sharpened our approach to advance three catalytic areas of work. First, planning robust long-term strategies for decarbonization and climate resilience. Many countries in the region are undertaking this work, and we at the IDB see the potential of this tool to inform Paris-aligned actions now and over years to come. Second, ambitious NDCs aligned to the long-term objectives, which can facilitate the integration of climate into national development agendas, and third, delivering results on the ground through finance strategies and climate-investment plans, translating targets into project pipelines and developing policies to align public and private finance and attract international climate finance.

In this report, we not only portray what we have learned throughout the years working closely with countries of Latin America and the Caribbean and world-class experts. We also offer a set of specific solutions to continue working together in bringing impactful results for the region. As our region is diverse and heterogeneous, the approaches included in this report are not intended to work as a fixed recipe but rather as a toolbox to provide flexible and relevant solutions tailored to country needs and context.

Our intention is to use our knowledge and support to serve countries in the region that are at the crossroads of enhancing climate ambition by kick-starting implementation and, at the same time, are seeking a sustainable recovery from the unprecedented health and economic crisis that is affecting all countries. We hope that our toolbox of support is instrumental to the noble purpose of the countries of our region.

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Abstract

The Intergovernmental Panel on Climate Change (IPCC) indicates that meeting the Paris Agreement's goal of limiting the global temperature rise from pre-industrial levels to between 1.5 and 2 degrees Celsius requires reaching net-zero emissions of carbon dioxide (CO_2) between 2050 and 2070, as well as deep reductions in the emissions of other greenhouse gases (GHGs) by around mid-century (IPCC 2018). At the One Planet Summit 2017, the multilateral development banks (MDBs) and the International Development Finance Club (IDFC) made a commitment toward aligning to the Paris Agreement. This was followed by a joint declaration in December 2018, when MDBs outlined six building blocks to lay the foundation for aligning with the Paris Agreement. MDBs have a responsibility and comparative advantages to support developing countries to implement the Paris Agreement and at the same time support economic and development agendas, which is especially relevant amidst the COVID-19 health and economic crisis and the years to come.

In response to these commitments, NDC Invest[1] was created as the one-stop-shop of the Inter-American Development Bank Group (IDB Group) providing technical and financial support for countries in Latin America and the Caribbean (LAC) in their efforts to achieve the climate objectives under the Paris Agreement, seeking to transition to net-zero carbon emissions and resilient and sustainable development pathways that improve quality of life and prosperity in LAC.

Current nationally determined contributions (NDCs) are far from being on track to limit global temperature rise to 2°C, let alone 1.5°C. Countries must enhance their climate ambition for the next round of NDCs, including those currently being updated as well as future iterations required every five years, and this comes with significant challenges. Throughout the years closely supporting LAC countries, we at NDC Invest have learned the main challenges they face to design and implement actions that lead them towards net-zero emissions by 2050 and long-term climate resilience, which range from lack of a scientific basis for decision making, governance arrangements, and public and private stakeholders' involvement and buy-in, to difficulties in aligning climate policies to broader development goals and translating them into effective implementation through systematic programs and financial instruments.

In learning and understanding these challenges and piloting solutions we have developed a toolbox for support. This paper describes the three NDC Invest products through which we support governments to address such challenges and scale up action to tackle climate change and sustainable development: (i) the design of Long-Term Strategies (LTS) for net-zero emissions and climate resilience;[2] (ii) design of ambitious Nationally Determined Contributions (NDCs), aligned to LTS; and (iii) design of investment plans and finance strategies.

Our work is guided by a set of principles key to ensuring an effective and successful transition towards a net-zero and climate-resilient future. These principles stress the need to align LTS and NDCs to multiple development objectives and to a long-term vision, and thus use them as instruments for sustainable development. To design effective LTS and NDCs, with detailed actions in the short, medium, and long term, these principles highlight the relevance of designing LTS and NDCs based on the best available science, as well as with inputs from and close collaboration with different stakeholders. Finally, the successful implementation of these instruments will highly depend on the reality of each country, for which it is of utmost relevance to design a tailored process to develop investment plans to catalyze delivery of climate targets and policy frameworks to align public and private resources towards a net-zero and climate-resilient development path including elements of just transition.

1 https://www.ndcinvest.org/

2 As will be explained in this report, LTS for net-zero emissions and climate resilience (also known as long-term adaptation plans) are different in nature. However, given that several countries in LAC are developing Long-Term Strategies that include both subjects, we will be referring to them as "LTS for net-zero emissions" and "LTS for long-term climate resilience."

This document provides an overview of the type of support that NDC Invest provides to help countries enhance climate ambition, offering solutions to support governments. Our three products are not a fixed recipe, but rather a toolbox to provide flexible and relevant solutions tailored to country needs and context, and different stages of design and implementation of their climate targets. These are:

Plan beyond – Design of LTS for net-zero emissions and climate resilience: supporting the design of technically and politically sound LTS and strengthening the local capacity of governments and academia to inform long-term development strategies.

Increase ambition – Design of aligned NDCs: supporting the design of ambitious and achievable climate targets to inform updated NDCs aligned with long-term objectives, using robust analytic tools and processes.

Act Now – Investment plans and finance strategies: informing public policy and investment priorities to attract financing required to deliver results.

The first chapter shares the main challenges identified to advance with the implementation of the Paris Agreement and a set of guiding principles that can be applied across NDC Invest to advance the climate and sustainable development agendas. It also includes an overview of the NDC Invest toolbox of support.

The second, third, and fourth chapters detail our approach for each of the three products, including the rationale for each product and a toolkit of activities that NDC Invest provides.

Chapter 1
Overview

Chapter 1 - Overview

NDC Invest[3] is the one-stop-shop of the IDB Group providing technical and financial support for countries in Latin America and the Caribbean (LAC) in their efforts to achieve the climate objectives under the Paris Agreement.[4] It seeks to support the transition to a net-zero carbon emissions—hereafter "net zero"—climate-resilient and sustainable economy that improves quality of life and prosperity.

In terms of policy and planning, countries are facing three challenges to scale up action to tackle climate change:

- **Countries are invited to submit long-term strategies (LTS)[5] and engage in adaptation planning processes.** However, long-term planning across different sectors of the economy is complex. LTS[6]—which aim to translate emission reduction and climate-resilient targets as well as socioeconomic goals into a sequence of actions required across sectors to support them in the long, medium, and short term to achieve net-zero emissions by mid-century and long-term climate resilience—are fundamental to prioritize short-term actions, including more effective and ambitious NDCs, and to ensure a just transition, maximizing development benefits and minimizing negative impacts.

- **New or updated nationally determined contributions (NDCs)[7] will need to be updated/developed every five years.** Current NDCs are far from being on track to limit global temperature rise to 2°C, let alone 1.5°C (IDB and DDPLAC 2019; González-Mahecha et al. 2019). For instance, to achieve emissions targets consistent with the Paris temperature goals, LAC should derive 60 to 70 percent of its electricity from zero-carbon sources by 2050, but under the current NDCs the share of zero-carbon sources in power generation will remain stable at 53 percent by 2030. Continuing under current NDC objectives and trying to adjust objectives after 2030 would result in unnecessarily higher costs and stranded assets (IDB and DDPLAC 2019). Increasing emission-reduction ambition is therefore a must. Additionally, countries are including adaptation commitments and needs in their new NDCs, and the alignment of such commitments to long-term resilience objectives is urgent.

- **The implementation phase of the Paris Agreement officially started in 2020, and countries will need to mobilize investments to deliver results on the ground.** To deliver LTS and NDCs objectives, countries will need to align and attract the finance for the required investments. This will require clarification of investment priorities, as well as coherent policy and institutional decision-making processes to send clear signals to the economy, enabling the creation and consolidation of markets that are in line with net-zero, climate-resilient, and sustainable economies.

This document provides an overview of the type of support that NDC Invest provides to help countries enhance climate ambition through these three fronts of action, aligning climate and development objectives. The areas of support presented in this document are informed by our experience supporting countries with the implementation of the Paris Agreement, developing knowledge and piloting new approaches. This document also presents a practical toolbox and guiding principles on how the IDB Group helps countries advance implementation of climate and sustainable development objectives, considering wider socioeconomic objectives. This is an evolving approach that seeks to deliver tangible results to inform policy and investments now to advance towards a net-zero, climate-resilient and prosperous economy for the region.

3 https://www.ndcinvest.org/

4 https://unfccc.int/sites/default/files/english_paris_agreement.pdf

5 As of November 2020, Costa Rica and Mexico have submitted formal LTS to the UNFCCC. Argentina, Chile, Colombia, Peru, and Uruguay are preparing LTS for submission in 2021.

6 LTS for net-zero emissions and long-term adaptation plans are different in nature. However, given that several countries of the LAC region are developing Long-Term Strategies that include both approaches, we will be referring to them as "LTS for net-zero emissions" and "LTS for long-term climate resilience."

7 As of December 2020, LAC countries that have formally submitted updated NDCs to the UNFCCC are Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Jamaica, Mexico, Nicaragua, Panama, Peru, and Suriname.

1.1 Guiding Principles

NDC Invest support is informed by a set of principles:

1. **The design and implementation of LTS and NDCs should pursue multiple development objectives.** Full decarbonization of the economies and actions to achieve long-term climate resilience will require transformational changes in all sectors. As such, these transformations need to happen—and can happen—while attaining sectoral and national priorities, development goals,[8] and the Sustainable Development Goals (IDB and DDPLAC 2019; WRI 2018; Pathak 2017; UN Adaptation Committee 2019; Van Tilburg et al. 2018). This is imperative not only to make LTS/NDC feasible, but because it makes economic and social sense. For example, decarbonization will require improvements in the public transport sector, making it cleaner, more efficient, and reliable, increasing productivity due to the consequent reduction of time spent in traffic (IDB and DDPLAC 2019). Decarbonization will also bring important health benefits, as electric vehicles and renewable energies replace more polluting fossil fuel–based technologies. A recent IDB report demonstrates that decarbonizing the Costa Rican economy will bring US$41 billion in net benefits (Groves et al. 2020), and an IDB and ILO report shows that decarbonization actions will create 15,000 net jobs in Latin America and the Caribbean (Saget, Vogt-Schilb, and Luu 2020). Adaptation to climate change will not only avoid human and asset losses, but also bring significant benefits to the well-being of the most vulnerable (Hallegatte et al. 2017). As such, NDC Invest will support the design and implementation of LTS and NDCs that identify and inform delivery of wider development benefits.
2. **The design and implementation of LTS and NDCs should be based on the best available science.** The Paris Agreement recognizes "the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge" (UNFCCC 2015). Using the best available science is key for understanding the required transformations for a decarbonized and climate-resilient future and is therefore essential to enhancing climate ambition. NDC Invest builds on academic and analytical work to investigate the technical, economic, and social dimensions of long-term decarbonization and climate resilience using, among others, available sectoral and macroeconomic modeling tools to explore uncertainties intrinsic to long-term strategies.
3. **The design and implementation of LTS and NDCs should be aligned to the long-term goals of the Paris Agreement.** Stopping the climate crisis requires ambitious policy reforms from all countries. Through the Paris Agreement, global leaders have pledged to make efforts to stabilize the increase in global temperature well below 2°C and preferably below 1.5°C. The Intergovernmental Panel on Climate Change confirmed in 2018 that these targets require reaching net-zero carbon emissions by around 2050 (IPCC 2018). This information can reshape the way countries plan and deliver climate action, as it makes it possible to design plans to achieve a specific goal in a clear timeframe. Similarly, adaptation and climate-resilience enhancement (in particular adaptive capacity[9]) are strongly emphasized in the Paris Agreement (Article 7) and includes a call for all countries to engage in national adaptation planning processes. As such, NDC Invest supports governments to design and implement LTS and NDCs aligned to the long-term goals of the Paris Agreement of reaching net-zero carbon emissions by 2050[10] and planning for long-term climate resilience.
4. **The design and implementation of NDCs and LTS should consider specific actions for the short, medium, and long term.** LTS are essential to guide short- and medium-term actions so

8 https://www.undp.org/content/undp/en/home/sustainable-development-goals.html

9 The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences (IPCC 2007).

10 The Intergovernmental Panel on Climate Change (IPCC) indicates that meeting the Paris Agreement's goal of limiting the global temperature rise from pre-industrial levels to between 1.5 and 2 degrees Celsius requires reaching net-zero emissions of carbon dioxide (CO2) between 2050 and 2070, as well as deep reductions in the emissions of other greenhouse gases (GHGs) by around mid-century (IPCC 2018).

that such actions do not find themselves inadvertently detrimental to long-term decarbonized development (IDB and DDPLAC 2019). Some actions that are seemingly virtuous in the short-term regarding emission reduction, such as replacing coal power with natural gas, can lead to carbon lock-in and stranded assets and jeopardize the achievement of long-term decarbonization. Similarly, understanding the long-term impacts of climate change and the required actions to achieve long-term climate resilience enable the development of possible adaptation pathways, informing adaptation actions needed in the short and medium term and actions required to avoid maladaptation.[11] As such, the design and implementation of LTS and NDCs should incorporate specific and actionable actions for the short, medium, and long term.

5. **The design and implementation of LTS and NDCs should be an iterative and co-constructed process.** The effective integration of the climate and development agendas needs to be done with broad participation and engagement of sectoral stakeholders. Sectoral policymakers and experts not only understand the challenges, opportunities, and possible mechanisms to deliver the required transformations, but ultimately they will oversee their execution. To appropriately reflect sectoral priorities and concerns, and at the same time manage political sensitivities, designing an LTS or an NDC has to entail extensive consultation and dialogue from the outset through implementation. Key stakeholders include government entities responsible for the design and execution of LTS and NDC, usually led by ministries of environment or institutions traditionally in charge of climate and environmental policy, which have technical knowledge on climate. In addition, given that reaching net-zero emissions and climate-resilient development requires transformations across all sectors of the economy, LTS and NDCs should be co-constructed with all relevant sectors of the government (such as energy, agriculture, transport, planning, and finance ministries, etc.) as well as those who will be most involved in these transformations, such as sector associations, firms, energy utilities, unions, researchers, indigenous communities, civil society groups, and others according to country-specific context. Early engagement will also create broader acceptance and ownership of the process. In addition to engaging and co-constructing with stakeholders, long-term planning for both net-zero emissions and adaptation processes needs to be designed to be iterative to incorporate new information as well as technological, economic, social, and political developments over time. This is particularly critical for long-term resilience.[12]

6. **The design and implementation of LTS and NDCs should be tailored to country context.** There is no one-size-fits-all solution to designing and implementing NDCs and LTS. Countries of the region have different socioeconomic realities, characteristics, natural resources, and needs that will require customized approaches to address climate change. Information needs, national capacities, institutional arrangements, and economic and political structures vary widely across LAC. As such, the design and implementation of LTS and NDCs need to be done in consideration of these particularities for them to be successful. Similarly, LAC countries are different in terms of economic development and advancement of their climate agendas: some of them already have LTS and updated NDCs while some others are in development phase; some countries are already planning for implementation whereas others need to redefine clear goals and visions before entering that stage. NDC Invest provides support to countries acknowledging their intrinsic differences and considering a modular approach, adaptable to their own characteristics and needs.

7. **The design and implementation of LTS and NDCs should ensure a just transition.** The transformation to a decarbonized and climate-resilient future will require social and economic transformations that can have relevant implications on livelihoods. For instance, the IDB and

11 "Maladaptation" refers to climate adaptation actions that either increase present-day or future climate vulnerabilities within the boundaries of an operation, shift vulnerabilities from within the boundaries of an operation to an external/surrounding system (causing adverse effects on social, environmental, economic, or physical aspects of the system) or erode sustainable development objectives.

12 Long-term climate resilience, defined as the ability of a social, economic, or environmental system to cope with great change or disruption, is a constantly changing state, not an absolute goal. As such, the establishment of iterative processes for constant revision is absolutely essential for its perdurance.

ILO report estimates that seven and a half million jobs in the region will be destroyed in fossil fuel electricity, fossil fuel extraction, and animal-based food production in the transition to a decarbonized economy (Saget, Vogt-Schilb, and Luu 2020). Even if decarbonization actions can potentially bring 15,000 net jobs to the region by 2030 and will play a relevant role for a just transition, recognizing and addressing these challenges is essential in the design and implementation of LTS and NDCs.

1.2 NDC INVEST Support Toolbox

Responding to the three main challenges identified—which are areas of opportunity for transformational support—to scale up climate action in LAC, NDC Invest offers solutions to support governments in advancing their pledges under the Paris Agreement through three main products:

1. Plan beyond – Design of LTS for net-zero emissions and climate resilience: NDC Invest supports governments in the design of technically and politically sound LTS and strengthening local capacity of governments and academia to inform long-term planning.

2. Increase ambition – Design of aligned NDCs: Using robust analytic tools and processes, NDC Invest supports the design of ambitious and achievable climate targets aligned with long-term objectives.

3. Act Now – Investment plans and finance strategies: NDC Invest supports governments to identify and inform public policy and investment priorities to attract financing required to deliver results on the ground.

Having clear evidence, sequencing of specific actions, defined priority investments, and required policy reforms is at the heart of catalyzing climate action and seizing development benefits. Having robust LTS, NDCs, and investment plans will enable better government coordination and provide signals to direct financial flows towards net-zero, climate-resilient solutions and sustainable economies. NDC Invest unites IDB's long experience and expertise informing public policy, planning, and investments to support climate and development objectives[13] (**Box 1.1**).

NDC Invest has developed and piloted technical assistance approaches in these three areas. These approaches are not a recipe set in stone, but a toolbox to frame country support. The three areas may overlap, since advancing LTS and NDC design and implementation is not a linear process. Support needs to be tailored to the specific country context, needs, and stage of progress on the climate and sustainable development agenda. Naturally, there is also overlap in the following chapters presenting these three areas of support.

