

Framework legislation on climate change in **Latin America** and **the Caribbean**

Legislative Bulletin

Victoria González
Gastón Poncini
Coordinators



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Parliamentary Observatory
on Climate Change and Just Transition

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on Climate Change and Just Transition

This document was coordinated by Victoria González, legislative advisor from Argentina, and Gastón Poncini, consultant of the Economic Commission for Latin America and the Caribbean (ECLAC) office in Brasilia, under the supervision of Camila Gramkow, Acting Chief of the ECLAC office in Brasilia, as part of the ECLAC and Open Society Foundations project "Making the Parliamentary Observatory on Climate Change and Just Transition (OPCC) a Reality".

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Executive summary

The Parliamentary Observatory on Climate Change and Just Transition (OPCC, Spanish acronym) is an initiative carried out jointly by parliamentary leaders from various countries in Latin America and the Caribbean (LAC). The OPCC was announced in 2021, within the framework of the 26th session of Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) and has the objective of constituting a shared information tool about the status of environmental legislation and parliamentary approach towards the matter in the region. In addition to the development of a legislative data platform for the countries represented in the OPCC, another important information tool of the observatory is the legislative bulletins. The purpose of the OPCC legislative bulletins is to produce knowledge about legislation for sustainable development based on comparative analysis of legislation on strategic topics selected by the parliamentarians participating in the OPCC. The desire to develop and publish legislative bulletins has the ultimate goal of inspiring and designing new legislation, as well as reviewing and improving current legislation on priority topics and areas for the regional sustainable development agenda. This is the OPCC's first legislative bulletin, and its central topic is the framework legislation on climate change.

Climate change is a key issue on the parliamentary agenda in LAC and in the world. LAC is one of the regions most affected by the risks of climate change, being vulnerable to scarcity of drinking water, the severe increase in infectious diseases and epidemics, food insecurity, fires, and serious damage to infrastructure due to flooding, sea level rise, coastal erosion, and storm surges (IPCC-Intergovernmental Panel on Climate Change, 2022b). Likewise, the parliamentarians participating in the OPCC consider climate change a key opportunity for economic development and social inclusion for the region, as well as one of this century's most relevant topics in international politics.

Given this context, the document presents a comparative analysis of the legislation and good practices of the countries of the region in terms of framework legislation on climate change. The survey covers the following countries in the region: Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Guatemala, and Uruguay. These countries were selected on a voluntary basis through a process in which the parliamentarians participating in the OPCC proposed their own countries as case studies for this research. So, we can state that these countries were selected because they are voluntarily represented in OPCC and also because they represent a diversity of climatic and institutional contexts and comparing them is relevant to know the similarities and differences that characterize these countries in terms of framework legislation on climate change.

This document provides two main sections for each country: national context and legislative analysis. Similarly, from this analysis by country, a comparative analysis was subsequently developed. Some preliminary findings can then be highlighted: (1) the enactment of framework legislation on climate change had a high degree of consensus and transversality, (2) there is a correlation between the breadth and scope of each legislation and the year of its enactment, evidencing a process of evolutionary maturation in the enactment of framework legislation on climate change, (3) the guiding axes with greater legislative breadth at present are the general provisions, the institutional framework for climate policy and the economic and financial aspects, (4) the legislative instruments analyzed do not yet present a harmonious, standardized, measurable and ambitious approach in terms of setting climate change goals, (5) most of the countries have incorporated an institutional framework, but none have mechanisms for the development of just transition strategies, and (6) not all countries have incorporated financial and economic mechanisms.

In summary, this legislative bulletin identifies a multiplicity of good practices that, given the regulatory gaps in the region, provide a scenario of opportunities for improvement both for those countries that do not yet have framework legislation on climate change and for those that do and can review, expand and improve existing legislation.

Introduction

A. Legislative Bulletins and the OPCC

The Parliamentary Observatory on Climate Change and Just Transition (OPCC) is an initiative carried out jointly by parliamentary leaders from various countries in Latin America and the Caribbean (LAC). The OPCC was announced in 2021, within the framework of the 26th session of Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) (OPCC, 2021) and has the objective of constituting a shared information tool about the status of environmental legislation and parliamentary approach towards the matter in the region. As of September 2023, there are 26 parliamentarians participating in the OPCC from 15 LAC countries (Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Curaçao, Ecuador, Guatemala, British Virgin Islands, Mexico, Montserrat, Panama, Turks and Caicos Islands, Panama, and Uruguay):