13 In 2016 the IDB Group Boards of Governors endorsed "the goal of increasing the financing of climate change related projects in LAC to 30 percent of the IDB's and IDB Invest's combined total approvals of loans, guarantees, investment grants, technical cooperation, and equity operations by December 31, 2020, subject to demand from borrowing countries and clients and access to external sources of concessional financing." Governors also welcomed "Management's objective to improve the evaluation of climate risk and to identify opportunities for resilience and adaptation measures at the project concept stage" (Climate Change Goal of the IDB and the IDB Invest [AB-3067] or Bahamas Resolution). Furthermore, IDB Invest has a mandate to align all its transactions with the Paris Agreement and maintain a climate finance floor of 30 percent. Nowadays, it is one of the major decarbonization funders in LAC through building renewable energy infrastructure and providing climate smart solutions to corporations and financial institutions.

Figure 1. Overview of NDC Invest Products

Move from a sole project bottom-up approach to a programmatic identification of investment priorities.

Asses the resources required for the different stages of implementation of LTS and NDC.

Clarify the role of public funds, financing instruments and policies to address financing gaps and to scale up private financing.

Increase coherence and effectiveness of accessing international climate finance.

Implement methodologies and tools to integrate climate objectives across public decision-making processes.

Define necessary interinstitutional arrangements and clear responsibilities, engaging sectoral, planning, and finance ministries.

Convene public and private financial spheres around sustainable investments and climate-risk management practices.

Understand and quantify the physical transformations required to achieve decarbonization and climate-resilience goals.

Asses the socioeconomic impacts of the transition.

Create consensus for wide ownership of the LTS throughout the design process.

Clarify policy instruments, regulatory changes, and governance structures needed to deliver the transformation.

Generate robust science-based information and strengthen local analytical capacity.

Manage uncertainty of long-term planning.

Set up goals aligned to decarbonization by 2050 and integrate adaptation goals in NDCs.

Set up effective institutional frameworks for the design, execution, and monitoring of NDCs.

Enable effective engagement with a wide range of stakeholders.

Align NDCs with national development priorities.

Design executable NDCs with clear goals, targets, and indicators that translate into clear policy and investment language.

Improve transparency mechanisms.

Guiding principles:

- *Pursue multiple development objectives*
- *Tailored to country context*
- *Based on the best available science.*
- *Iterative and co-constructed process.*
- *Consider specific actions for the short, medium, and long term*
- *Aligned to the long-term goals of the Paris Agreement*
- *Ensure a just transition*

BOX 1.1. **IDB Comparative Advantages to Support the Design and Implementation of LTS**

a. **Sector and policy knowledge:** Analytical knowledge of each sector of the economy, barriers to a country's development, and policy options to lift them.

b. **Development focus:** IDB is tasked with advancing sustainable development that recognizes the multiple objectives that a balanced development path should achieve, considering for example the reduction of poverty and inequality, improving health, and advancing infrastructure and institutional capacity.

c. **Multiplicity of stakeholders:** Long track record working with both national and subnational governments and with the private sector.

d. **Local presence across countries in the region:** IDB is a close partner with deep understanding of the local context of its 26 borrowing countries.

e. **Ability to work under a high-level mandate,** thanks to our strong relationship with ministries of finance and heads of government.

f. **Convening power in all sectors:** Long-standing relations with all branches of the executive government, academia, think tanks, civil society groups and other cooperation agencies.

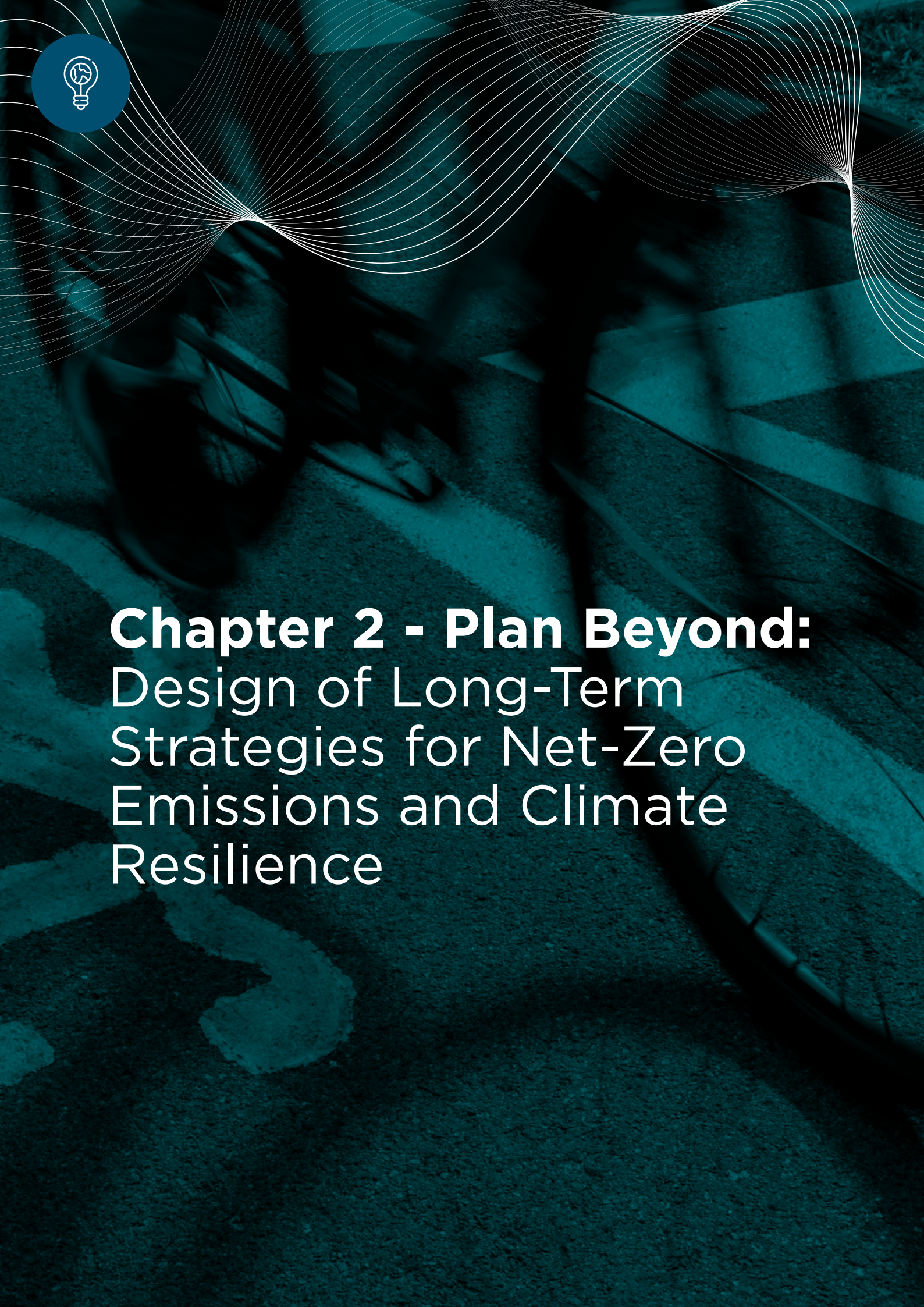
g. **Cross-sectoral coordination mandate:** Regular dialogue with governments on the coordination and prioritization of public actions across sectors.

h. **Technical assistance funding:** Recognized track record funding studies and other technical assistance efforts.

i. **Investment financing:** Being the primary development financing partner to countries in LAC positions IDB to provide investments to propel the implementation of LTS.

j. **Policy financing:** Available tools to support policy and regulation changes through policy-based loans.

k. **International scope:** International leadership role in sharing lessons learned from successes and failures across countries and facilitating peer exchange directly between countries.



Chapter 2 - Plan Beyond: Design of Long-Term Strategies for Net-Zero Emissions and Climate Resilience

Chapter 2 - Plan Beyond: Design of Long-Term Strategies for Net-Zero Emissions and Climate Resilience

A long-term strategy (LTS) is an overall development strategy and its associated sequence of measures and sectoral or transversal policies that result in emission trajectories towards net-zero emissions by mid-century and pathways for climate resilience. LTS are not to be mistaken for emissions trajectories or a collection of seemingly isolated projects; rather they should provide a coherent roadmap across all sectors to achieve climate and development objectives.

Transitioning to net-zero emissions is necessary to contain the climate crisis. The Intergovernmental Panel on Climate Change (IPCC) indicates that meeting the Paris Agreement's goal of limiting the global temperature rise from pre-industrial levels to between 1.5 and 2 degrees Celsius requires reaching net-zero emissions of carbon dioxide (CO_2) between 2050 and 2070, as well as deep reductions in the emissions of other greenhouse gases (GHGs) by around mid-century (IPCC 2018).

To guide the necessary transformations, countries are invited by the Paris Agreement (Article 4.19) to formulate and communicate long-term low emission development strategies. Such LTS will help countries set up their vision for a decarbonized economy and identify cross-cutting and sectoral policy roadmaps to be deployed over time to achieve their vision in an economically beneficial and socially just manner (UNFCCC 2015).

Experts agree that a net-zero carbon economy is technically doable (Box 2.1) and, if done right, will bring net economic benefits. The OECD suggests that decisive action taken now towards decarbonization, if accompanied by structural policies, could increase GDP in 2050 by up to 2.8 percent on average across G20 countries (OECD 2017). For example in Costa Rica, delivering the goal of net-zero emissions by 2050 is expected to bring the country US$41 billion in net benefits (**Box 2.2**).

Actions to decarbonize can also help overcome development gaps. For example, transport systems relying more on public transport and electric vehicles can improve the quality of life for citizens of LAC countries and bring several percentage points of GDP worth of benefits through reducing time lost on congested roads and minimizing the health impacts of air pollution. With the significant cost declines in renewable energy technologies countries could achieve much higher emission reductions at the same cost that was planned in the original NDC, improving energy access in rural areas and reducing energy bills (IDB and DDPLAC 2019). Embracing a net-zero carbon economy can also create jobs: 15 million net new jobs by 2030 in the case of Latin America and the Caribbean (Saget, Vogt-Schilb, and Luu 2020).

Box 2.1. Achieving Net-Zero Carbon Economies Is Technically Feasible through Action in Five Pillars of Decarbonization

1. Producing zero-carbon electricity (e.g., through a large-scale rollout of energy from renewable sources).
2. Undertaking massive electrification (e.g., deployment of electric vehicles and electric cooking stoves).
3. Increasing the share of public and non-motorized transportation.
4. Halting deforestation, developing and scaling up low-carbon agriculture practices, and protecting and regenerating natural carbon-rich ecosystems.
5. Improving efficiency and reducing waste across all sectors, particularly from energy and food consumption, and switching to less carbon-intensive industrial processes, building materials, and diets.

Source: IDB and DDPLAC (2019).

Box 2.2. The Benefits and Costs of Decarbonizing Costa Rica's Economy

The study *The Benefits and Costs of Decarbonizing Costa Rica's Economy* (Groves et al. 2020), produced by the IDB with RAND Corporation, the University of Costa Rica, and the Government of Costa Rica, analyzes the costs and benefits of the Costa Rican Decarbonization Plan (see Box 2.3) under uncertainty. The study builds on inputs and information provided by more than 50 government agencies and organizations representing key sectors linked to the National Decarbonization Plan. The study finds that, well-executed, the plan will bring US$41 billion by 2050 in areas including economic productivity, competitiveness, quality of life, and ecosystem services, even after paying investment costs necessary to electrify transport, improve agricultural and livestock practices, and the restoration and protection of ecosystems, which account for US$37 billion.

To assess the uncertainty surrounding a plan that would take three decades to implement, the technical team evaluated emissions, benefits, and costs in 3,003 plausible futures. Of these, the plan had net costs in only 21.

Yet, governments will need to anticipate and manage barriers to the transition to net-zero, notably possible social and fiscal costs that might need to be redistributed, and to lift regulatory barriers that prevent the adoption of zero-carbon solutions by the private sector. There is also a risk that the initial round of NDCs could lock in high-emission pathways and create new technical and economic barriers to decarbonization. If the goals of the Paris Agreement are to be met, it is crucial that the updated NDCs, to be submitted at COP26,[14] are consistent with country-specific pathways towards net-zero emissions. Furthermore, the COVID-19 crisis is forcing countries to urgently pursue economic recovery; this presents a significant opportunity for countries to integrate low-carbon development in their COVID-19 rescue and recovery measures, and to incorporate these into long-term mitigation strategies (UNEP 2020). For example, a recent IMF report presents evidence that renewable electricity generation and energy efficiency–enhancing investments are more job intensive than the generation of electricity from fossil fuels and that climate change mitigation will result in substantial output gains in the second half of the century (IMF 2020). Recent work from the International Energy Agency presents a plan to simultaneously grow the economy, create jobs, and put emissions into structural decline (IEA 2020).

LTS also offer an opportunity to address adaptation and climate resilience. The Paris Agreement (Article 7) calls for all countries to engage in planning processes to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change (UNFCCC 2015). Since then, many countries are developing long-term adaptation plans and strategies aiming to integrate adaptation into national development processes (UN Adaptation Committee 2019). Furthermore, this call for the development of resilience enhancement has also been strongly emphasized by the United Nations Office for Disaster Risk Reduction's Sendai Framework, which works hand in hand with other 2030 Agenda agreements, including the Paris Agreement. Sendai aims to increase the number of countries with national and local risk reduction strategies (Target 5) and includes understanding risk and strengthening governance as Priorities 1 and 2 (UNDRR 2015).

Climate change impacts related to a 2.5°C increase (likely by 2050) could cost between 1.5 percent and 5 percent of the region's GDP. Between 1990 and 2007, 84,000 people died in the region because of extreme weather events, and over 163 million were directly affected (Bárcena et al. 2020). Moreover, natural hazards affect poor people disproportionately due to, among others, overexposure,

14 Due to the COVID-19 pandemic, COP26 in Glasgow was postponed to November 2021, and several countries of the region have postponed the updated NDCs' submission date to early 2021.

higher vulnerability, less ability to cope and recover, and the need to prioritize immediate actions in response to the impacts of natural hazards that undermine education and health in the long term (Hallegatte et al. 2017). This is a particular concern for the region, where about 30 percent of the population lives below the poverty line, especially in rural areas (ECLAC 2018), and where informal employment, excluding the agriculture sector, is still over 49 percent on average (ILO 2019). If impacts of climate change in agriculture are unattended, it is expected that by 2025 the reduction of poverty and indigence in LAC would be considerably smaller than would otherwise be the case (Bárcena et al. 2020).

Long-term adaptation can bring important development benefits. Investing US$1.8 trillion between 2020 and 2030 globally in early warning systems, climate-resilient infrastructure, improved dryland agriculture crop production, global mangrove protection, and investments in making water resources more resilient could generate US$7.1 trillion in total net benefits (Global Commission on Adaptation 2019). Naturally, the transformation will also bring new challenges and costs that need to be anticipated to develop lines of action around them. For instance, making infrastructure more climate resilient can increase upfront costs by 3 percent, but has benefit-cost ratios of about 4:1 (Global Commission on Adaptation 2019). Nevertheless, estimations on the cost of adaptation as of the end of 2009 were estimated to be less than 0.5 percent of the region's GDP (Bárcena et al. 2020), and resilience and disaster risk prevention yield benefits of about four to seven times the cost in terms of avoided and reduced losses (Moench, Mechler, and Stapleton 2007; MMC 2005; Mechler 2016; Kull, Mechler, and Hochrainer-Stigler 2013; UNDRR 2011). Understanding the economic and social benefits of climate adaptation actions, such as avoided human and economic losses, economic savings, job creation, productivity, preservation of ecosystems, and health benefits, among others, will be key for designing successful long-term plans for adaptation.

Long-term planning for net-zero emissions and adaptation is intrinsically linked to national planning. As such, to effectively reduce emissions and adapt to climate change, it will be necessary to integrate LTS objectives for net-zero emissions and for long-term climate resilience into ongoing national development processes; the main goal should be to assure consistency and synergy with sustainable development goals and investments, generating tangible economic and social benefits to help beneficiaries to cope with climate impacts (adaptive capacity) and to advance decarbonization. Countries can integrate emission reduction objectives into sectoral plans, or integrate adaptation into their long-term planning processes. For the case of adaptation, one of the most used processes around the world is the National Adaptation Plans[15] (NAPs), developed under the United Nations Framework Convention on Climate Change (UNFCCC). The goals of NAPs are (a) to reduce vulnerability to the impacts of climate change by building adaptive capacity and (b) to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programs, and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate[16] (USAID 2013). One issue with existing NAPs is that they are usually designed as short- and mid-term adaptation planning instruments and therefore they do not always serve long-term adaptation goals (i.e., those that seek to build adaptive capacity, and/or that go to 2050 or beyond). Some countries of the region have engaged in long-term adaptation planning exercises out of the scope of NAPs, such as Chile and Colombia, currently developing 2050 low-carbon and climate-resilient development pathway strategies. These types of long-term exercises are also powerful instruments to mainstream adaptation and resilience into countries' planning processes.

The existence of a long-term vision will greatly determine the level of ambition of the countries' NDCs. LTS are essential to guide short- and medium-term actions, so that these do not find themselves detrimental to long-term decarbonized and resilient development. Some actions seemingly virtuous in the short term regarding emission reduction, such as replacing coal power with natural gas, can lead to carbon lock-in and stranded assets and can jeopardize the achievement of long-term decarbonization. Similarly, understanding the long-term impacts of climate change and the required actions to achieve long-term climate resilience will enable the development of possible adaptation pathways, informing adaptation actions needed in the short and medium term, and actions required to avoid maladaptation.

15 To date, only a few countries in the region have submitted their NAPs to the UNFCCC (Brazil, Chile, Colombia, and Uruguay) (UNFCCC n.d.).

16 NAPs were established at COP16 (in 2010).

Long-term strategies can help governments plan for net-zero emissions and climate-resilient development, anticipate and manage trade-offs, update NDCs, and design policy and investment roadmaps needed to enable the transition. Given the key role that LTS can play to inform public policy, the re-orientation of infrastructure choices and alignment of finance towards climate and development objectives, NDC Invest provides support to countries in LAC to design robust LTS to achieve net-zero emissions and build long-term climate resilience.

2.1. Challenges for the Design of Ambitious and Executable LTS

Countries in LAC are rapidly increasingly interest in developing LTS to advance towards a net-zero emissions and long-term resilience economy, and many are undertaking LTS design processes.[17] From our experience supporting countries we have identified the following main challenges countries face in the LTS design phase:

- **Understanding the physical transformations required to achieve decarbonization and climate-resilience goals.** LTS should aim to translate emission reduction targets, long-term climate resilience, and socioeconomic goals into a sequence of actions required across sectors to support them at different time milestones in the medium and short term (e.g., by 2050, 2040, 2030, and 2025), a process of planning also known as backcasting.

  Numerical simulations are essential to facilitate a policy debate around decarbonization and climate resilience, and to quantify options in the design of the LTS. A key objective is to quantify transformations in physical terms (e.g., in mitigation: share of mobility fulfilled by electric public transport, walking, or biking; percent of renewable electricity; number of hectares of forest to reforest; share of agricultural production applying low carbon technologies; in adaptation: level of ocean surge that a levee can take; size of water reservoirs; maximum temperature and drought length that crops can sustain; climate-resilient infrastructure, etc.), and their impact on GHG emissions and their capacity to build climate resilience and adaptation. This is fundamental to, for example, define what a carbon-free economy could look like in 2050 (e.g., 90 percent renewable energy; 70 percent of trips done in public transport, biking, or walking; a steady rate of reforestation and restauration of high-carbon ecosystem—including resilience co-benefits by prioritizing key ecosystems for adaptation), and, more operationally, what specific near-term targets (e.g., getting 30 percent renewable energy by 2030) sectors could pursue on the way towards carbon neutrality and that the country could consider when updating the NDC.

- **Understanding socioeconomic impacts of the transition.** Quantification of socioeconomic impacts are also key—analyzing and highlighting both positive impacts that can help bring the key sectors on board (e.g., reduced energy prices leveraging cheap renewable power; improved quality of public transport and associated reduction in accidents, air pollution, and improvement in quality of life; increased productivity in agriculture; ecosystem services provided by forests, including biodiversity preservation; creation of green jobs; avoided costs and human losses due to climate-resilient infrastructure) and negative impacts that need to be acknowledged and addressed to ensure a just transition (e.g., brown jobs lost, stranded assets, fiscal impacts for countries where fossil fuels consumption or production are an important base, investment needed requiring a financial solution). Countries are seeking tools and analytic methods that can deliver this type of information and analysis.

- **Create consensus for wide ownership of the LTS design, which can increase feasibility of implementation.** Frequent dialogues with affected stakeholders, starting at the onset of the design stage of an LTS, are of utmost importance in the prioritization of specific sectoral mitigation and adaptation measures and for the definition of feasible net-zero and adaptation pathways and corresponding tilting points. Consultations are also essential to ensure a just transition, and for political feasibility of an LTS. Relevant stakeholders include line ministries, social ministries, and coordinating ministries, as well as other relevant actors from the private sector and civil society. Ministries of environment are typically tasked with gathering sectoral and subnational or regional inputs from all other sectors for the LTS and can generally use support to fund the stakeholder workshops, help frame them, and analyze the inputs received.

- **Understanding policy instruments, regulatory changes, and governance structures needed to support the transformation.** For instance, introduction of standards for new infrastructure to be climate resilient, water adaptation plans to ensure reliability for different purposes,

17 3NAPs were established at COP16 (in 2010).

new energy market regulations to allow uptake of renewable energy, updating public transport concessions to shift toward electro-mobility, etc. One of the biggest challenges will be to find a way in which investments associated with the deployment of said prioritized mitigation and adaptation measures could be consistently included in national/subnational sustainable development budgets (see Chapter 4). An additional challenge will be to define institutional arrangements and cross-sectoral processes to create adaptive capacity and facilitate the dissemination of lessons learned stemming from the monitoring and evaluation of these measures. For example, specifically for adaptation, how these measures have contributed towards: (i) avoiding losses and (ii) strengthening capacity to cope with climate change impacts.

- ✔ **Lack of robust science-based information and data availability.** For example, many countries face challenges to develop and/or access recent and granular sectoral emissions profiles and climate change impacts and risk assessments, and generally lack sufficient data on different economic activities which are the basis to develop technical and economic analysis to inform long-term planning. Countries need support to gather and develop this type of data, as well as to access analytical tools that can build on existing data to advance long-term planning now while data quality and availability is improved over time.

- ✔ **Managing uncertainty.** One challenge in evaluating options for long-term decarbonization and climate resilience is that there is not a crystal ball to tell us what the world will be like in 2050 and beyond. Technology development and costs, economic growth, resource availability, international markets, demand and supply of different services, land-use changes, and conflicts, among others, are all uncertainties that can affect the successful implementation of structural and non-structural measures to increase climate resilience and achieve a net-zero future and understand potential costs and benefits. In addition, long-term planning for adaptation needs to incorporate uncertainties associated with the projections of climate change impacts' temporal and spatial distributions. Methods to address these challenges, including risk assessments and robust decision-making (RDM) processes,[18] are required to enable long-term planning exercises.

- ✔ **Local capacity to support the design process.** It will be key to increase the pool of available models and modelers in the region that can work hand in hand with governments to inform public policies. This includes training local academic teams and/or think tanks in the use of models and methods to inform long-term planning, managing uncertainty, and co-constructing with policymakers. These models should also be complemented with relevant qualitative information crucial for the analysis and stakeholder engagement process.

2.2. NDC Invest Country Support to Design LTS

While we apply the same set of principles outlined in Section 1.1 to support countries informing mitigation and adaptation in their LTS, both streams of work are addressed separately as they respond to different development challenges, and as such the questions, data, models, and stakeholders involved in each construction process are often different. In addition, different levels of maturity of information and tools may be available to inform mitigation and adaptation actions. For instance, the development of long-term adaptation strategies is new, and countries of the region such as Argentina, Chile, Colombia, Peru, and Uruguay, among others, are developing innovative ways to set up long-term goals in adaptation.

At NDC Invest, we have advanced a framework to support countries on their way to net-zero emissions, and we are working to develop a support framework specific to adaptation and climate resilience. Both are explained below.

18 RDM is a Decision Making under Deep Uncertainty (DMDU) method designed to analyze context of deep uncertainty with the final goal of designing policies that satisfy policy objectives in multiple plausible futures (Lempert et al. 2013). RDM's problem scoping is built with inputs from relevant stakeholders, which are collected through rich discussions in a series of stakeholder consultations.

2.2.1. NDC Invest and our evolving getting-to-net-zero approach

- ✔ Governments of the region have expressed interest in the following inputs to inform their long-term decarbonization strategies: (i) robust modeling work to identify decarbonization options; (ii) identification of policy barriers to decarbonization and options to lift them; (iii) robust evidence on relevant political economy questions, such as fiscal and labor impacts and options; (iv) meaningful stakeholder engagement and consensus-building processes.
- ✔ We combine local policy experts' support and international experts on decarbonization to provide a whole-economy approach to understand and manage trade-offs of decarbonization options considering a just transition and wider sustainable development objectives, while managing uncertainty of long-term planning.
- ✔ We partner with local universities to deliver the analysis through an iterative process of co-construction with local stakeholders, building local capacity to research areas of long-term decarbonization planning and strengthening their analytical and modeling tools with international experts to ensure robust technical analyses that are policy relevant.
- ✔ Develop knowledge and top-end research papers to enable dialogue at the country and regional level on the opportunities and potential challenges of decarbonization.

2.2.2. NDC Invest and our evolving building-resilience approach[19]

- ✔ Governments of the region have expressed interest in the following inputs to inform their long-term planning for adaptation strategies: (i) understanding the impacts and risks of climate change in different socioeconomic sectors and priority development areas; (ii) developing robust adaptation pathways, in consideration of climate impacts and risks, with identification of adaptation tilting points; and (iii) understanding institutional and cross-sectoral arrangements required to monitor, analyze, and adjust potential pathways (adaptive capacity).
- ✔ NDC Invest is supporting governments of the region to develop robust adaptation pathways on two fronts:
  - » Adaptation pathways to cope with climate risks in selected sectors and regions, using a unified methodology for the assessment of climate risks and adaptation options, under a robust decision making (RDM) framework. The objective of such studies is to identify selected hazards, including climate change, and the potential impact on specific sectors; quantify the losses derived from climate risks; and prioritize adaptation options, aligned with broader development goals, that maximize avoided losses and increase coping capacity.
  - » Adaptation pathways for the water sector, where, at the watershed level, different vulnerabilities are identified and water adaptation options, aligned with other development goals, are selected using a participatory approach (co-construction methods).

2.2.3. Activities supported

1. Clarifying the context of decision making: Compile country-level plans and objectives from interviews, workshops, and/or the domestic literature.

The first step to design an LTS is to understand the development context in all sectors that will contribute to, benefit from, and more generally be affected by decarbonization or climate impacts. Questions to be asked include: What objectives other than decarbonization and long-term climate resilience is the country pursuing in each sector? What plans exist in each sector that can contribute to reduce

19 During 2021 the IDB will jointly conduct a study with the French Development Agency (AFD) and World Resources Institute (WRI) that will identify country processes and needs for long-term planning for adaptation processes, which will inform the creation of a detailed support framework.

emissions or build climate resilience? What is the regulatory and institutional framework in each sector? What data and models exist in each sector to inform these questions? Answers to these questions can help ministries of environment better understand the context in which an LTS will exist.

The LTS will typically seek to extend part of the existing regulatory and institutional basis. For instance, if a country's energy sector currently aims for 5 percent renewable energy or if its transport sector is seeking to pilot the introduction of electric buses, the LTS would typically consider building on that by gradually expanding these targets over time. On the other hand, if in a given country the energy sector currently plans to aggressively expand fossil fuel capacity, the process to build an LTS may start by asking what the development needs are that fossil fuel expansion seeks to satisfy (e.g., energy access, government revenues from royalties) so as to explore other possible options to satisfy those while achieving climate objectives. In terms of long-term adaptation, some sectors might have a basic understanding of their vulnerabilities to climate change, but deeper analysis could be needed to better understand expected impacts, the cost of inaction, and possible adaptation pathways and related tilting points. From there, the LTS can seek to challenge whether existing plans are the best means to fulfill such goals and offer alternatives.

2. Convene broad stakeholder engagement activities to enable a co-constructive process and wide ownership of the LTS.

Convene stakeholder engagement workshops on behalf of or in coordination with the ministry of environment—or the entity mandated to lead the design of the LTS—to discuss the objectives, scope, and means of the LTS to be designed. In addition to asking the questions listed in the paragraph above, such workshops provide a venue to brainstorm options to build the LTS, for instance: How could sector plans be expanded? What other actions could the government take to pursue decarbonization and other development goals in each sector? What are relevant long-term climate-resilience goals and actions to be pursued, and what other development goals need to be considered? What would be some adequate mid-term targets (2030) and long-term targets (2050) in each sector? What uncertainties and risks does each sector face?

It is recommended that these engagement workshops take place at different stages of the LTS design. In an early stage they can provide inputs to understand the current context from which the country is deciding a long-term vision; further on in the process they can serve as validation and re-engagement instances with stakeholders to ensure the work is going in a direction where they see sectoral issues reflected and key considerations have not been missed or misunderstood. Sharing results of technical and policy analysis also provides a space for their reactions on feasibility, relevance, and possible steps to deliver objectives.

> *"The Cost and Benefits for Carbon Neutrality project in Peru helped open a key space for discussion among diverse actors, including sectors, which allowed us to have an informed and detailed conversation about carbon neutrality as a topic of socioeconomic development, and thus identify and quantify the benefits that decarbonization would promote in different economic and social sectors of Peru."*
>
> **Rosa Morales Saravia**, General Director of Climate Change and Desertification, MINAM, Peru

> *"The participatory elaboration, through an iterative process of dialogue with multiple actors in the process of constructing our Long-Term Climate Strategy, has allowed us to discuss and analyze broadly and quantitatively robust options to achieve carbon neutrality, improving assumptions and evaluation. Likewise, it has made it possible to work on and develop critical aspects of water security and long-term adaptation among key actors."*
>
> **Carolina Urmeneta**, Head of the Climate Change Office, MMA, Chile

3. Simulate trajectories to inform LTS formulation.

a. Simulate trajectories to transition to net-zero emissions while reaching other development goals.

Fund the production of numerical simulations to assess options that allow reaching net-zero emissions while advancing development objectives and managing negative impacts, to inform the design of sectoral pathways in the LTS by the government. The needs for quantification are vast and will typically not all be covered by one single study. The scope of the simulations is to be defined according to country context and needs (as per Activity 1 above) in close conversations with the government authorities that will benefit from the support; simulations should be complemented with other available information, including qualitative information and with some stakeholder engagement as suggested in Activity 2.

Modeling support follows the iterative approach described in Principle 5 in Section 1.1, whereby research is informed by an ongoing conversation with policymakers, with a main aim not to have more sophisticated and detailed models but to ask and address the relevant policy questions with the existing and enhanced tools. In early LTS design stages, the focus can be in translating emission-reduction efforts and socioeconomic goals into a description of a sequence of technical and socioeconomic transformation required to support them at different milestones (e.g., in mitigation: share of mobility achieved by electric modes by specific year; changes in infrastructure stock, for example penetration of electrified technologies in industries over time; behavioral changes such as preferred diets). Designing an LTS should focus on defining first and foremost these types of policy objectives; policy instruments to deliver those objectives are to be discussed and defined once the objectives have been defined.

Analysis can range from:

i. Building a dashboard with the quantified overview of economy-wide emissions linked to specific activities and application of a backcasting method that allows exploring possible economy-wide and sectoral low-emission strategies in a way that accounts for the consequences of near-term actions for achieving long-term goals. This type of analysis can shed light on possible technical solutions and schedules to decarbonize sectors, as well as critical areas to avoid carbon lock-in; it can be applied even if there is limited availability of models and data.

ii. Integrated sector modeling approaches making use of existing more sophisticated models, and further enhancing those or complementing them with new models for other sectors, can be used to research possible decarbonization pathways applying frameworks for Decision Making under Deep Uncertainty (DMDU) such as RDM. RDM and other DMDU methods facilitate (i) the identification of potential robust strategies considering the future unknowns characteristic of long-term planning, (ii) the characterization of the vulnerabilities of such strategies, and (iii) the evaluation of trade-offs among alternatives. This facilitates decision makers to inform an LTS that can better respond to country priorities and manage trade-offs. This type of support is not limited to specific types of models. Rather, we aim to build on those already in use in the country, for example those used by ministries of energy to plan energy systems or those used by universities to research or characterize sectors such as forest, agriculture, etc. Basic modeling can also be created to characterize those sectors that lack existing modeling tools in the country. For these, data from official national statistics, GHG inventories, and other sources are used.

iii. The analysis above can also integrate an overview of the costs and benefits of decarbonizing a country. Other analyses could look at specific-sector or cross-cutting issues that are identified as particularly relevant for policymaking, such as the labor impact of updating agricultural practices or potential stranded assets. Examples of simulations to be carried out include assessing the labor impact of transitioning to net-zero emissions (Saget, Vogt-Schilb, and Luu 2020), options to manage the fiscal impacts of phasing out fossil fuel consumptions (Rodriguez Zúñiga et al. 2020), or the cost and benefits of decarbonizing an economy (Groves et al. 2020).

> *"With the collaboration of the IDB, we have been able to count on a solid technical team that has provided us with quantitative information regarding emissions, costs, and benefits of carbon neutrality in different sectors of the Colombian economy. Also, we are jointly generating quantitative information on losses due to climate risks and robust adaptation measures, which are very valuable inputs for the Long-Term Strategy 2050."*
>
> **Javier Eduardo Mendoza**, Coordinator E2050 Colombia, Expertise France (Cooperation with the Ministry of Environment and Sustainable Development of Colombia)

> *"The IDB's support has made it possible for the first time to integrate broad participation and ownership of the Ministry of Finance and local experts in the study of the fiscal impacts of electromobility, according to the objectives of the National Decarbonization Plan. This has resulted in the generation of relevant information and tools that allow us to strengthen our fiscal policy, responding to our financial, social, and development objectives."*
>
> **Mayra Rodríguez Quirós,** Director of the Fiscal Policy Division of the General Directorate of Finance, Ministry of Finance of Costa Rica

> *"The IDB's support allowed us to quantify the impact of the closure of coal-fired plants on employment at the national level and in communities, which has been of great help in having informed conversations with the various actors who participated in our roundtables about the decommission of coal-fired plants and for the development of the just transition strategy in the energy sector."*
>
> **Carlos Barría**, Head of the Energy and Environmental Policies and Studies Division, Ministry of Energy of Chile

b. Simulate trajectories to define robust adaptation pathways.

Numerical simulations of climate impacts and associated risks, and how these affect the achievement of long-term development goals, are critical for a proper assessment of robust adaptation pathways options. The scope of the simulations is to be defined according to country context and needs (Activity 1 above) in close conversation with the government authorities that will benefit from the support; simulations should be complemented with other available information, including qualitative information and with stakeholder engagement as suggested in Activity 2.

As such, the following analyses set the stage of support:

- ✔ Numerical assessment of vulnerabilities to climate change, impacts, and other relevant uncertainties. Models to be used will vary depending on the sectors and type of impacts assessed. For instance, if climate impacts and associated risks over determined assets are being assessed, a Probabilistic climate Risk Model (PRM)[20] can be built to model vulnerability and compute potential economic and human losses. For instance, if the analysis encompasses assessment of water systems' vulnerabilities to certain climate change impacts, then local hydrological models will be used and parametrized to integrate the effect of climate change on the different elements of the water budget, including also other relevant uncertainties. With the updated models it will be possible to assess the performance of current water management options under uncertain future conditions and build a better understanding of the key vulnerabilities. Note that numerical models are extremely useful to analyze these issues and can be complemented with qualitative methods and information as needed for said water system.