Table 1
Legislators participating in the OPCC as of September 2023

#	Name	Country	House	OPCC role
1	Gladys Gonzalez	Argentina	National Senate	Founder
2	Jaques Wagner	Brazil	Federal Senate Brazil	
3	Cecilia Isabel Requena Zárate	Bolivia (Plurinational State of)	Chamber of Senators	Chair
4	Leila Barros	Brazil	Federal Senate Brazil	
5	Melvin "Mitch" Turnbull	British Virgin Islands	Ministry of Natural Resources and Labour	
6	Ximena Órdenes Neira	Chile	Senate	
7	Juan Carlos Lozada	Colombia	Chamber of Representatives	
8	Kattia Cambronero Aguiluz	Costa Rica	Legislative Assembly	
9	Gwendell Mercelina	Curaçao	Parliament	

#	Name	Country	House	OPCC role
10	Washington Varela	Ecuador	Assembly	Chair
11	Samuel Andrés Pérez Alvarez	Guatemala	Congress of the Republic	
12	Raúl Bolaños-Cacho Cue	Mexico	Senate of the Republic	
13	Veronica Dorsette-Hector	Montserrat	Parliamentary Secretary	
14	Gabriel Silva	Panama	Legislative Assembly	
15	Otis Morris	Turks and Caicos Islands	Ministry of Home Affairs, Transportation, Broadcasting, Energy, Utilities and Telecommunications	
16	Juan Federico Ruiz	Uruguay	Chamber of Representatives	
17	Ximena García	Argentina	Chamber of Deputies	Co-chair
18	Maximiliano Ferraro		Chamber of Deputies	
19	Célia Xakriabá		Brazil	Chamber of Deputies
20	Nilto Tatto	Chamber of Deputies		
21	Duda Salabert	Chamber of Deputies		
22	Consuelo Veloso Avila	Chamber of Deputies		
23	Juan Ignacio de la Torre	Chile	Senate of the Republic	
24	Nancy de la Sierra		Senate of the Republic	
25	Emilio Alvarez Icaza		Senate of the Republic	
26	Martina Cásas	Uruguay	Chamber of Representatives	

Source: Prepared by the authors.

In addition to the development of a legislative data platform for the countries represented in the OPCC, another important information tool of the observatory is the legislative bulletins. The purpose of the OPCC legislative bulletins is to produce knowledge about legislation for sustainable development based on comparative analysis of legislation on strategic topics selected by the parliamentarians participating in the OPCC.

Legislative bulletins are intended to generate a meeting point and a shared information tool at the service of academia, civil society organizations, activists, businesses, other international organizations and the society as a whole. These bulletins serve to generate specialized knowledge, thus seeking to promote inter-parliamentary cooperation among the representatives of the countries involved in the OPCC with the aim of identifying best practices and processes that support the institutional and legislative strengthening necessary to address climate change in an efficient and coordinated manner, promoting climate action on strategic issues for the OPCC and the region.

This is the first legislative bulletin of the OPCC and it addresses the framework legislation on climate change, combining research and direct collaboration with parliamentarians from different countries participating in the Observatory. This specific document was coordinated by Victoria González (Argentina) and Gastón Poncini (Argentina), with contributions from Tiago Amaral (Brazil), Catalina Caillet-Bois (Argentina), Angelica Coca (Bolivia), Carla Gheller (Brazil), Daniela González (Colombia), Alejandro Mendoza (Colombia), Beatriz Neves (Uruguay), Francisco Rotman (Argentina), Federico Zingerling (Argentina) & Miguel Zubizarreta (Argentina), in partnership with the Brasilia Office of the

Economic Commission for Latin America and the Caribbean (ECLAC), under the supervision of Camila Gramkow (Economic Affairs Officer), within the framework of the ECLAC/Open Society Foundations (OSF) project activities: "Concretizing the Parliamentary Observatory on Climate Change and Just Transition (OPCC)."

Climate change is a key issue on the parliamentary agenda in LAC and in the world. LAC is one of the regions most affected by the risks of climate change, being vulnerable to scarcity of drinking water, the severe increase in infectious diseases and epidemics, food insecurity, fires, and serious damage to infrastructure due to flooding, sea level rise, coastal erosion, and storm surges (IPCC, 2022). Likewise, the parliamentarians participating in the OPCC consider climate change a key opportunity for economic development and social inclusion for the region, as well as one of this century's most relevant topics in international politics. This is why this is the topic of choice for the first legislative bulletin of the OPCC.

B. Reasons and foundations

The United Nations Organization defines climate change as a "change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable periods." (UN, 1992). In turn, the UN has warned that this phenomenon has harmful effects on natural ecosystems and on the functioning of human societies.