20 PRM consists of four modules: hazard (including climate change), exposure, vulnerability, and risk. This is a scientific model capable of modeling the selected climate hazards (e.g., flooding, storm surge, hurricane wind, etc.) and the exposed assets' susceptibility of being affected or damaged (vulnerability) and it computes the expected economic and human losses (direct and indirect).

- ✔ Using a DMDU framework, numerical assessment of performance of adaptation options can be conducted. Understanding the key vulnerabilities to climate change enables a discussion of possible adaptation options, and what other development objectives need to be included when analyzing performance. Adaptation options are then tested in multiple uncertain futures, and their performance is assessed. Using the example above, once the climate vulnerabilities of the water system under study are identified, the performance of water management alternatives in attaining adaptation goals and other development objectives across multiple futures can be numerically assessed. These alternatives could be, among others: different types of reservoirs (both natural and artificial), pressurized irrigation systems, new water sources, and aquifer recharge.
- ✔ A prioritized list of climate resilience and adaptation actions that represent the most robust actions (that in general perform well under the wide range of uncertainty) is obtained, and adaptation pathways can be designed. Some DMDU methods, such as Dynamic Adaptive Policy Pathways (DAPP) and RDM, offer interesting approaches to design adaptation pathways based on the identification of adaptation tipping points that enables the exploration of alternative sequence and path dependencies of decisions over time.

4. Build policy roadmaps to enable decarbonization and resilience.

A vision of the desirable sectoral transformations to be achieved is of no use without a roadmap to implement it. Broadly speaking, a roadmap can focus on removing planning, regulatory, financial, public investments, and knowledge barriers to delivering such transformations (for an example see **Box 2.3** below). NDC Invest can fund technical assistance to prepare such roadmaps.

This will require the identification of physical transformations to achieve net-zero emissions and climate-resilient development pathways, using tools described in Activity 3 above. Specific activities could be directed to assess interventions needed to lift barriers and development gaps relevant for decarbonization and climate resilience. For instance, electricity market design can prevent the deployment of renewable power, transport infrastructure deployment plans may disincentivize biking and walking and obstruct the functioning of buses, and current agricultural/forestry incentives can be counterproductive for the development of agroforestry systems. Similarly, current regulations, such as some building codes, may be preventing the construction of climate-resilient infrastructure, and current water governance structures may prevent the development and implementation of integrated water management approaches, the prioritization of different water uses, or ecosystem conservation practices necessary for enhancing adaptation.

For LTS to be mainstreamed into countries' own systems, coordinating ministries, such as ministries of finance or planning, will need to approve and support LTS. As with line ministries, they will do so based on their own objectives, which typically focus on containing fiscal costs. Key issues may include the impact of the global energy transition on energy demand and associated fiscal revenues and possible diversification strategies, and social ministries may want to understand the impacts of phasing out coal or natural gas power on the workers and communities affected. Current development plans may need to be modified to properly integrate climate-resilience criteria into the process of prioritization of structural and non-structural measures and planning and finance ministries will be particularly interested in understanding the investment costs and benefits associated with preventing climate risks. Adaptive capacity studies to support governments in the identification of opportunities for strengthening existing institutional capacities to address the impacts of climate change can also be of interest (see an example in **Box 2.4**). Understanding these policy and institutional barriers is fundamental to developing policy options that may overcome them and deliver decarbonization and climate-resilience objectives.

Box 2.3. The Costa Rican Decarbonization Plan

The Costa Rican Decarbonization Plan (Government of Costa Rica 2019) provides a good example of an LTS with a clear policy roadmap: it includes more than 70 targets for 35 different government agencies and line ministries to implement by 2023 such as: aligning sectoral development plans with the decarbonization plan, updating the design of public transportation markets to enable profitable business models for bus drivers acquiring electric buses, updating the payment for the ecosystem services scheme to finance large-scale reforestation by the private sector, building an electric passenger train, or investigating options to manage the fiscal impact of phasing out fossil fuel consumption. The plan now serves as a basis for the development plans of many line ministries and for the national strategy coordinated by the country's Ministry of Planning. A comprehensive roadmap like this one is essential to mainstream decarbonization into government action and facilitates the selection of Paris Agreement–aligned projects for public and private investments.

> *"The IDB's support has been essential to identify technological routes for decarbonization by 2050, as well as the normative and regulatory pathways to achieve it. This has allowed us to design a Decarbonization Plan based on the best available science and supported by robust evidence on the multiple economic and social benefits that heading towards a more sustainable development path brings for the entire Costa Rican society."*
>
> **Andrea Meza**, Minister, MINAE of Costa Rica

Box 2.4. Building Adaptive Capacity in the Water Sector under a Changing Climate

Adapting to the long-term effects of climate change will require a transformation of current governance schemes towards new structures that can facilitate addressing and implementing climate-resilience measures. The study "Building Adaptive Capacity in the Water Sector under a Changing Climate" refined a robust methodological framework to assess adaptive capacity in the Bolivian water sector and explored the type of adaptation processes currently underway in Bolivia, including those initiated with support from the Pilot Program for Climate Resilience (PPCR). Adaptive capacity is key to reducing the likelihood and magnitude of harmful climate change impacts, and it is of utmost relevance to define it in operational terms (e.g., in the context of sustainable development). For this, an integrated framework that addresses knowledge gaps at the national or project level and effectively measures how adaptive capacity is being incorporated into sectors is needed. The study proposes interventions that could address core gaps, strengthen institutional adaptive capacity, and facilitate transformative change in Bolivia's water sector. The study also sets the foundations for the development of similar frameworks to assess adaptive capacity in other sectors and countries (Allen et al. 2020).

5. Local capacity building.

For LTS to be locally owned, they need to be locally built. Yet, in many developing countries, the public policy debate about decarbonization and long-term climate resilience, the socioeconomic benefits that a carbon-neutral and climate-resilient economy can bring, and the financial, regulatory, and political economy barriers is incipient to nonexistent. Part of the problem is that local analysts are not trained in using analytical tools that can support a policy debate about these issues.

Modeling exercises can inform the design of LTS. A wide range of modeling exercises can inform and support decision makers on the efficacy and potential political feasibility of climate policies. However, many efforts in this direction often rely on modeling teams outside LAC, as modeling capacity in the region in this topic is limited. Building the capacity of local universities is key for the national credibility of the research and the sustainability of the modeling efforts, as universities continue to use models to inform government policy. Using international technical teams to build the capacity of local universities, and regional peer exchange to improve the technical quality of the work in all countries, adds value and rigor to provide inputs for policymakers (IDB and DDPLAC 2019).

NDC Invest funds the training of local analysts in the use of tools that can inform a policy debate around decarbonization in a learning-by-doing approach. The IDB DDPLAC program provides an example focused on building the capacity of local academia to research deep decarbonization (**Box 2.5**) and strengthening relationships between modelers and policymakers for an informed and continued dialogue of policy design at the national level that can help inform robust and feasible LTS connected with socioeconomic development objectives.

Box 2.5. Capacity Building to Research LTS: Example of DDPLAC Project

The Deep Decarbonization Pathways in Latin America and the Caribbean (DDPLAC) helped build the capacity of local academia to investigate emission reduction pathways in Argentina, Colombia, Costa Rica, Ecuador, Mexico, and Peru. In each country, a think tank or university teamed with an international team to develop in-country analytical tools that can be used to quantify the impacts of different energy and land-use development strategies on greenhouse gas emissions (IDB and DDPLAC 2019). The teams produced numerical simulations that are published as academic papers (Bataille et al. 2020).

DDPLAC also strengthened a dialogue between modelers and policymakers in these countries. It created a venue for regional peer exchange on modeling decarbonization pathways, fostering both north–south and south–south cooperation.

DDPLAC has shown that modeling exercises can inform the design of LTS (Costa Rica 2019). It has confirmed that building capacity of local academia is key for the national credibility of the research and the sustainability of the modeling efforts, as universities continue to use models to inform government policy after the project has ended. DDPLAC also showed the value of: (i) using international technical teams to build capacity at local universities and (ii) regional peer exchange to improve the technical quality of the work in all countries.

DDPLAC was also successful in supporting policy. The Government of Costa Rica designed its LTS, called the National Decarbonization Plan, using DDPLAC modeling results (Costa Rica 2019). It includes more than 70 targets for 35 different government agencies and line ministries to implement by 2023. The plan plays a prominent role in the IDB Country Strategy, allowing the IDB to align its operations with long-term decarbonization

Continued

pathways (IDB 2019). The policy roadmap defined in the plan formed the basis for a policy-based loan co-funded with the French Development Agency (AFD) (Murguia et al. 2020) and guides technical cooperation efforts.

Further to the initial DDPLAC project, follow-up work is now using the locally built capacity to continue investigating policy-relevant questions related to decarbonization. For instance, the IDB continued work with the University of Costa Rica to assess the cost and benefits of implementing the decarbonization plan, as well as options to manage its fiscal impacts (Groves et al. 2020; Rodriguez Zúñiga et al. 2020). In Peru, the IDB is working with the University of the Pacific to inform the LTS currently being designed by the government (Saavedra 2020). In Chile, the IDB is also working with the University of Chile and Pontificia Catholic University of Chile to support the government in the design of its LTS, with a wide participative approach and close MDB coordination between the IDB and the World Bank (Jaramillo 2020).

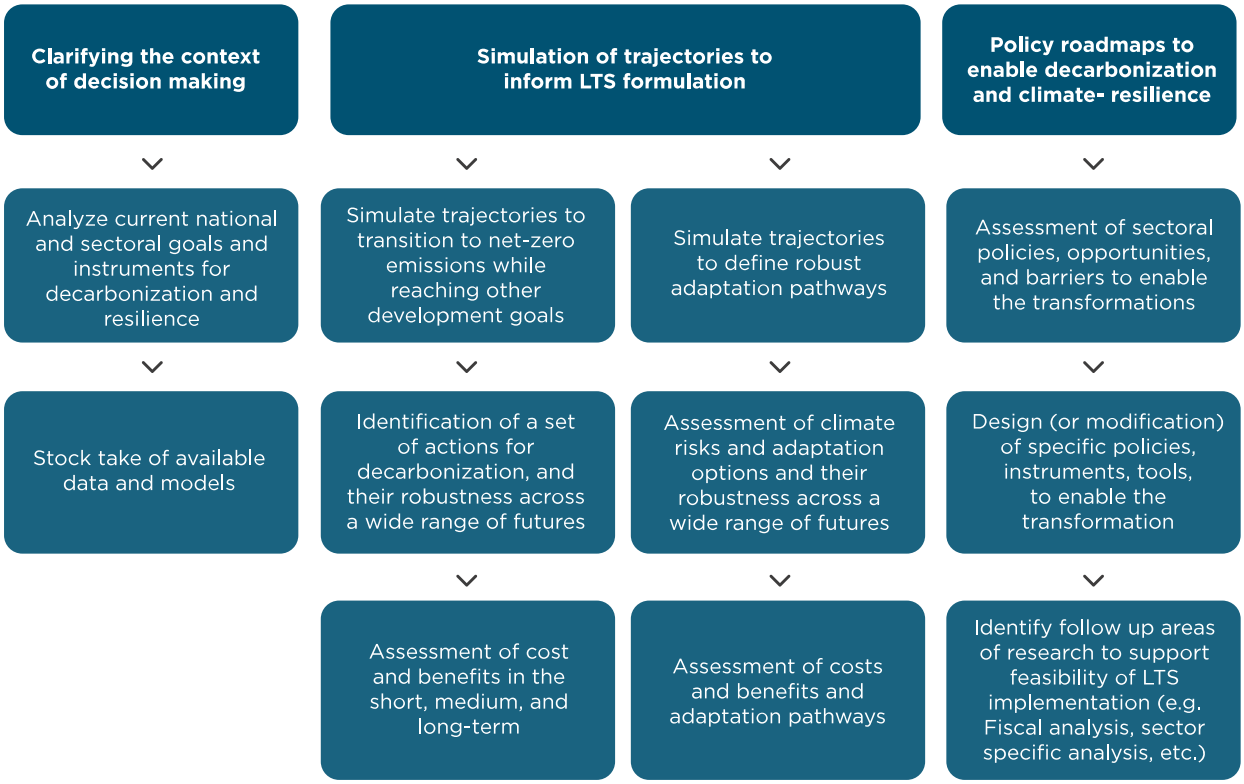
Finally, DDPLAC is generating an evolving community of practice capable of discussing modeling approaches and assessments of climate policies with policymakers, sharing experiences, and continuing to develop expertise. This includes activities for peer exchange to communicate results on the feasibility and benefits of decarbonization in LAC and share lessons learned.

> *"The DDPLAC project supported us in the development of tools and gave us access to a valuable network of scientific institutions to bring science closer to decision making and thus contribute directly to climate policies in Peru. Our participation in the project has allowed us to put science at the service of the Ministry of the Environment in the process of updating the National Strategy on Climate Change, with a view to carbon neutrality by 2050."*
>
> **Daniel De La Torre Ugarte**, Professor of the University of the Pacific and Research Professor at the University of Tennessee

> *"Our participation in the DDPLAC project was key not only to develop research tools and capacities for the long-term integrated planning of the energy and land-use sector but also to consolidate the role of the university as a key ally of the government in updating the NDCs and Ecuador's decarbonization strategy by 2050."*
>
> **Rafael Soria**, D.Sc., Professor, Department of Mechanical Engineering, National Polytechnic School of Ecuador

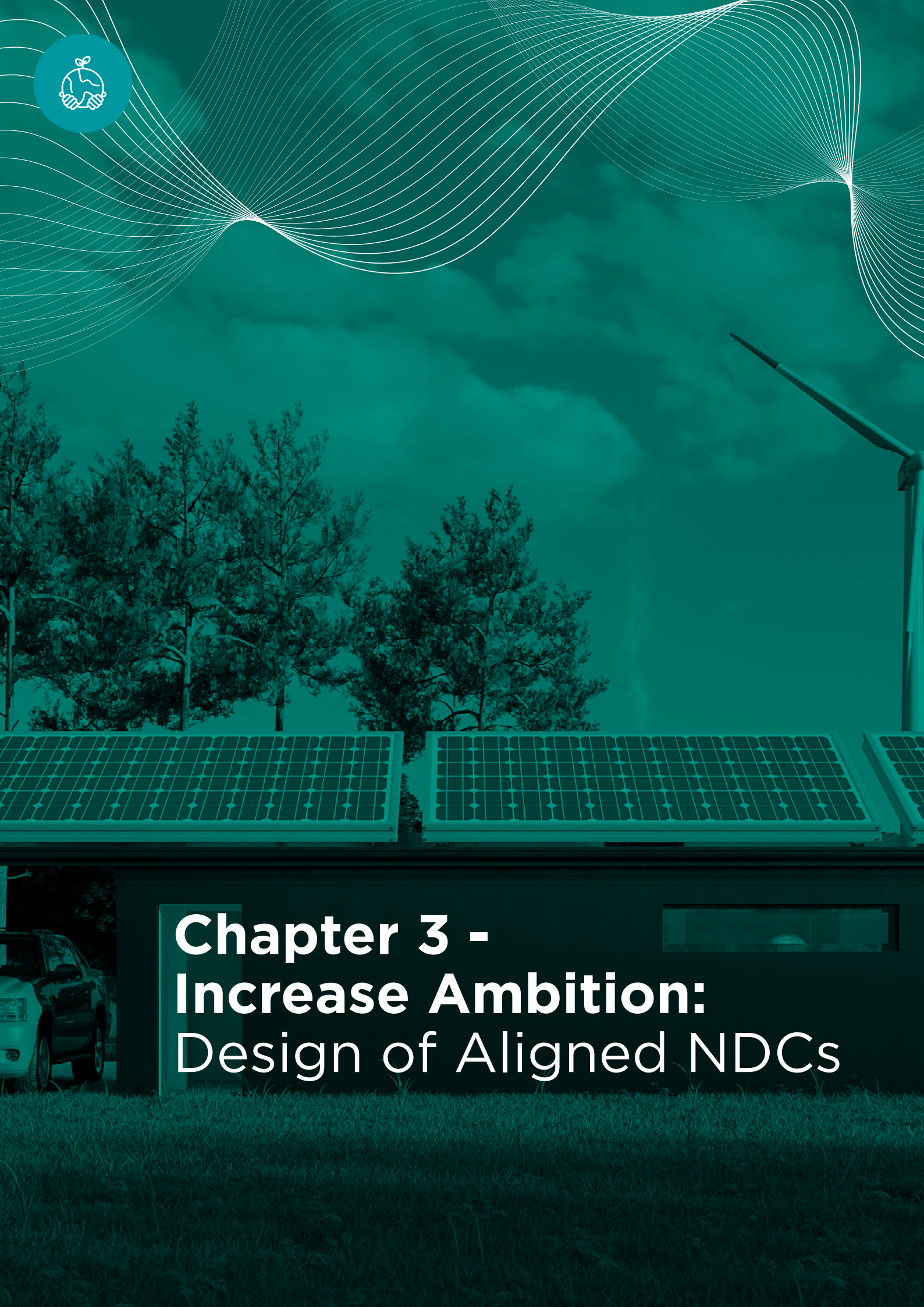
> *"There is no doubt that the DDPLAC project has allowed the UCR to actively contribute to the design of public policies for decarbonization in Costa Rica, and it has positioned us as a benchmark and an ally on the subject at a regional and international level."*
>
> **Professor Jairo Quirós**, Director of the Department of Electrical Machines and Power Systems of the School of Electrical Engineering of the University of Costa Rica, and Coordinator of the Power and Energy Research Laboratory of the University of Costa Rica

Plan Beyond:
Design of Long-Term Strategies for Net-Zero Emissions and Climate Resilience



Co-construction - Robust stakeholder engagement and alignment to broader development golas

Capacity Building: Training of local analysts in the use of tools to inform decarbonization and climate-resilience planning



Chapter 3 - Increase Ambition: Design of Aligned NDCs

Chapter 3 - Increase Ambition: Design of Aligned NDCs

Governments are expected to submit a new iteration of NDCs by COP26: updates of NDCs for those parties with a 2030 timeframe, and new NDCs for those with a 2025 timeframe. More importantly, under the "ambition mechanism" defined under the Paris Agreement, each iteration will be more ambitious than the previous. As of March 2021, 192 parties have submitted their first NDC, 45 countries have submitted their second NDC (12 of them from LAC),[21] and only 29 countries have communicated LTS (UNFCCC n.d.).[22]

The design of the new generation of NDCs needs to adopt an approach that facilitates implementation, enhances ambition, and leads the way to a transformational change. To do this, it is necessary to understand and address the main challenges governments face for implementing and monitoring their current commitments and thus facilitate the achievement of the next generation of contributions.