The Intergovernmental Panel on Climate Change warned that in recent years an increased frequency and severity of climate extreme events has been reported, which has increased the adverse impacts on natural ecosystems and human societies, to the point that some of the effects of these events may be beyond the human ability to adapt (IPCC-Intergovernmental Panel on Climate Change, 2022a).

In LAC, acute transformations in the structure of terrestrial, aquatic and marine ecosystems have been documented as a consequence of climate change. This process has led to considerable declines in the number of species that comprise them. In the region, climate change has caused in recent years: water shortages, decreased crop and livestock productivity, higher prevalence of infectious diseases, an increase in the percentage of the human population suffering from malnutrition, displaced persons and climate-related migrants, and flooding and other effects on infrastructure and key sectors of the economies of the region's countries (IPCC-Intergovernmental Panel on Climate Change, 2022).

Based on this outlook, the report points out that the current situation makes future risks much more serious and complex to manage, especially if global temperatures increase by more than 1.5°C in the coming decades. Accordingly, among the main risks of climate change for the region are the scarcity of drinking water, a severe increase in infectious diseases and epidemics, the degradation of coral ecosystems, food insecurity and serious damage to infrastructure due to flooding, landslides, sea level rise, coastal erosion, and storm surges (IPCC-Intergovernmental Panel on Climate Change, 2022a).

Such reading is consistent with the conclusions reached by the World Meteorological Organization. The region will be one of the hardest hit in the world by the effects of climate change, including heat waves, reduced crop yields, and forest fires. This phenomenon had an impact on 277 million people between 1998 and 2020 and caused the death of 312,000 of them. Additionally, environmental, economic and social consequences similar to those described by the IPCC in previous paragraphs are foreseen for the future (WMO, 2021).

In view of the above, the IPCC draws attention to the urgent need to adopt and adjust policies to address and adapt to climate change, including the need to ensure the resilience of development policies to climate change (IPCC-Intergovernmental Panel on Climate Change, 2022a). In this regard, the IPCC advises on the need to take targeted economic, technological, institutional, social, environmental and geophysical measures. The IPCC recommends that all measures adopt a human rights, gender and ethnic approach while giving priority to especially vulnerable groups, as well as incorporating the

ecosystem-based adaptation (EbA) approach. This should be in line with the goals of the Sustainable Development Goals and the 2030 Agenda.

Legislative and public policy strategies are not only urgent, but also need to be coordinated at the regional level, while good practices need to be shared, disseminated and adopted. Inefficient practices in this area hinder the adoption of relevant solutions and may lead to an increase in social inequality and the economic costs of addressing climate change (IPCC-Intergovernmental Panel on Climate Change, 2022a).

Given this context, the purpose of this bulletin is to present a comparative study of the legislative strategies to address and adapt to this phenomenon that have been adopted within the framework of understanding the impacts of climate change in these eight LAC countries: Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Guatemala, and Uruguay. These countries were selected on a voluntary basis through a process in which the parliamentarians participating in the OPCC proposed their own countries as case studies for this research. So, we can state that these countries were selected because they are voluntarily represented in OPCC and also because they represent a diversity of climatic and institutional contexts and comparing them is relevant to know the similarities and differences that characterize these countries in terms of framework legislation on climate change.

C. Structure

The document is structured as follows. Chapter I presents the regional contextual framework and case studies of eight LAC countries. The discussion in Chapter I provides a relevant background to the comparative analysis of climate change issues in the region. It presents a brief regional contextualization of the climate change issue, covering South America, Central America and the Caribbean. Next, the case studies for each of the eight countries included in this study are presented. The case studies provide information at the national level to provide a general understanding of the problem in each country, its particularities and the relevant policy background. It also includes a legislative analysis that identifies, reviews and analyzes the legislative acts that form the Framework Legislation on Climate Change for each of the countries that already have an instrument of this nature. As part of the legislative analysis, it includes not only an approach and a detailed description of the scope and particularities of each legislative act, but also the context of the enactment of each one of them, along with their background. Such legislative analysis is the main input for the following chapter, which provides the main contribution of this policy bulletin by allowing a comparative analysis of the framework legislation on climate change in the region.

As such, Chapter II is the core of this policy bulletin. It presents a comparative analysis of the framework legislation on climate change in the region, offering relevant information on the status and strategies adopted by national parliaments in each country to address climate change. This comparative section is based on the legislative analysis developed in the previous chapter, and it specifically compares the most relevant elements identified in the research process. Still, the comparative analysis in chapter II offers comparative information on different elements and categories of analysis of relevance, such as the scope and number of laws enacted in the region, the period during which they were enacted, the extent of consensus in their enactment, and the main axes and components achieved by the legislation framework on climate change in the region.

Lastly, there are some final considerations, which include some cross-sectional conclusions of the document, as well as propositions and reflections resulting from this analysis and this research.

I. Contextual framework

This chapter aims to situate the comparative analysis of climate change issues in the region based on the regional contextual framework and the case studies of the countries covered by this research. Thus, it is divided into two main sections: (A) regional context and (B) national case studies.

A. Regional context

This section presents a regional contextualization of the climate change issue, covering South America, Central America and the Caribbean.

At the global level, the influence that human action has had on the planet's climate system through the sustained emission of greenhouse gases has been the subject of scientific scrutiny by the Intergovernmental Panel on Climate Change (IPCC) since 1988. Based on the different reports presented by this panel, human influence on climate system is clear, i.e., the greater the disruption to the climate — associated with the increase in the planet's average air temperature— the greater the risks of serious, widespread and irreversible impacts, and the means to mitigate their effects will allow building a more prosperous and sustainable future (IPCC-Intergovernmental Panel on Climate Change, 2020).

At the regional level, greenhouse gas emissions for the Latin American and Caribbean region registered an increasing trend between 1990 and 2014, when they peaked at 3,365,908 kt of CO₂ equivalent. However, since 2015 there has been a downward trend, thus differentiating the region from the trajectory of global emissions, which did continue to grow steadily (World Bank, 2023b).

At a global level and according to the IPCC, climate change increases the frequency of extreme events and the impacts and damages generated are variable depending on the nature and magnitude of the event, the ability to adapt and reduce vulnerability, with significant differences between regions and sectors of activity at a global level (IPCC-Intergovernmental Panel on Climate Change, 2022a).

Latin America, in particular, is significantly exposed and vulnerable to the impacts of climate change due to its inequality, poverty, population growth, high population density, increase in deforested areas with the consequent loss of biodiversity, soil degradation and high dependence on natural resources of the economies (IPCC-Intergovernmental Panel on Climate Change, 2022b).

Climate change in this region has produced negative impacts on agricultural production and fishing yields; increased infectious diseases due to greater number of vectors; impact on nutrition levels; displacement of people; flooding; damage to infrastructure and negative impacts on the economy, directly affecting the quality of life of people, particularly those in vulnerable situations (ibid.).

The different scenarios projected for global average temperature variation above 1.5°C in the coming decades indicate some of the following risks for the region: increases in heat waves, insecurity in water supply, severe effects due to increased epidemics transmitted by certain vectors, degradation of coral reefs, food insecurity due to extreme droughts, risk to life and damage to infrastructure due to flooding, landslides, sea level rises, coastal erosion and storm surges (IPCC-Intergovernmental Panel on Climate Change, 2022). Some of the adaptation measures include, but are not limited to, improving efficiency and planning in the use of natural resources (water, soil), conservation of natural ecosystems, implementation of protection measures (coasts) and relocation of human settlements. Local knowledge plays a pivotal role in improving adaptation and social resilience linked to the different inhabited environments. Furthermore, different change pressures have also had an impact on this region, creating new contexts with direct effects on the economies and spilling over into society. LAC countries were not immune to the consequences of the COVID-19 pandemic, as its effects on the economies of the region were felt from 2020 onwards in the different links of the production chains, particularly those associated with industrialization and marketing. The region's Gross Domestic Product (GDP) fell -6.6% in 2020; the fall was greater in some countries than in others (Argentina -9.9%; Bolivia -8.7%; Brazil -3.9%; Chile -6%; Colombia -7%; Costa Rica -4.1%; Guatemala -1.8%; Turks and Caicos Islands -26.8%; Uruguay -6.1%; according to the World Bank, with recovery levels also varying among post-pandemic countries (World Bank, 2023h).

In 2022, the conflict between Ukraine and Russia also triggered an unfavorable scenario, particularly affecting Europe's energy supplies and certain inputs for agricultural production and the industrial sector, triggering a spike in the international price of oil and grains, with direct impact on inflation due to an increase in the prices of basic household goods (IDB, 2022).

Inequality and poverty are variables that have been of concern to different national governments in the region. LAC is one of the regions with the greatest inequality in income distribution in the world, which adds to intersectionalities such as gender, race, ethnicity and origin, which mark a matrix of inequalities (ECLAC, 2016).

To this effect, the values corresponding to the Gini Index provided by the World Bank for the year 2020 (World Bank, 2023c) for the 8 countries covered by this research exceed 0.40 in all cases, reaching a maximum of 0.54 for Colombia, reaching an exact average of 0.46, which shows that the region is affected by inequality.