There are several challenges governments face to update or design more ambitious NDCs. Our own and international experience (Fransen et al. 2017; Van Tilburg et al. 2018) shows that some of the challenges perceived by LAC governments for the next NDC cycle include the design of NDCs aligned to long-term decarbonization and resilience goals, the identification of financial sources for implementation, public and private sector buy-in, and the understanding of wider economic impacts, among others. These challenges strongly impact the capacity of governments to commit to ambitious climate targets as they lack the necessary tools to accurately communicate the costs and benefits of implementing climate commitments to relevant sectors and stakeholders, which will not easily commit under uncertain future conditions. In the following section we present a detailed description of the main challenges that need to be addressed for NDCs' enhancement.

3.1. The Challenges for Designing and Implementing Transformational NDCs

> Designing NDCs aligned to carbon neutrality by 2050

We are not on track to carbon neutrality. Taken together, current NDCs remain seriously inadequate to achieve the climate goals of the Paris Agreement and would lead to a temperature increase of at least 3°C by the end of the century (IDB and DDPLAC 2019; UNEP 2020). Recently announced net-zero emissions goals could reduce this by about 0.5°C, provided that short-term NDCs and corresponding policies are made consistent with the net-zero goals. The Special Report of the Intergovernmental Panel on Climate Change (IPCC) confirms that significantly strengthened mitigation efforts are essential (Fransen et al. 2017).

Implementing NDCs that are not sufficiently ambitious can be costly. NDCs are international pledges that need to translate into national commitments. When implemented, NDCs should result in new or updated regulations, and be mainstreamed in planning programs and the financial sector to attract and facilitate aligned investments. As current NDCs don't put us on the right track to achieve carbon neutrality by 2050, the implementation effort will be costly for countries, especially if NDCs are to be updated and aligned to the long-term goal of net-zero emissions by 2050. IDB research shows that the cost of implementing NDCs and then correcting course in 2030 would create US$90 billion in stranded assets in the power sector (Binsted et al. 2019).

Design and implementation of NDCs aligned to net-zero LTS makes climate and economic sense. Implementing NDCs aligned with the goal to reach net-zero emissions by 2050 would require 85 percent fewer premature retirements, compared to a pathway set by current NDCs (Iyer et al. 2015). The

21 Three of them are LAC countries that updated their NDCs with support of NDC Invest: Chile, Costa Rica, and Suriname. See the NDC Registry at https://www4.unfccc.int/sites/ndcstaging/Pages/Home.aspx.

22 See https://unfccc.int/process/the-paris-agreement/long-term-strategies.

early design of LTS and the design of aligned NDCs represents an opportunity for ambition raising and efficiency in term of resources and planning.

LTS can help countries align their NDCs with the decarbonization objective alongside economic growth and anticipate and manage trade-offs. With steps towards net-zero emissions defined in the LTS, governments can design policy and investment roadmaps needed to enable the transition; this can reorient infrastructure choices, address regulatory barriers, inform fiscal and social strategies to manage impacts, and ensure a just and inclusive transition (IDB and DDPLAC 2019).

> Integrating adaptation goals in NDCs

Although not mandatory, many countries are including an adaptation component in their NDCs. As such, countries are currently trying to answer the question of how to best integrate adaptation commitments and measures, and how to align the adaptation component of an NDC to long-term adaptation strategies.

NAPs and other long-term adaptation instruments or related processes are designed and understood as country-driven, national-level processes to integrate adaptation and climate resilience into national regulations and planning and should identify clear strategies and options for long-term adaptation. As such, they can serve as implementation instruments for broader goals set on the NDCs, which communicate commitments towards adaptation, setting out the high-level vision, objectives, and needs a country aims to address on adaptation in the eyes of the international community.

The NAP global network (2019) identifies three opportunities to align the NDC and the NAP process, which could apply to any other long-term adaptation planning exercise: (i) use the NAP process to inform the development of future NDCs, (ii) use the NAP process to improve the quality of the adaptation-related information in the NDC and demonstrate progress, and (iii) use the NAP process to add value and enhance a country's NDC adaptation goal.

In addition, there is an opportunity for countries to advance or trigger the design and implementation of long-term adaptation planning during the second iteration process of their NDCs as their quality greatly depends on factors such as a multi-agency planning process, inclusion of diverse stakeholders in the planning process, recognition of the broad impacts of climate change, consideration of the underlying processes and systems that produce vulnerability (such as vulnerable populations), prioritization of adaptation strategies and inclusion of metrics to monitor and evaluate their performance during implementation and beyond (e.g., lifetime of the investment), and development of financial strategies (see Chapter 4) and tools to advance adaptation (Woodruff and Regan 2019), which are all factors that can be addressed during the process of NDC design and consultation.

In general, NAPs, NDCs, and LTS are the key national instruments to address climate change in national development plans across sectors. Despite their very distinctive nature, these instruments can be harnessed to scale up adaptation by fostering linkages depending upon the country context. **Table 1** summarizes the differences and the commonalities of the three instruments.

Table 1. Differences and Commonalities between NAPs, NDCs, and LTS

	NAPs	NDCs	LTS
Timeframe	Medium to long term (5 years or more); focus on iterative process and countries should enhance ambition in every iteration	Every 5 years, based on longer-term planning (current cycle: 2020–2025)	Up to 2050
Goal	Adaptation (mostly not quantified at country level)	Mitigation/ (emissions reductions quantified); in many adaptation is included	Mitigation/in some cases adaptation (contain quantified goals and milestones)
Focus	Cross sectoral (climate sensitive sectors); planning and finance, often linked to national development plans	Emission-intensive sectors such as energy, transport, agriculture, and industry, and climate-vulnerable sectors as well	Economy wide, and emission-intensive sectors, references to build resilience and Sustainable Development Goals (SDG) targets and milestones for various timeframes, including 2030
Leading Institutions	UNFCCC focal points Led mainly by ministries of environment and participation of ministries of planning and ministries of agriculture	UNFCCC focal points Ministries of environment, ministries of planning, ministries of finance	UNFCCC focal points Led mainly by ministries of environment, participation of other line ministries
Level	National and subnational level	National level	National level[23]
Next Submission	On a rolling basis to NAP process	New NDCs by COP26	Invited by 2020, no international process defined for update to LTS repository

Source: Adapted from Kohli (2018).

> Setting up effective institutional frameworks for the design, execution, and monitoring of NDCs

Achieving the Paris Agreement goals entails a transformation that can only be initiated if political leadership at the highest level is engaged in the process, as it requires a mandate to shift away from business as usual and ensuring that climate action is kept high on the government's agenda.

Effective institutional frameworks that define clear roles, responsibilities, and coordination mechanisms are key to empower central and sectoral line ministries in implementing current NDCs and designing more ambitious subsequent contributions. Moreover, institutional frameworks can improve technical capacities of line ministries and institutions, contributing to NDC development, implementation, and monitoring; enhance vertical coordination among different levels of the government; and serve to incorporate NDC targets into sectoral and subnational planning (Van Tilburg et al. 2018).

Institutional frameworks should also facilitate the links with SDG frameworks to improve policy coherence (Van Tilburg et al. 2018).

23 There are also long-term planning exercises taking place at the city and region level supported by alliances such as C40 (https://www.c40.org/) and ICLEI (https://www.iclei.org/).

> Enabling effective engagement with a wide range of stakeholders

Effective implementation and increased ambition are also facilitated by effective stakeholder engagement on climate action.

The first round of NDCs was a fruitful process that facilitated engagement at multiple levels and gathered different stakeholders through a constructive dialogue, but it has been raised by those involved in the first process that it was mainly limited to high-level decision makers, leaving behind relevant actors that would greatly contribute to a better alignment of the contributions with subnational goals and investment priorities.

The second iteration of NDCs should rely more on consultations with relevant stakeholders such as line ministries (energy, agriculture, transport, water, etc.), subnational governments, civil society, and the private sector. Engagement of relevant actors in early stages can facilitate ambition raising and enable implementation, using local knowledge and sectoral expertise to inform climate objectives, identify viable options to finance climate action, translate objectives into specific investments, and define a transparent, inclusive, and accountable decision-making process. This should include an effort toward identifying opportunities for synergies across sectors and at different government levels, as well as an assessment of what worked and what did not work in the implementation of the current NDC.

> Aligning NDCs to national development priorities

The second iteration of NDCs should be aligned to LTS and in turn these should be integrated throughout the national resource planning process, including the alignment and better use of public finance instruments to support the countries' climate and sustainable development objectives. As such, the ministries of economic affairs, finance, and planning should actively participate in the design of NDCs. The involvement of these ministries brings benefits to ambition raising and the implementation process and can be of good use for a better alignment with the 2030 Sustainable Development Agenda. In addition, these ministries intrinsically have a global perspective in the definition of national priorities, which brings a tremendous value to the development of a multisectoral exercise such as the NDCs.

Full decarbonization of the economies will require limiting greenhouse gas emissions in all sectors, and sectors need to understand, contribute, and agree with what is expected from them. Improved communication and understanding of the scope of ambition raising and how GHG reduction interacts with other sector priorities will be key for the integration of sectors into NDC development and implementation. Additionally, to enhance consistency of NDC targets and policies, it is also relevant to align the targets to existing policies, and to identify additional policies that can benefit stakeholders that adopt climate targets (Van Tilburg et al. 2018).

> Designing executable NDCs

Involvement of the private sector, the financial sector, and considerations on financing need to be included in the second iteration of NDCs. Active involvement of the private sector is key to identify new markets and business development opportunities that align broader financial flows toward national climate objectives to support effective implementation of NDCs. One of the challenges faced during the first cycle of NDCs is the difficult translation of climate goals into policy and investment language that can provide clear signals to reduce uncertainty and increase confidence of investors on net-zero and climate-resilience solutions. The experience in some EU countries reveals that early engagement with relevant stakeholders from the private sector helps to better understand their role and expectations and facilitates the implementation of the targets.

> Improving transparency mechanisms

Transparency mechanisms will also be crucial for ambition raising. Transparency enhances trust between countries and this in turn enables them to put forward their highest possible ambition. It can also be effective stimulus for domestic action by sending policy signals to businesses, provide an evidence base for an enhanced national dialogue, and help identify opportunities for further climate action by targeting key sectors of the economy and determining what activities may be easier to implement and where the main gaps are (Van Tilburg et al. 2018).

The design of the new generation of NDCs needs to adopt an approach that facilitates implementation, enhances ambition, and leads the way to a transformational change.

3.2. NDC Invest Country Support to Promote the Update of More Ambitious NDCs

NDC Invest offers technical assistance to governments to update their NDCs. In particular, NDC Invest supports countries to design new NDCs that include ambitious mitigation and adaptation targets and activities, built under a participatory approach.

3.2.1 NDC Invest approach to design ambitious NDCs

Ambition can be understood in different ways. For instance, the report "Enhancing NDCs by 2020: Achieving the Goals of the Paris Agreement" presents a menu of options for enhancing ambition by 2020 (Fransen et al. 2017). For mitigation, the menu ranges from strengthening or adding economy-wide or sectoral GHG targets, to the strengthening or addition of policies and actions, and alignment to LTS. In adaptation, the menu ranges from updating or adding information trends, impacts, and vulnerabilities and national long-term goals, to the fulfilling of information gaps and barriers, and updating/elaboration of planning instruments. Enhancement of implementation actions (projects, regulatory frameworks, Measurement Reporting and Verification [MRV] systems, coordination mechanisms, among others) is also relevant in the context of enhancing ambition.

Mindful of country context, NDC Invest support will seek to:

- ✔ Raise ambition: align NDC targets and actions to long-term decarbonization goals and long-term resilience.
- ✔ Enhance coordination and stakeholder engagement: design NDCs with broad agreement from line ministries, ministries of finance and planning, and stakeholders from the public and private sector.
- ✔ Align climate goals to national priorities: design NDCs aligned to National Development Plans, sectoral planning instruments, and other national development priorities.
- ✔ Design executable NDCs: design clear and detailed NDCs that translate into concrete actions.

3.2.2 Activities supported

1. Stocktaking: NDC progress assessment and lessons learned

The first step for NDC enhancement is to take stock of the first process and understand what was planned in the first NDC, how it was planned, and its progress:

- ✔ The details of the design of the first NDC process:
  - Assessment of the first NDC process: targets and actions defined, sectors included, sectors not included, GHG data utilized, adaptation aspects.
  - Governance structures and stakeholder and sector engagement process.
- ✔ Assessment of progress on NDC implementation and alignment to national development priorities:
  - Relevant sectoral policies, regulations, programs and projects implemented since the first NDC; budgetary allocations; gaps in implementation.
  - Assessment of the current state/availability of information on GHG emissions (inventories) and climate impacts and risks.
  - Assessment of other relevant sectoral and national policies such as National Development Plans and other sectoral planning documents.

- ✔ Main shortcomings and gaps against the goals of the Paris Agreement: Considering the information collected: how is the country progressing towards net-zero carbon emissions and long-term climate resilience?
- ✔ Identification of main opportunities and challenges to design an ambitious yet realistic NDC.

On top of the policy analysis conducted in this phase, analytical work will also have to be conducted to understand how aligned the current NDC is to a net-zero 2050 and to the long-term climate-resilience goal. There are differences in the way mitigation and adaptation goals are addressed and included in an NDC.

Ideally, a government will develop first a net-zero LTS and update its NDC as a short-term plan to implement the LTS. However, given that only a few countries have developed LTS or are just starting the discussions on the topic, NDC Invest encourages governments to at the least carry out exploratory exercises to understand what a net-zero emissions future would look like, so it can be used as guidance to develop ambitious NDCs that are aligned to long-term targets (see more details in Activity 2 below).

In a similar fashion, governments that are looking to include adaptation components into their new or updated NDCs should look into the progress made at the national level, particularly regarding the NAP or other long-term planning adaptation process. As mentioned, they could serve as implementation instruments for broader goals set in the NDCs, which communicate commitments towards adaptation, setting out the high-level vision, objectives, and needs a country aims to address on adaptation to the eyes of the international community.

The process described above will provide an overall idea of what needs to be improved or strengthened, and of the elements that provide value to the climate agenda. This analysis entails active involvement and feedback of the sectorial line ministries, relevant actors of civil society, and the private sector. For this, a first NDC dialogue with relevant sectoral stakeholders is conducted, where all this information is presented and challenges and opportunities for a new NDC are discussed widely. The dialogues are usually conducted at the sector level, and include participation from relevant line ministries, relevant actors of the private sector, academia, and civil organizations. **Box 3.1** shows a concrete example of the benefits of wide stakeholder participation in the elaboration of ambitious climate agendas.

Early engagement with ministries of finance and planning is also essential, as the definition of specific targets and actions of the NDC greatly depend on the current and future pipeline of programs and projects, which rely on their realm of action. For this, it will be relevant to conduct regular consultations with their focal points to ensure ownership, endorsement, and future implementation.

Box 3.1. "Governments and Civil Society Advancing Climate Agendas"

Access to information and other citizen engagement practices can contribute to the effective implementation of the Paris Agreement. The IDB publication "Governments and Civil Society Advancing Climate Agendas" (Milano 2019) is a concrete effort to provide support to countries of the LAC region in advancing their climate change and sustainability agendas. The publication showcases several examples of good climate-related civil engagement practices carried out in Latin America, assessed using the following criteria: accessibility, which evaluates how accessible to the public a determined practice is; sustainability, which evaluates how formal (in terms of legal mandate and available resources) and periodic a determined practice is; relevance, which assesses if the activities carried out lead to the achievement of the climate change objective; and gender equality and social equity, which assesses if the activities are gender-responsive and if they include actions that promote gender equality and social equity. On supporting countries to enhance ambition, NDC Invest promotes civic engagement practices following the aforementioned quality criteria.

2. Alignment of the NDC to the goals of the Paris Agreement

Having a clear understanding of the current climate scenario is the basis for a better design of a second NDC. By this point, governments should already understand what the main challenges and opportunities for the design of a new NDC are, considering the current policy, market structures, and financial flows, and the information available.

To be able to define possible commitments to be included in the new NDC, the following elements need to be considered:

- ✔ Is there an LTS or LTS process in place in the country?
- ✔ If so, how can the LTS inform the design of the NDC, intended as a short-term implementation instrument of the LTS?
- ✔ If not, what would be possible pathways to achieve a decarbonized future, and what modeled pathways would be more cost-effective, both socially and economically?

An LTS serves as guidance to define actions in the short term aligned to a net-zero future. In the absence of an LTS or the possibility to develop backcasting exercises to inform NDC enhancement, it can be worthwhile to initiate a discussion with stakeholders to analyze how the NDC can be aligned with the necessary transitions to achieve a country's longer-term sustainable development goals and the Paris Agreement's climate goals. It is recommended to use the NDC analytical capacity to carry out a backcasting exercise to understand what a net-zero emissions future (by 2050) looks like and its implications for the NDC (see Chapter 2, Activity 3.a.i). The quality and granularity of the modeling exercises will highly depend on information available and local institutional capacity, which will also impact the specificity of the commitments and measures included in the NDC. Most critical is to ensure that short-term policies and investments do not lock in carbon-intensive technologies or infrastructure, which would make any future long-term goals challenging or impossible to meet (IDB and DDPLAC 2019; Levin and Fransen 2019).