Table 2
Gini index for the year 2020 for the countries covered by this research

Country	Gini index (2020)
Uruguay	0.40
Argentina	0.42
Bolivia (Plurinational State of)	0.44
Chile	0.45
Guatemala	0.48
Brazil	0.49
Costa Rica	0.49
Colombia	0.54
Total average	0.46

Source: Prepared by the authors based on data from the World Bank (World Bank, 2023).

Likewise, in terms of poverty incidence in the region, as shown in the sections about each country, the share of the population below the poverty line in 2020 ranges from 10.8% in Chile to 52.4% in Guatemala, with an average of 31.6% in the 8 countries covered by this study, resulting in a ratio of 3 out of 10 people below the poverty line in the countries included in this study (World Bank, 2023f).

Table 3
Population below the poverty line by 2020 for the countries covered by this research

Country	Population below the poverty line, 2020 (Percentages)
Chile	10.8
Uruguay	11.6
Brazil	24.3
Costa Rica	30.0
Bolivia (Plurinational State of)	39.0
Argentina	42.0
Colombia	42.5
Guatemala	52.4
Average	31.6

Source: Prepared by the authors based on data from the World Bank (World Bank, 2023f).

In summary, the sum of the indicators outlined above characterize LAC as an unequal region, macroeconomically unstable and, in this context, deeply vulnerable to the impacts of climate change, such as floods, droughts, fires, heat waves, and other impacts. This is why this research is so important to promote climate action and reduce the negative impacts of climate change in the region, and to take advantage of the opportunities for economic development and social inclusion that solutions to this crisis can bring.

B. National case studies

This section provides disaggregated information at the national level to provide a general understanding of the problem in each country, its particularities and the relevant policy background. The analysis of each case is divided into two main sections for each country: national context and legislative analysis.

The analysis of the national context is divided into three areas for each country: socioeconomic context, institutional context and climatic context. The socioeconomic context refers to demographic, social and macroeconomic data including data on population, Gross Domestic Product (GDP), Gini index, and poverty and extreme poverty line. The institutional context for climate change management indicates whether the country has adopted the tools of the Paris Agreement, including: policies to achieve carbon neutrality, national climate change policies, sectoral plans or long-term climate change strategies. The third area, climate context, identifies the impacts of climate change in each country. As such, it explores the temperature levels that have been reported in each country, the amount and frequency of precipitation, the occurrence of extreme weather phenomena, a balance of the current scenario, the sectoral impacts of the phenomenon and the projected consequences of climate change in the short, medium, and long term.

The legislative analysis, in turn, identifies, reviews and analyzes the legislative acts that form the Framework Legislation on Climate Change for each of the countries that already have an instrument of this nature. In this process, each legislative instrument is described in terms of the moment of enactment, the legislative process, its background, and the components achieved by its legislative umbrella. Forty-three (43) components are analyzed within the scope of seven (7) guiding axes that can be incorporated into the framework legislation on climate change, as follows:

Table 4
List of axes and components of the Framework Legislation on Climate Change
Binding measures on public procurement

ID	Axis	Component
1	Disposiciones Generales	Definitions
2		Purpose
3		Principles
4	Mitigation Goals	Carbon neutrality
5		Emissions Goal 2020
6		Emissions Goal 2030
7		Emissions Goal 2040
8		Emissions Goal 2050
9	Instruments of the Paris Agreement	Detail of minimum measures to be contemplated by sectoral plans
10		Long-Term Strategy
11		Greenhouse Gas Inventory
12		NDC
13		Climate Change Adaptation Plan
14		National Climate Change Plan
15		Sectoral Climate Change Plans
16		Greenhouse Gas Foresight
17	Implementation of Sectoral Binding Measures	Binding measures on real estate
18		Binding measures on sustainable mobility
19		Binding measures on airlines
20		Binding measures on the fishing-maritime sector
21		Binding measures on energy transition
22		Binding measures on public procurement
23		Binding measures on ecosystem conservation, protection and biodiversity
24		Binding measures on food security and sovereignty
25	Institutionalization of Climate Policy	Access to information
26		Scientific Advice
27		Collegiate Body or Climate Change Cabinet
28		Strategies or measures on just transition
29		Information on vulnerability and risks due to climate change
30		Climate Change Institute or Agency
31		Comprehensive Citizen Participation
32		Provincial plans
33		Climate Change vulnerability platform
34		Implementation monitoring

35	Economic and Financial Aspects	Eco-Taxes or Differentiated Fiscal Policy
36		Establishment and regulation of the Emissions Market
37		Climate Change Financial Strategy
38		Specific Fund
39		Other Economic Instruments
40		Regulation of maximum emissions to the private sector
41		Private sector Emissions System or Registry
42	Social Aspects	Gender and Diversities
43		Native Peoples and Minority Groups

Source: Prepared by the authors.

These 7 axes are intended to harmoniously and orderly represent the multiple aspects that a Framework Legislation on Climate Change can address. The components and thematic axes were developed through a process of inductive analysis based on a review of regional framework legislation on climate change, and other framework legislation at the international level, which was used to aggregate and synthesize the totality of the regulated aspects identified. Also, in order to deepen the analysis, the current literature concerning framework legislation on climate change was reviewed and the selected components and axes were adjusted based on this analysis (World Bank, 2020) (Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, 2021) (ICAP, 2022).

The following is an example of some of the factors that led to the selection of some of the axes guiding this analysis. For example, in the case of the Paris Agreement Instruments, we can express that it is the most solid, comprehensive and robust basis of existing international law in the shared global efforts to limit global warming. For this reason, the integration of domestic law and international law on climate change has as its structural piece the link between the various legislative instruments that serve as the Framework Legislation on Climate Change and the Paris Agreement. Likewise, the next step after the analysis of the integration of domestic and international law on climate matters in the framework of the legislative instruments that serve as the Framework Legislation on Climate Change is —without a doubt— the establishment of specific and binding greenhouse gas mitigation goals. On this point, we can say that States have taken different approaches and legal approaches to the establishment of specific and binding greenhouse gas emissions mitigation targets, and that it is necessary to recognize these approaches in order to understand the degree of ambition, the expected trajectory and the consistency of the emissions pathway that each State intends to undertake. Likewise, for any legislative instrument that intends to advance mitigation and adaptation to global climate change, it is of absolute relevance the constitution of a domestic institutional scaffolding, which orders factors such as interministerial and intersectorial articulation, integral citizen participation or scientific advice. Moreover, it is necessary to understand the degree to which the framework legislation on climate change is advancing or not in the constitution of a scaffolding of economic and financial tools that guarantee the implementation of the strategies, policies and measures designed, such as green taxes, carbon pricing mechanisms, specific funds or other economic instruments. Hence, the outlined axes and components respond to each of the aspects that emerged from the inductive analysis within the framework of this research, and the following pages provide an approach to the regulations of each of the countries analyzed.

The following sections will address the framework legislation on climate change in each of the countries analyzed in their national context. In order to understand the context, we briefly discuss the institutional framework of each country and the structure of environmental law regulating climate change management in each nation. We will also review the observed and projected changes and impacts of climate change on the territories, in order to contribute to the general knowledge of the national context, not only in an institutional sense, but also in terms of the current and future climate scenario.

1. Argentina

(a) Analysis of the national context

Socioeconomic context

Argentina total **population**, in 2021, was 45,808,747 inhabitants (World Bank, 2023i). Meanwhile, **GDP** per capita at constant 2011 international prices was US\$ 21,527 in 2021, according to the World Bank (World Bank, 2023e).

Likewise, in terms of development indicators, the second Nationally Determined Contribution in 2020 states that “the country’s productive structure is heterogeneous and diverse, especially the insertion of export sectors in regional and global value chains, particularly in the agricultural and food industry” (República Argentina, 2020). Regarding the **Gini Index**, Argentina had a value of 0.423 in 2020 (World Bank, 2023c). Finally, it remains to indicate that in Argentina, in 2020, 42% of the population was below the **poverty** line according to the World Bank (World Bank, 2023f).

Institutional context

We can affirm that, in institutional terms, the Argentine Republic has been involved in climate change management for nearly three decades. Since 1994, the Argentine Republic undertook the commitment to fight global climate change at both the international and national levels. At the international level, this occurred through the ratification of the **United Nations Framework Convention on Climate Change (UNFCCC)**, approved by Law No. 24295 (Infoleg, 1993). Besides, Argentina ratified the **Kyoto Protocol** (approved through Law No. 25438) (Infoleg, 2001) and the **Paris Agreement** (approved through Law No. 27270) (Boletín Oficial de la República Argentina, 2016b). However, the antecedents that serve as the basis of environmental law in the Argentine Republic, we can mention the modification of the National Constitution in 1994 (Boletín Oficial de la República Argentina, 1994), which incorporated section 41, which grants the right of every person to enjoy a healthy and balanced environment, as well as the duty to preserve it, as well as the sanction of General Environmental Law No 25675 (Infoleg, 2002), which establishes the goals that the national environmental public policy must have.