On the adaptation side, the questions to be addressed will depend on the existence/progress of long-term planning adaptation processes in a country. Guiding questions could be:

- ✔ Is there an NAP/long-term planning adaptation process in place or under development in the country?
- ✔ If so, how can these inform the adaptation and climate-resilience goals of the NDC? And how can they serve as an implementation framework for the adaptation component of the NDC?
- ✔ If not, how can the NDC provide a basis for starting and framing a long-term planning adaptation process?

As mentioned in previous sections, in the existence of a long-term adaptation planning process, NDCs can be strengthened by aligning them to the defined long-term goals and by reporting improvements and progress of the country in regards to the development adaptation plans, new available information, governance structures, etc. The NDC process can also serve as an instance to review the quality of long-term adaptation plans. Relevant indicators found in literature to evaluate the quality of the plans are: definition of long-term goals, existence of a robust fact base, definition of clear strategies for action, public participation in plan creation, interorganizational coordination, identification of detailed implementation and monitoring plans/mechanisms, and the integration of uncertainty (Woodruff and Regan 2019).

However, in the absence of long-term adaptation plans or processes, the role of the NDC updating process changes, and it should focus on supporting governments to define high-level goals for adaptation and climate resilience, triggering the first steps to initiate a long-term planning process for adaptation. The country may choose to include a commitment to launch a long-term adaptation process as part of its NDC, along with an overarching vision and framework for adaptation (NAP Global Network 2019).

The definition of high-level goals should be supported in consideration of the existing information, policies and regulations, and governance structures, and should be defined in consultation with stakeholders. Furthermore, the adaptation component of the NDC may help to raise the profile of the NAP process (or equivalent) and obtain further international support for its implementation (NAP Global Network 2019).

A clear understanding of the technical options cannot be done in isolation of the country context. As such, the analysis described should be conducted in parallel to an analysis that allows for understanding realistic measures possible to implement in the short term, considering the current political and economic circumstances of each country. For this reason, other relevant elements to be included are:

- Who wins and who loses with this transformation on the economy?
- The economic structure and investment trends of a country: what type of projects are more likely to be implemented?
- What are the current policies and regulations in place that will contribute to the achievement of the desired future?
- What are the opportunities for alignment with national development planning processes and broader development goals?
- What are the critical milestones that need to be achieved in the short, medium, and long term in order to remain on track for a net-zero-emissions future?

This phase, just like the previous one, needs to be designed and validated along with line ministries and ministries of finance and planning. For this, bilateral meetings for consultation and validation need to occur, as well as open dialogues where several stakeholders can provide information that refines the analysis. Alignment of projects and actions to goals included in national development plans, sustainable development goals, just transition principles, and other sectoral development plans is crucial. As such, the methodology to select specific actions should include analysis that allows for such alignment (multi-criteria analysis, RDM, and others).

3. Formulation of transformational NDCs

A clear vision of what needs to be done and what can be done facilitates the process of designing NDCs that serve as short-term plans to achieve a net-zero-emission and climate-resilient future. At this stage, and with the collaboration of all the relevant stakeholders identified in the process, new targets, realistic measures, and indicators can be established. This exercise also helps to prioritize and understand what the important gaps and challenges are to increase ambition.

The NDC process should also define governance structures throughout the national and subnational governments, and other non-government sectors that will need to be in place to deliver the targets. Identified new sectoral policies should be designed and implemented, and a progress measurement, reporting, and verification process set up, using the indicators elaborated. There are large uncertainties in the implications of implementing NDCs, which could be reduced through increased transparency, clarity, and integrity in the 2020 updates (Geiges et al. 2019). Box 3.2 shows the experience of updating Suriname's NDC, supported entirely by NDC Invest.

With a new widely validated NDC that includes mitigation and adaptation targets aligned to long-term goals, policy instruments and definitions for its implementation and subsequent iterations, and a definition of the institutional arrangements and transparency mechanisms, governments can start analyzing specific projects (in pipeline or not) that can contribute to the implementation of the NDC and shift focus on what is required for delivery of the objectives. This should take the form of a comprehensive investment plan, as presented in Chapter 4. However, if required, as a starting point during the NDC design process, NDC Invest can support governments to map current public project pipelines to identify projects/initiatives that could contribute towards the goals of the new NDC.

Box 3.2. Framework for Suriname's NDC

Suriname was the first LAC country to submit an updated NDC[1] during COP25 in 2019. NDC Invest, EQO-NIXUS, and ILACO led this effort, adjusting the framework to the country's reality.

There are three main features that make the updated NDC more ambitious:[2]

1. A wider scope: Suriname's first NDC included unconditional and conditional commitments of maintaining 93 percent forest cover of the country, which makes it one of the countries with the greatest forest cover worldwide, and an important carbon sink. Additionally, it included an unconditional commitment to maintaining renewable electricity generation above 25 percent, and specific actions to increase climate resilience. In this new version, Suriname maintains these two sectors, committing to maintain the 93 percent forest cover and to increase the 25 percent of renewable energy of the first NDC to 35 percent, and includes two additions: agriculture and transport. Together, these two sectors cover around 70 percent of the country's emissions. On adaptation, the NDC aligns with long-term resiliency goals, included in the new National Adaptation Plan.
2. Inclusion of valuable elements to facilitate its implementation: In each of the sectors included, the updated NDC provides packages of measures (both conditional and unconditional) that aim to advance on the implementation of the NDC. For instance, in the forest sector, Suriname commits to maintain the 93 percent forest cover through concrete actions such as the implementation of the recently approved REDD+ strategy, among several other measures. In the electricity sector, the commitment is to maintain the renewable electricity generation above 35 percent and includes, among other measures, the adoption of a renewable energy law and implementation of fiscal measures to promote energy efficiency. In the agriculture and transport sector, Suriname commits to strengthen capacity and improve research programs to develop a climate-smart sector, and to update the Transport Master Plan, respectively (among several other measures). Another important characteristic of the new NDC is the inclusion of a list of projects identified and prioritized through participatory sectoral dialogues that would allow the country to move forward with the implementation of each one of these measures.
3. It was built through a participatory process: The NDC was built with substantive inputs from three rounds of dialogue with sectoral stakeholders, and parallel meetings with representatives from indigenous and tribal peoples. Such a process enabled a realistic and consensual NDC elaboration process, which provides a greater sense of ownership among relevant key actors that will be key for its implementation.

The updated NDC recognizes the country's restrictions and limitations and commits to firmly address them to achieve a more resilient and carbon-neutral development.

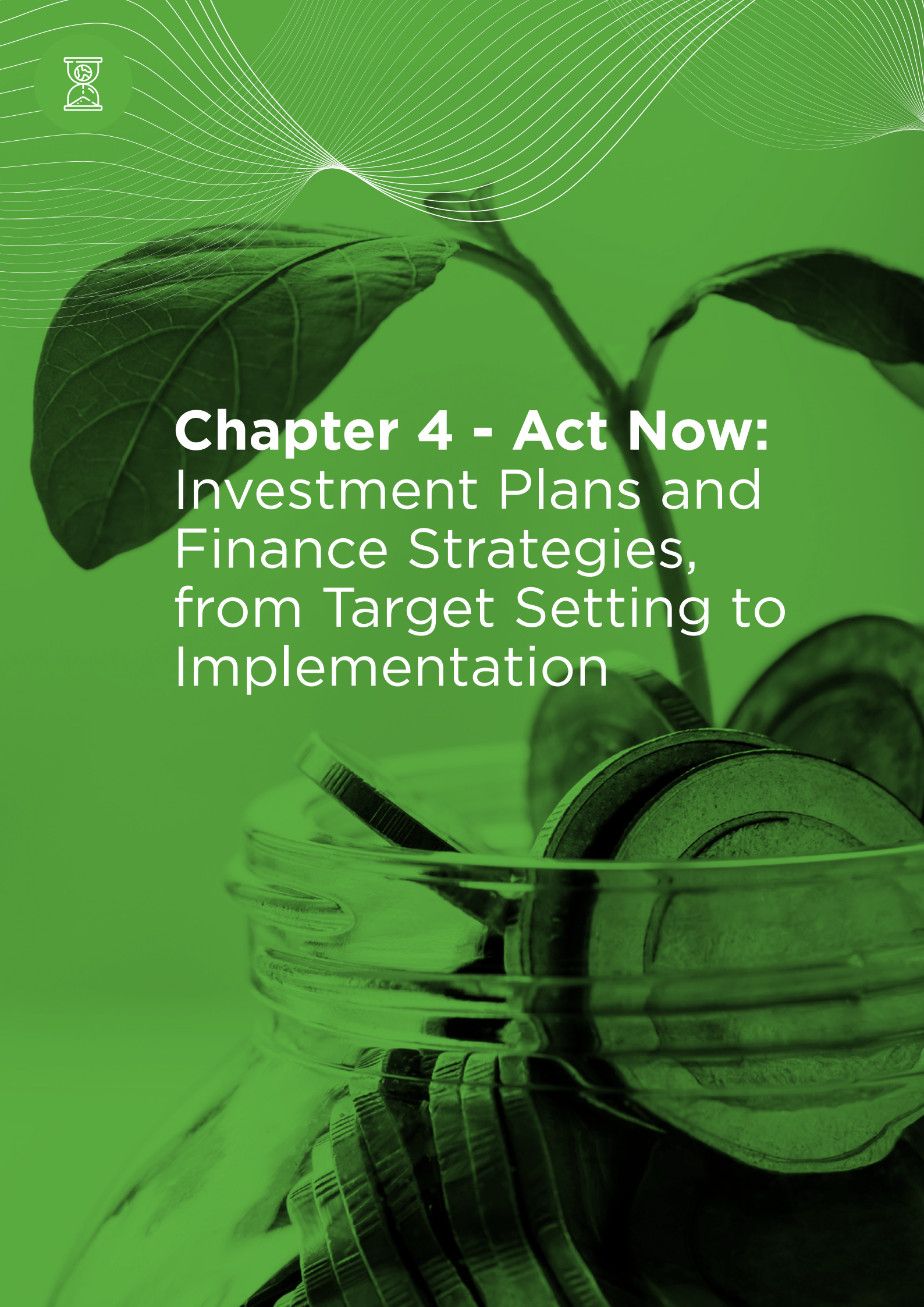
> *"Thanks to the comprehensive support of NDC Invest today Suriname has an NDC that, in addition to ratifying our commitment of maintaining our forest cover, is more ambitious both in terms of objectives and scope, is more effective, and delineates with more clarity a route for its implementation."*
>
> **Silvano Tjong-Ahin**, Minister of Spatial Planning and Environment, Suriname

1 https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Suriname%20Second/Suriname%20Second%20NDC.pdf
2 The following list is an extract from Saavedra (2019).

Increase Ambition:
Design of aligned NDCs

Stocktaking	Alignment of the NDC to the goals of the Paris Agreement	Formulation of transformational NDCs
Assessment of progress of first NDC	Identification of options of actions, policies, and instruments to align short-term targets to net-zero goals	New realistic targets, specific measures and indicators
Assessment of progress on NDC implementation and alignment to national development priorities	Identification of options actions, policies, and instruments aligned to long-term climate-resilience plans/goals	
Main shortcomings and gaps against the goals of the Paris Agreement	Political economy analysis for the selection of feasible actions, policies, and instruments	
Identification of main opportunities and challenges to design an ambitious yet realistic NDC	Proposal of specific targets, options and solutions	
Dialogue 1: Participatory process to identify main challenges and opportunities	**Dialogue 2:** Presentation and socialization of main findings – proposed options and solutions	**Dialogue 3:** Presentation and finalization

Ongoing report, dialogue, engagement of IDB team with relevant stakeholders



Chapter 4 - Act Now: Investment Plans and Finance Strategies, from Target Setting to Implementation

Chapter 4 - Act Now: Investment Plans and Finance Strategies, from Target Setting to Implementation

To deliver climate and sustainable development objectives, countries need to assess and determine how to effectively align and attract the financing for the required investments on the ground and seize the benefits of the transition. When addressing this challenge, it is critical to plan beyond an immediate pipeline of investments and consider bigger transformations required to align public and private financing in respond to a net-zero and climate-resilient direction of development.

According to the Special Report of the Intergovernmental Panel on Climate Change (IPCC 2018), the scale and pace of the action needed to achieve the climate objectives set by countries to stabilize climate change require an economy-wide approach to drive investments towards climate solutions for a decarbonized and climate-resilient world. Change must come from both public and private actors, as the scale of investments is beyond the reach of public budgets. But this will not happen passively; there is a need for interventions to drive the real economy's demand for low-emissions and climate-resilient finance and to increase supply of climate-compatible finance (Thwaites et al. 2018).

In this context, once specific targets and sequences of measures have been defined in an LTS/NDC, countries can benefit from a strategic identification of investment priorities over time and financing approaches to match; including integration of climate objectives into public resources planning and policies to enable private investment and systematic generation of a pipeline bankable projects.The outcome of such a process whereby a country determines, defines, and mobilizes the financial and other resources—including policy and institutional frameworks—necessary to deliver the transition to net-zero and a climate-resilient development path is what we call a Climate Financing Strategy (Naidoo *et al.* 2014).

This approach will promote more effective access to finance through mobilization of multiple sources, including signaling concrete opportunities to enhance private sector investment to support climate objectives. Experience at IDB has shown that defining climate financing strategies requires as input analysis on the physical transformations needed to deliver climate and development objectives in the country (see for example Section 2.2, Activity 3). This technical material can define the type of technological options as well as the scale and timing for its deployment, which can then be used to kick-start a conversation on financing needs, possible sources of funding and financial instruments, initial pipeline, potential partners, and institutional set-up for delivery of short-, medium-, and long-term targets.

International literature suggests that governments can play three primary roles in mobilizing the required investments to achieve their climate and sustainable development objectives: (i) create an enabling environment (policies and regulation) for long-term climate-aligned investment; (ii) make effective use of public budgets and investments, including through dedicated funds and/or financial intermediaries to encourage a shift towards climate/sustainable development; and (iii) mobilize private climate investments through tailored application of financial risk-mitigation instruments (GGBP 2014). Thus, a comprehensive finance strategy should result in specific actions across these three areas, to systematically align public finance and policy to achieve long-term net-zero emissions, climate resilience, and sustainable development.

Such efforts can be complemented with an investment plan, which can help countries translate the specific climate targets defined in NDCs or LTS (see Chapters 2 and 3) into investment priorities and types of financing required to deliver the objectives, including a roadmap for execution with key milestones in the long, medium, and short term (e.g., which policies/investments by when? Which key program/project by when?).

Given that the scale of the resources required to achieve the objectives of the Paris Agreement exceeds the capacity of public finances, it is critical for the ministry of finance and the financial sector's regulators to work with public and private financial institutions to align financial resources towards the country's long-term climate and sustainable development objectives, mobilizing sustained financing for the country climate investment plan and overall transition towards net-zero and climate-resilient development. Beyond what financial regulators require, the private sector can also proactively anticipate the transition towards a net-zero and climate-resilient economy, responding to market shifts and aligning operations to contribute to it. For example, by using international best practices and national LTS/NDC to clarify opportunities to contribute to the delivery of climate objectives, setting up their own net-zero targets/strategies, and expand already increasing work on environmental, social, and corporate governance (ESG) and sustainable investment. There are two major dimensions that would be important to develop in the context of the financial sector and its regulation:

- **Risk Management:** How the financial sector identifies, analyzes, mitigates, integrates, manages, and discloses risks associated with climate change and socio-environmental impacts of the activities they finance.
- **Aligned Policies and Financial Products:** Consider where and how the financial sector—including regulators, supervisors, banks, and market actors—can support and promote investments that allow the country's economy to transition to meet Paris ambitions and the Sustainable Development Objectives.

Integrating decarbonization and climate-resilience considerations into the public investment prioritization process is crucial to ensure consistency of sector investment plans and projects (OECD 2017). This can also provide signals to the markets on the government priorities across sectors. Governments will have greatest success with public finance measures where they are integrated with national development programs, developed in consultation with the business and finance communities, and tailored to address local investment risks and market constraints (GGBP 2014). The process of defining an investment plan and financing strategy is key to:

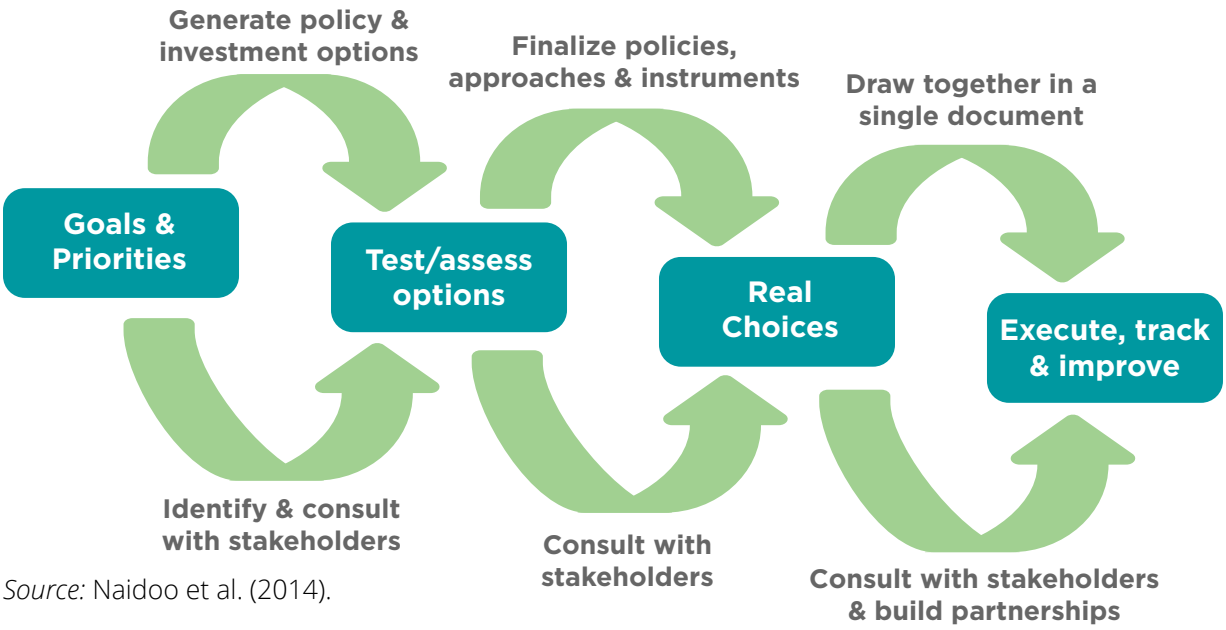
- ✔ **Provide clarity on prioritized areas of investment,** including an assessment of the capacity (know-how), policy, and finance required to deploy required technologies and practices. As well as defining a portfolio of viable projects, including characterization of policy and institutional mechanisms available to deliver those investments now, the role of public finance, private sector and financial intermediaries, and preferred financial instruments.
- ✔ **Clarify approaches to integrate LTS and NDC objectives into public investments decision making,** including public budget, fiscal matrix, public investment systems, public procurement, models of PPPs, and a variety of financial instruments such as equity, guarantees, loans, and fixed-income securities. For example, identifying the policy, governance, risks (social, environmental, or financial), and business approaches to enable market environment for investments in LTS/NDC-aligned activities, such as renewable energy, electrified public transport infrastructure, green buildings, or nature-based solutions. Sectoral expertise (from line ministries, productive associations, academia, and others) is key to navigate the ecosystems of each sector.
- ✔ **Identify and articulate roles of different decision makers,** facilitating coordination across government, including more interactions between ministries of environment, which lead the climate agenda, and the ministries of finance, economy, planning, financial regulator, supervisor, and central banks, who lead the finance sector. For example, international experience suggests that centralized authorities can facilitate coordination between ministries in the implementation of climate objectives (Elliott, Worker, and Ross 2019). Clarity on a roadmap for delivery can facilitate definition of governance with clear responsibilities across government for the development, execution, monitoring, and improvement over time of delivery of LTS and NDCs.
- ✔ **Provide a clear framework to accelerate and scale up climate finance in alignment to the Paris Agreement's objectives, facilitating coherence/effectiveness of accessing interna-**

tional resources (e.g., MDBs, the Green Climate Fund [GCF], etc.). A financing strategy will clarify where use of limited public resources (both national and international) can be most effective for the country. Furthermore, a finance strategy will provide a key guideline for MDBs to conduct Paris alignment assessments and ensure that all their activities advance net-zero, climate-resilient development pathways both for public and private lending.