Within the framework of the UNFCCC, the Kyoto Protocol and the Paris Agreement, the Argentine Republic commitments included, but were not limited to, the preparation and reporting of national greenhouse gas inventories and the design and implementation of national policies for mitigation and adaptation to climate change. In this context, it submitted **National Communications** in the years 1997, 2008 and 2015 (UNFCCC, 2015); then submitted **Biennial Update Reports (BUR)** uninterruptedly since 2015 (UNFCCC, 2021a). It also presented, in the framework of the Paris Agreement, two **Nationally Determined Contributions**, in 2015 and 2020, which were updated in 2016 and 2021 respectively (MAYDS, 2020) (UNFCCC, 2020b).

With respect to the Nationally Determined Contributions, the 2016 Nationally Determined Contribution of the Argentine Republic indicated for the year 2030 the unconditional goal of not exceeding the net emission of 483 million tons of carbon dioxide equivalent (MtCO₂eq) (República Argentina, 2016), with a more ambitious conditional goal of 369 MtCO₂eq, that is, Argentina’s commitment would vary between 483 and 369 MtCO₂eq depending on the international support and financing to promote the local climate policy. With the presentation of the second Nationally Determined Contribution in 2020, the country further enhanced its climate ambition by committing to an absolute and unconditional target, applicable to all sectors of the economy, of not exceeding a net emission of 359 MtCO₂e in 2030 (República Argentina, 2020). The following year, Argentina published a new updated target of no more than 349 MtCO₂e net emissions by 2030 (UNFCCC, 2021a).

Also, not in institutional terms, but in statements at the level of the country’s highest authorities, Argentina is in the process of adopting the commitment to **carbon neutrality** by the year 2050. This follows from the fact that, in 2019, the President Mauricio Macri announced in his speech before

the United Nations General Assembly the commitment to carbon neutrality by 2050 (Casa Rosada, 2019), a commitment that was reaffirmed at the Climate Ambition Summit organized by the United Kingdom, France and the United Nations, and in other multilateral instances by the next administration of the President Alberto Fernández (MAyDS, 2020).

The institutional design regarding climate change management began to emerge in more solid form following Decree 891/2016 of the President of the Nation, which established the National Cabinet for Climate Change (Boletín Oficial de la República Argentina, 2016a). In articles 1 and 2, that decree provides that the purpose of this body is to “articulate policies on climate change and generate awareness throughout society on its relevance,” as well as that it is “chaired and coordinated by the Chief of Staff.” The same decree establishes that this body must be composed of at least the ministers of energy and mining, production, agribusiness, transportation, environment and sustainable development, social development, foreign affairs and worship, education and sports, science, technology and innovation, interior, public works and housing, finance and public finances, and culture. Also, the work and governance of the National Cabinet for Climate Change is composed by politicians (ministers and the Chief of Staff), technicians (a table formed by focal points from the ministries), and bodies dedicated to articulation with the provinces and participation of the citizens. In this way, the National Cabinet for Climate Change was consolidated as the most important space for leadership and technical articulation of Argentina’s climate policy.

The result of this institutional scaffolding and, in particular, of the National Cabinet for Climate Change, was the development of the **National Plan for Adaptation and Mitigation to Global Climate Change** (PNAYMCC) officially published through Resolution 447/2019 of the Department of Environment and Sustainable Development (Boletín Oficial de la República Argentina, 2019). The PNAYMCC includes **Sector Plans** for the areas of Energy, Transportation, Agriculture, Industry, Health, Infrastructure and Territory, and Forestry, which are part of the annexes of said resolution. At this point it is worth clarifying that until 2022 Argentina did not have a **Long-Term Climate Strategy** establishing an emissions reduction path towards 2050 (MAyDS, 2022). Notwithstanding the Argentine government’s commitment to work on its preparation by 2021, it was not published until 2022. However, it does not have the level of detail necessary to clearly define an emissions reduction pathway towards the year 2050. Currently, then, the most robust commitments are those incorporated in the various Nationally Determined Contributions and in the National Plan for Adaptation and Mitigation of Global Climate Change, which have a limited horizon until the year 2030. It is also worth mentioning that in October 2021, the Department of Energy of the Ministry of Economy approved the “Guidelines for the Energy Transition Plan by 2030,” which details the vision, objectives, and guidelines of the national energy transition plan, and presents the energy scenarios by 2030, along with the expected results (Ministerio de Economía de Argentina, 2021).

Finally, and in accordance with the object of this research, it should be mentioned that in 2019 Argentina joined the list of nations that have a **Framework Legislation on Climate Change**, through the enactment of Law No. 27520 on Minimum Budgets for Adaptation and Mitigation to Global Climate Change (Infoleg, 2019), which aims to ensure adequate actions, instruments and strategies for adaptation and mitigation to climate change throughout the Argentine territory. It is to this legislative instrument that we will dedicate the following section of this research.