- **Provide a framework for engagement of stakeholders,** to inform and guide national efforts and bring the consensus required to put in place measures to promote net-zero emissions, climate resilience, and sustainable investments. Through this engagement process the country can agree on an approach for public policy and outline the role of the financial sector to advance climate objectives, for example by creating spaces to allow for the joint design of financial incentives (this space might take different forms, might be several spaces organized by topics, or take other types of set-ups/channels that are relevant or already exist in the country), or establishing a green financial sector association, which can include members from the entire financial sector such as banks, regulators, and asset managers to provide inputs on green investment plans but also implement the changes required at their respective institutions .
- **Provide greater transparency and market signals** to the private sector on the country's investment pathway and public resources available to leverage/scale up private financing. Defining an investment plan based on LTS is expected to catalyze the implementation of new public policies and the adjustment of regulatory frameworks to create stronger incentives for private investment. Defining a financing strategy can encourage local financial institutions and non-bank entities to provide on-lending to micro, small, and medium-sized enterprises to invest in decarbonization and climate resilience. Regulations can enhance bank's awareness of the need to determine, assess, and manage climate change–related risks in a project.
- **Consider the physical and transition risks of climate change for the financial sector** by using frameworks like the Task Force on Climate-related Financial Disclosures (TCFD). Identify the risks of addressing the financial impact of climate change, both through chronic changes (e.g., temperature increase, precipitation changes, etc.) and extreme climate events, and through stranded assets in a net-zero economy by using scenario analysis.

It is important to notice that the development of an investment plan or financing strategy is not a linear process; it will rather be an iterative process of stakeholder engagement and analysis that will allow the construction of a robust finance strategy (see **Figure 4.1**). Furthermore, how an investment plan and actions to align public and private financing are defined can vary from country to country, because a finance strategy is country specific and must respond to a country-specific context (Naidoo et al. 2014).

Figure 4.1. Process to Develop a Financial Strategy for Climate Action



Source: Naidoo et al. (2014).

A comprehensive finance strategy should plan beyond an immediate pipeline of investments, defining specific actions across policy and regulation, measures for the effective use of public resources and tailored financing instruments to mobilize private investments.

4.1. Challenges for Design of Investment Plans and Financing Strategies

Countries in LAC are increasingly showing interest in developing investment plans and approaches to deliver their objectives towards a net-zero-emissions and long-term climate-resilient future. From our experience supporting countries we have identified the following main challenges countries face in the delivery of climate objectives:

- **Translating vague goals, such as percentage of GHG emission reduction, into a tangible roadmap for policy and investment steps.** Often, current climate plans, such as the NDCs, are limited to a target of emissions reductions and a bottom-up compilation of actions and projects, which are likely to not add up to achieve the long-term target that governments pursue under the Paris Agreement (Binsted et al. 2019). This type of information cannot be translated directly into a roadmap of policies and investments; it first needs to undergo a process to define the type of technology options and practices preferred across sectors to achieve the reduction of GHG emissions over time, including information on potential carbon lock-ins and critical actions to build climate resilience (see Chapters 2 and 3). Furthermore, the type of analysis, information, and technical skills to translate lofty climate objectives into physical transformations differs from that needed to develop investments and define delivery focus plans.

- **Moving from a sole bottom-up approach to a programmatic identification of investment priorities.** Often countries use existing project pipelines as the basis to inform delivery of climate objectives in the short term, including a traditional climate pipeline advanced with technical assistance and climate funds, such as the GCF, Climate Investment Funds, etc.; this is sometimes complemented with an existing pipeline in national public plans. Although this is of course a necessary step to build a detailed roadmap for investments, it is critical to consider a top-down approach to identify needs to create a pipeline of new projects, and, even more critical, to align public and private investment choices in the short and medium term in response to the transition to a net-zero and climate-resilient economy. High-level leadership on this agenda is critical, and in addition countries need tools and methodologies to support the process of creating these top-down roadmaps.

- **Engaging sectoral, planning, and finance ministries.** As mentioned before, delivering net-zero emissions and resilience objectives ultimately translates into sectoral actions that will be delivered by sectoral or line ministries and other key actors in the sectors. The know-how on the dynamics, processes to deliver standards, policies, and investments tend to be significantly stronger within line ministries, and understandably not under ministries of environment, who are usually tasked with the development of investment plans to deliver climate objectives. Furthermore, public finance leads such as ministers of finance and economic planning, who can direct resources and help identify more suitable financing instruments, are often difficult to engage on LTS and NDC planning and delivery, particularly given long-term time frames. Evidence on how the climate agenda can inform development solutions today, using language that resonates with line ministers and public finance leads, is needed to facilitate engagement and subsequent actions, as well as support to create processes of dialogue and engagement with other sectors to gather information and build investment plans with sectoral know-how.

- **Availability of concrete methodologies and tools that can help integrate and operationalize climate objectives into public decision making.** Many countries are seeking support to include climate information in key national processes that might be underway. This can be an opportunity to align climate objectives in public decision-making processes, such as integrating sustainability considerations in the formulation of national infrastructure plans integrating climate-related taxonomy and sustainability indicators in the cost-benefit analysis of infrastructure investment plans (see for example the case of Peru in **Box 4.1**); other opportunities include frameworks for the issuance of green bonds, toolkits that integrate sustainability elements in the life cycle of public-private partnerships (PPPs), updating of new sectoral policies, etc. However, climate leads might not have direct access to those processes; similarly, leads of those agendas

might not be aware of synergies with national climate objectives. Governments need tools and entry points to join up these types of agendas and policymakers.

- **Defining necessary interinstitutional arrangements and clear responsibilities.** LTS and NDC implementation requires delivery of multiple activities, policies, and investments across multiple ministries and public agencies. Governments can benefit from defining institutional arrangements and building when possible on existing structures, where clear responsibilities are defined for overall coordination, delivery of goals, and tracking progress. Participation of high-level government management in this arrangement is key to enable synergies across activities, generate incentives and maintain coherence for an effective implementation, and define financing approaches with strong government backing.

- **Technical and financial support to execute tailored studies.** Countries seeking to implement their LTS and NDCs will require help in executing pre-investment studies, feasibility studies, studies to assess regulatory updates, and other specific questions that arise from the exercises of developing LTS and NDCs.

- **Translating environmental and climate objectives into concrete sustainable finance guidelines.** Key barriers for the private sector to invest in responding to climate change are the inability to recognize and evaluate the materiality of climate change risks and a lack of knowledge on how to manage them. Furthermore, capacity building in the finance sector to understand how LTS and NDCs can translate into guidance for projects and investments is needed. The finance sector does not have clarity on what is sustainable or not, what is green or not, thus the need for clear definitions that allow objectives in LTS or NDCs to be connected to activities. These definitions are better known as taxonomies, establishing clear performance thresholds that help companies, project promoters, issuers, and financial institutions to identify which activities are already environmentally or climate friendly.

- **Comparability of information.** Another issue linked to the translation of environmental and climate objectives that is becoming more recurrent is the inability to compare data. Without a clear set of definitions and taxonomies, companies and financial institutions (FIs) are using ad hoc information which in turn becomes impossible to compare between sectors, FIs, and even countries.

- **Connecting public and private sectors.** Dialogues between government, commerce chambers, banking, and other private sector clusters are critical to set the mechanisms to achieve low emission growth. Countries' climate change goals should be embedded in private sector strategies. To achieve this an efficient communication strategy must be implemented, and LTS and NDC updates should consider private sector growth projections.

- **The private sector may not be ready for sustainability and green initiatives.** Depending on the country and the market, the private sector may not prioritize or be seeking to green their operations and align with climate goals. Oftentimes, private sector companies may prioritize meeting regulations, either in ESG or other areas, and do not have the capacity to also focus on green initiatives.

Box 4.1. Aligning Infrastructure Development with Climate and Sustainable Goals

The Government of Peru developed a sustainable infrastructure plan with support from the Inter-American Development Bank and the British government, where emphasis was placed on sustainable projects that are planned, designed, constructed, operated, and decommissioned in a way that guarantees economic, social, environmental, climate, and institutional sustainability throughout the entire project life cycle. This planning exercise set an example of a government effectively aligning their long-term infrastructure development commitments with their NDCs, the Paris Agreement, and the SDGs.

4.2. NDC Invest Country Support to Develop Investment Plans and Finance Strategies to Advance Implementation of LTS/NDCs

NDC Invest offers technical assistance to governments to develop investment plans and finance strategies for climate action. The scope and length of activities depend on the country context, particularly on the level of information and granularity already developed in the design of its NDC and/or LTS; thus, it is highly recommended to consider the development of a finance strategy as part of an advanced process of NDC and LTS design, where physical/technological transformations have been characterized.

4.2.1. NDC Invest approach to develop investment plans and finance strategies

There are many ways to approach LTS and NDC implementation. However, based on our experience supporting countries to scale up implementation, we approach this complex problem in three blocks of activities that cover key actions required: (i) developing an LTS/NDC investment plan; (ii) aligning public finance, regulation, and policy; and (iii) aligning the financial sector. The collection of work under these three areas informs a finance strategy.

Governments can act in these three areas to boost effective implementation of climate objectives, integrated with wider sustainable development goals. Governments can choose how to undertake work in these three areas. They can choose to focus in one or two, or all three together under a single umbrella, such as Chile's National Climate Finance Strategy (see **Box 4.2**). Different public institutions could lead each area or there could be a more institutionalized approach where one or two institutions are leading the work; in Costa Rica, for example, the Ministries of Finance and Planning and of Energy and Environment are responsible for overseeing implementation of the LTS (the National Decarbonization Plan), the Ministry of Energy and Environment leads development of the investment plan, and the Ministry of Finance and Planning leads integration of LTS objectives in national development plans, public investment systems, fiscal policy, and budgetary processes. Meanwhile, sectoral reforms are advanced by the corresponding line ministries, such as agriculture and transport (see **Box 4.3**).

Institutional set-up and channels for delivery will determine the most suitable approach for each country. However, advancing solid action on these three fronts can be a good indicator—for any given country—that robust implementation is taking place. Below, we share the main activities that NDC Invest supports to advance work in these three areas. The order in which they are presented does not necessarily indicate a specific sequence to be followed, as this can also respond to country-specific context, and many can take place in parallel. Nonetheless, one important sequencing step that we do recommend is to advance first in the identification of required physical transformations to achieve climate and development objectives in the country, should this not have been completed. NDC Invest support can start by delivering analyses such those defined in Section 2.2, Activity 3.

Box 4.2. Chile's Financial Strategy on Climate Change

Chile's Financial Strategy on Climate Change (FSCC)1 was developed by the Chilean Ministry of Finance and presented by Minister Ignacio Briones at COP25.2 The strategy has been incorporated into Chile's NDC and the draft Climate Change Law. The FSCC defines a framework for action under an umbrella of three lines of work, joining existing efforts in the country and providing clarity on the country's priorities to enable financing to deliver climate objectives. For each of the axes, it includes specific objectives, progress achieved, and actions to be carried out in the short term, making it a pragmatic document focused on delivering a coherent government response.

Axis 1: Generation of information, data, and analysis to mobilize capital flows consistent with the country's climate and sustainable development priorities. This axis seeks to generate evidence to inform decision making; for example, it defines activities to identify investment needs and establish a roadmap for the implementation of the long-term climate and sustainable development goals defined under the NDC and the LTS under development.

Axis 2: Promotion of economic and financial instruments and market development through intersectoral collaboration, including with private actors, and continued creation of enabling environments that allow for generating new green and innovative financial instruments and expanding existing ones, such as private green bond issuances and green credit lines. This includes actions to mobilize different sources of financing, such as multilateral sources. The defined actions include evaluating and eventually making new sovereign green bond issues.

Axis 3: Strengthening green finance capacities within the local financial sector in risks and opportunities derived from climate change, in line with international standards and best practices. This includes advancing work with the existing Mesa Público-Privada de Finanzas Verdes (Public-Private Green Finance Roundtable)3—an excellent example of a space that brings to the table key financial actors such as ministry of finance, ministry of environment, central bank, and representatives from the regulators and all entities in the financial sector: banking, insurance, general fund administrators, pension funds, and securities intermediaries—to prepare a 2020+ Green Finance Roadmap and an institutional framework to facilitate the execution of the Green Agreement4 developed within the Roundtable, which defines principles to manage risks and opportunities associated with climate change in making decisions by the signatory entities and commits to concrete actions in this area.

The FSCC includes a **governance framework**, which defines that the measures to be carried out in the strategy will be the responsibility of the Ministry of Finance with the support of the Ministry of the Environment, sector ministries, and financial regulators, among others. Likewise, the strategy recognizes the need to be a living and iterative document; therefore, it is defined that the FSCC will be updated in 2021, and every five years from 2025, within the cycle of the NDC update process.

> *"The financial and technical support of NDC INVEST has been essential to elaborate the first Financial Strategy for Climate Change in Chile, which, through three lines of action, provides us with a concrete framework to align different sources of financing towards the objectives of the new NDC and Chile's goal of carbon neutrality by 2050."*
>
> **Trinidad Lecaros**, Senior Green Finance Advisor, Ministry of Finance, Chile

1 https://cambioclimatico.mma.gob.cl/wp-content/uploads/2020/04/Estrategia-financiera.pdf
2 https://www.hacienda.cl/noticias-y-eventos/noticias/ministro-briones-lidera-en-madrid-reunion-de-la-coalicion-de-ministros-por-la
3 https://mfv.hacienda.cl/
4 Available for download at https://mfv.hacienda.cl/publicaciones/publicaciones-de-la-mesa.

Box 4.3. Implementing the National Decarbonization Plan in Costa Rica

Costa Rica's National Decarbonization Plan 2018–2050[1] maps out the transition to net-zero emissions by 2050. The plan contains targets across all sectors for the short (2018–2022), mid (2023–2030), and long (2031–2050) terms. To advance implementation the government is undertaking a set of activities to align public finance and economic planning, including:

i) **Fiscal sustainability:** The Ministry of Finance is working with experts at the University of Costa Rica to better understand fiscal impacts of decarbonizing the transport sector and to identify possible fiscal strategies to manage it, with detailed analysis on the impact of electromobility and expanded public transport on the tax system for fuel and vehicle importation and ownership.

ii) **Investment plan to deliver the objectives:** The investment plan identifies the type and scale of investments linked to each of the targets and activities defined in the plan, the policy, institutional processes, and know-how required to deliver those investments. This investment plan also defines a roadmap for execution including key milestones and time frames in the short, medium, and long term. This helps identify financial gaps and possible approaches to stimulate public and private investment, and better use of international financing.

iii) **Integration of the plan's objectives across public investments prioritization processes:** Costa Rica's National Development Plan includes the objective of decarbonization among the priority variables for setting national targets. The decarbonization plan also serves as a main input to the new Strategic Plan Costa Rica 2050 under development by the Ministry of National Planning and Economic Policy (Mideplan). Mideplan is also developing guidelines and tools to prioritize projects registered under the National System of Public Investment if they are aligned with the Decarbonization Plan as well as to incorporate climate risk criteria.

iv) **Aligning ministries' structures and human resources to deliver sectoral transformation:** The decarbonization plan was drafted by the Ministry of Energy and Environment, but it assigns responsibilities to most other ministries. The government subsequently issued a national energy plan and a national electric transport plan, among other sectoral plans, that each reiterate the decarbonization goals and associated sectoral targets. The government is also assessing institutional capacity and functions of the Ministry of Public Works and Transport and Ministry of Energy and Environment, to ensure capabilities respond to their responsibilities under the decarbonization plan.

v) **Monitoring and evaluation of the effectiveness of public spending on established goals:** The Ministry of Finance is developing a budget tagging system to track public spending on climate change and biodiversity in the national public budget, as well as guidelines and procedures for the use of these markers.

vi) **Governance for implementation:** The measures set out in the Decarbonization Plan require cross-sector coordination in as much as they involve 35 government ministries and agencies and multiple stakeholders. Accordingly, the Decarbonization Plan encompasses the creation of a team operating at the presidency level to review, align, and prioritize public investment processes in coordination with the Ministry of Finance, Mideplan, and the Ministry of Energy and Environment.

vii) **Mobilization of financing, including international financing:** The Ministry of Finance is maintaining dialogue with multilateral and bilateral entities to identify work priorities, and the plan naturally serves as a framework to channel support. In particular, the short-term policy actions defined in the plan formed the basis for policy-based loans from the IDB, the French Development Agency, and the World Bank.

1 https://unfccc.int/documents/204474

> *"The development of the National Strategic Plan of Costa Rica, integrating our objectives of decarbonization and climate resilience, is a fundamental pillar of the government to enhance the well-being of the entire Costa Rican society through sustainable economic and social development. The IDB has been a key ally in this process, providing relevant technical and financial support to inform national economic planning with robust and high-quality data-driven analysis."*
>
> **Pilar Garrido**, Minister of Mideplan, Costa Rica

> *"The USD 380 million loan from the IDB and AFD to support the National Decarbonization Plan allowed access to external financing under favorable conditions, and the leverage of a technical assistance package for more than USD 7 million. These accomplishments allow us to improve the coordination of public spending related to climate change and strengthen our dialogue with other multilateral and international agencies that support Costa Rica's objectives in terms of decarbonization and the climate agenda."*
>
> **Melvin Quiros**, Public Credit Deputy Director of the Ministry of Finance of Costa Rica

4.2.2. Activities supported

> NDC/LTS-based investment plans

1. Definition of the type, scale, and gaps of investment requirements.

Assessment to lay out the priority investments in defined time frames, including an evaluation of what resources, in terms of financial, know-how, and human resources, are required to deliver the measures identified in the LTS or NDC, and an assessment of what already exists and where the gaps are that need to be addressed. This allows, for example, the definition of portfolios of activities with similar profiles to help match more suitable funding sources (e.g., a portfolio of technical support on studies that can be matched with international support, capacity building for technicians or public officials that could be considered in public budgeting under relevant ministries, feasibility studies that could make use of project preparation facilities, pilot projects that could access seed funding from multilateral or bilateral funds, and infrastructure investments that can leverage public and private investments). Technical assistance can support activities to address key questions to define an investment plan tailored to country needs, such as:

- ✔ What resources are required and available for the different stages of implementation in the short, medium, and long term? (including CAPEX, OPEX, and other needs such as studies and data generation, human resources, prefeasibility and feasibility studies, pilot projects, infrastructure investments, etc.)
- ✔ Where are financing gaps and barriers across the priority sectors/measures? (including financial, regulatory, technical, projects level gaps, capacity, etc.)

2. Identification of the funding options and policy and institutional arrangements to support delivery of investments.

A roadmap for execution including key milestones, time frames, institutions involved, and key activities can be defined. This should include an assessment and definition of preferred financial instruments, assessment of policy and regulatory bottlenecks, and recommendations to enable investments towards the areas defined in the investment plan. It will be important to assess too how the government is organized to deliver this plan. Some considerations can include:

- ✔ What is the preferred mix of financing instruments and resources, including the role of public and private sector and financial intermediaries? What partnerships could be created?

- ✔ Which investment vehicles are the most appropriate to choose for each measure?
- ✔ How are resources accessed by those that require them the most?
- ✔ How do existing international climate finance mechanisms and development institutions bridge existing gaps of funding?
- ✔ Which national and international development partners are best suited for implementation?
- ✔ What existing sectoral policies might need to be updated or new ones created to relieve regulatory bottlenecks?
- ✔ What are key milestones and time frames to ensure on-time delivery of measures?
- ✔ What are the support structures and institutional mechanisms available and required to deliver such measures? Are roles and responsibilities defined?
- ✔ Are MRV frameworks defined?
- ✔ How to ensure sustainability over time to generate deal flow of pipeline of projects?

3. ***Definition of initial pipeline of projects and roadmap for delivery.***

   Identification and characterization of portfolios of technical assistance and investments, including an identification of projects that are already in the public pipeline (e.g., those registered in public investment systems, or defined within development plans) and what those might need to get to fruition, as well as a pipeline of new projects for the short and medium term, and characterization of investment needs in the long term.

4. ***Robust and consultative decision making.***

   Technical assistance can support an ongoing dialogue with stakeholders to co-design the investment plan and collectively answer the questions posed in Activities 1–3 above.

> *Aligning public finance and policy*

5. ***Identification of opportunities to improve decision making and assess misalignments on public investments to respond to the country's long-term objectives.***

   This includes assessment and definition of policy and regulatory measures to put in place to create a stable and coherent framework that provides adequate price signals, develops comprehensive policies, removes market barriers, aligns economic drivers, and supports early market projects. Support can include sector-level regulatory and policy assessments, for example energy reforms, urban planning regulations, updating public transport concessions, etc. Also, to facilitate coordination across government institutions, support can be directed to identify opportunities to improve decision making on public investments and central economic and fiscal policies to respond to the country's long-term objectives. Support can focus on addressing the following questions:

   - ✔ What is the role for specific policies and regulations for incentivizing—or disincentivizing—net-zero and climate-resilient investments, and how could these impact different segments of society?
   - ✔ What areas of government could integrate climate objectives into public decision making, for example in sectoral strategies, budget priorities, national planning, public investment systems, etc., and what are the opportunities for integrating these?
   - ✔ What capacities/skills need to be strengthened or developed across different institutions? And what national or international resources can be used to build those capacities?

6. Development methodologies and frameworks to systematically inform use of public finance.

Integrating decarbonization and climate-resilience objectives into countries' national and sectoral development plans, as well as including systemized criteria to align investment choices across public decision-making systems. Support can include activities such as:

- **Development of budget tagging system to track public spending on climate-related targets.** An unknown level of public spending on climate-related activities limits the government's ability to evaluate the effectiveness of public spending on achieving national targets. Developing a tagging system can improve transparency and decision making on budget allocation to maximize the impact of public spending.
- **Development of methodologies, taxonomy, and indicators to prioritize projects registered under national public investment systems** if they are aligned with climate objectives. This will encourage ministries and government agencies in charge of implementing public investments to align sector planning and justify within national public investment systems how the projects they execute are aligned with the country's decarbonization and/or climate-resilience goals. Achieving long-term decarbonization and resilience objectives calls for alignment in how infrastructure projects are prioritized inside the investment units at the ministries of finance. For example, the Mexican Ministry of Finance—with support of the Inter-American Development Bank and the British Government—developed a set of quantitative sustainability indicators to be included across all projects' cost-benefit analysis, used for their internal public investment prioritization process. This structural change will allow Mexico to prioritize projects with higher environmental, social, and economic multiplayers.
- **Assessing fiscal-related effects of net-zero and climate-resilience plans** laid out on the country's LTS and/or NDC and identifying possible strategies to manage fiscal impacts.
- **Assessment of sectoral plans and institutional set up in light of the national climate and sustainable objectives.** Follow-up assessments to those developed for the design of the LTS or NDC to deepen analysis in critical sectors in the country and provide inputs into sectoral plans, such as updating the national energy strategy, or a new national policy on the circular economy, considering elements such as generating jobs, reducing poverty, and boosting its growth in a decarbonized future. This can also include assessments to reorganize functions and teams in key ministries to address disparities in their capacity to incorporate decarbonization and/or climate-resilience objectives into their plans and activities.
- **Governance for implementation.** Support can be directed to explore possible governance arrangements to facilitate coordinating the implementation of policy reforms and investments, as it is likely that institutional adjustments will be needed.
- **Design of framework and financial structuring of green bonds.** Support the identification of national and subnational budget expenditures that could be eligible for green and sustainability bonds, promoting inter-ministerial dialogues to prioritize assets, allocate proceeds, ensure bonds align with countries' commitments under their LTS/NDC and SDGs, support second-party review and certification, support the financial structure and credit enhancement needed for successful issuance, and develop institutional capacity for reporting impact indicators.
- **Design of public auctions, PPPs, and public procurement guidelines.** Support to governments in the identification of institutional arrangements and decision support tools for planners involved in PPPs, such as including climate risk assessments in the very early stages of the project cycle, the opportunity to include resiliency requirements in the procurement documents, and the need to include climate and natural disaster provisions in the negotiation and monitoring of the contracts (see an example in Box 4.4).
- **Green procurement.** Developing guidelines for borrowing countries on green procurement practices and more environmentally sustainable actions to align the procurement of goods, works, services, and consultancies to national decarbonization and climate-resilience strategies.

Box 4.4. Developing Climate-Resilient Infrastructure through Public-Private Partnerships: The Case of Jamaica

The need to consider climate change issues in the provision of infrastructure services through public-private partnerships (PPPs) in Jamaica originated from two key features of the Caribbean island that are easily extendible to other climate-vulnerable countries in Latin America and the Caribbean. On one side, these countries face many risks associated with climate change, with their infrastructure vulnerable to hazards like hurricanes and landslides, as well as to slow chronic changes such as sea-level rise and perturbations in temperature and precipitation patterns. At the same time, these countries have been seeking an increased role for the private sector in developing their infrastructure, choosing PPP as their main delivery model. PPPs are very long-dated contractual relationships, whose success depends on an accurate, sustainable, and efficient distribution of risks and benefits between the public and private counterparts of the transaction. If risks posed by climate change are not identified, assessed, and managed throughout the whole PPP process, the task of structuring efficient 20-to-30-year PPP contracts can become incredibly difficult.

Considering the replicability of the PPP process across countries, the Climate Resilient Toolkit (Frisari et al. 2020) has gathered a rich collection of decision support tools for policymakers and project developers partaking in the PPP development process and which applies to Jamaica as well as any country seeking to ensure their PPPs are more climate resilient. The toolkit has been developed following the typical structure of the PPP process: project identification, business case development, transaction structuring, and management of the contract during the whole life of the PPP project. In each phase, climate change risks may arise, as well as opportunities for an improved design for climate-resilient and/or more productive infrastructure, and it would be important for such cases that risks and opportunities alike would be considered and followed through in the different phases of the transaction to ensure, for example, that critical aspects identified in the project preparation phase are then included in the preparation of the tender documents and, as well, inform the performance indicators in the contract management phase.

The analysis for Jamaica has identified several instruments and tools already used around the world (including by IDB and other development finance institutions) to address climate change issues in the context of infrastructure production—albeit not always in a systematic way—that could be integrated in the PPP process in a more institutionalized and standardized manner. The toolkit is to be considered a living document, open to improvements and updates as evidence is gathered on other instruments that can be used to manage climate change risks and/or create resiliency opportunities for the infrastructure of Latin America and the Caribbean.

> *"The work supported by the IDB has allowed the identification of several instruments and tools to integrate climate change considerations in our PPP processes in a more institutionalized and standardized manner, enabling options for a low-cost and seamless implementation in the established Jamaican PPP model."*
>
> **Ricardo Munroe,** Manager Public-Private Partnership & Privatization, Development Bank of Jamaica

> Aligning the financial sector

The Paris Agreement requires that all financial flows be consistent with a net-zero, climate-resilient economy. The financial sector will need to develop guidelines, capacity, and operations to align with the Paris Agreement. Governments can work with the private sector in this transition. Given the critical role of the private financial sector in the delivery of countries' climate objectives, technical assistance can support addressing the following:

7. Consolidation of technical dialogue convening relevant financial actors (public and private).

- **Consolidation of a mechanism of continuous technical dialogue** that can convene the relevant actors from public and private financial spheres (i.e., regulators, supervisors, banks, pension funds, institutional investors, stock exchange, insurance companies, etc.).
- **Promotion of national and regional exchanges within the public and private sector**, for example hosting conferences and workshops for the private sector to learn from companies that are climate change champions in their sector in the country, the region, or globally.

8. Support to broader private sector: catalyzing investment opportunities.

Identifying and sharing international best practices in sustainable finance, as well as assessing gaps in the local market with respect to international standards, to help identify measures to address these gaps, such as sustainability practices and climate-related risk management that can be adopted by actors in financial and local capital markets. Technical support can include activities such as:

- **Promote regulation that encourages reporting and disclosure around climate risks, drawing from the TCFD.** This will provide the private sector with the needed frameworks to assess and managing climate-related financial risks.
- **Support governments and regulators in developing clear regulatory frameworks and incentives for private investment.** Through dialogue with the financial sector, develop long-term policies and regulations that can promote the integration of sustainability in the financial and local capital markets, providing clear guidance on the implications and benefits of net-zero and climate-resilient investments and green business operations.
- **Provide capacity building and tools.** Technical assistance measures help to stimulate demand for private investment by addressing knowledge gaps. Particularly, facilitating tools for climate change risk assessment and climate investment opportunities.
- **Develop the demand for green finance and green products.** Help facilitate market and consumer preferences for greener products.
- **Identify and promote innovative financial and capital market instruments** that can leverage private investment in activities that help meet the ambitions of Paris and the SDGs.

Act now:
Investment Plans and Finance Strategy

NDC/LTS Investment plan

- Definition of the type, scale and gaps of investment required
- Identify funding options, policy, and institutional arrangements
- Definition of initial pipeline of projects and roadmap for delivery
- Support an ongoing dialogue with stakeholders to co-design the investment plan

Aligning public finance and policy

- Identify and assess current policy and regulatory barriers, misalignments and solution scenarios
- Applying methodologies & frameworks to systematically align public finance:
  - **-Public budget tagging**
  - **-Public Investment systems**
  - **-Fiscal assessments**
  - **-Institutional assessments**
  - **-Governance options**
  - **-Sovereign green bonds**
  - **-PPPs and green procurement guidelines**

Aligning the Financial Sector

- Consolidation of public and private technical financial dialogues
- Support and promote regulation that encourages reporting and disclosure around climate risks
- Support development of regulatory frameworks and incentives for private investment
- Provide capacity building, information, and tools to assess climate risks & opportunities
- Identify and promote innovative financial and capital market instruments

Ongoing report, dialogue, engagement of IDB team with With the focal point in the government and relevant stakeholders

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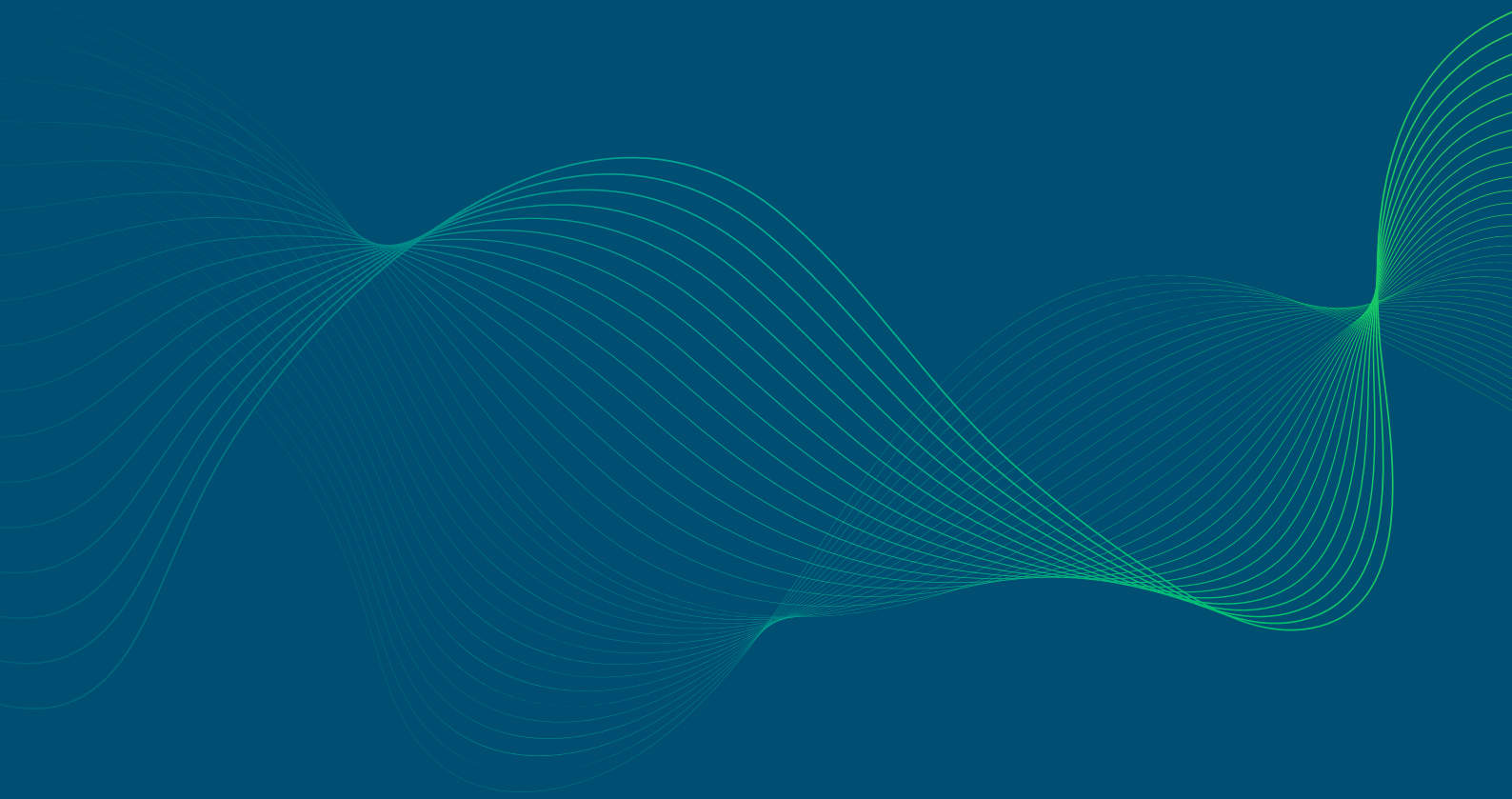

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