Climate context

Regarding the present and future scenario regarding climate change in Argentina, we used the official data published in the National Plan for Adaptation and Mitigation of Global Climate Change (PNAYMCC) and the information from a joint research task with the Sea and Atmosphere Research Center (CIMA) of the University of Buenos Aires (Boletín Oficial de la República Argentina, 2019). Within this framework, efforts were concentrated on obtaining information on the changes observed in the period 1960–2010, and on climate projections for the Argentine Republic under scenarios of medium emissions (RCP4.5, according to which the temperature will most likely exceed 2°C) and high emissions (RCP8.5, according to which the average temperature will reach 4°C).

In general terms and as published in the PNAyMCC, for Argentina “during the period 1960–2010 an increase in **average temperature** of around 0.5°C was observed, even exceeding 1°C in some areas of Patagonia” (Boletín Oficial de la República Argentina, 2019). In relation to this increase in average temperature, regarding **extreme weather events**, the country has experienced a reduction in frosts and an increase in the frequency and number of days of heat waves in its eastern and northern regions. According to the PNAyMCC, “in the regions near the city of Buenos Aires, the number of days of the year with heat waves doubled between 1960 and 2010” (ibid.). In terms of precipitation, there has been a generalized increase in average annual precipitation, which has “important consequences on the water balance and hydrology” (ibid.), especially in the eastern part of the country, including the provinces of Buenos Aires, Santa Fe and Corrientes. The exception to this rule has been the area surrounding the Patagonian Andes, where there has been a reduction in **average annual precipitation between 1960 and 2010**, with major impacts on the region of Cuyo and affecting “the availability of water, necessary, for example, as a source of irrigation for wine and fruit and vegetable production” (ibid.).

Regarding the projections in terms of average annual temperature, we can say that “an increase in the average annual temperature is expected throughout the country during this century” (ibid.), whereas in the medium term (until 2039) “the rate of warming would be more accelerated than that observed in the last decades, with projected increases between 0.5°C and 1°C” and “by the end of the century, projections indicate an increase in temperature, especially in the case of northwestern Argentina, with an increase of more than 3°C for the scenario of high concentrations” (ibid.). Likewise, in terms of precipitation, there are no major variations with respect to the current situation, but there are “increases in the frequency of intense precipitation events” (ibid.).

In this sense, impacts and risks derived from climate change in different socioeconomic sectors of the country have also been identified for the Argentine Republic, the most important of which are described below. Firstly, regarding **agriculture and livestock**, the PNAyMCC describes various risks such as the intensification of extreme events (including, but not limited to, intense rains, floods, droughts and heat waves), variability of rainfall between decades, environmental degradation and loss of soil cover and biodiversity. In this sense, it is worth highlighting what the World Bank indicated in a recent study: “due to floods and droughts, Argentina loses, on average, about USD 1 billion per year ‘which could increase 125% due to climate change’” (Infobae, 2023).

According to the greenhouse gas inventory, corresponding to the Third BUR elaborated in 2018–2019, Argentina emitted 364 MtCO₂eq in 2016 (UNFCCC, 2019a). These emissions are distributed as follows: 53% by the energy sector, 37% by agriculture, forestry and other land use (AFOLU) activities, 6% by industrial processes and product use and 4% by the waste sector (ibid.).

In summary, the Argentine Republic is facing major environmental, economic and social problems derived from climate change. Water stress, temperature increase, glacier retreat, high frequency of extreme precipitation and floods, or the receding flows in rivers and waterways further affect Argentine society as a whole. Fires, droughts, heat waves, floods, and vector-borne diseases, among others, jeopardize access to human rights such as the right to health, work, education, and a healthy and balanced environment. Thus, the response to climate change, specifically from a legislative point of view, will be the subject of the following section.

(b) Legislative analysis: Law No. 27520 on Minimum Budgets for Adaptation and Mitigation of Global Climate Change.

In this section we will proceed to identify, review and analyze the Framework Legislation on Climate Change of the Argentine Republic. In this process, each legislative instrument is described in terms of the moment of enactment, the legislative process, its background, and the components achieved by its legislative umbrella.

Context of enactment and legislative process

The Framework Legislation on Climate Change of the Argentine Republic, Law No. 27520 under the title *Law on Minimum Budgets for Adaptation and Mitigation to Global Climate Change* (Infoleg, 2019), **was enacted on 20 November 2019** by the Honorable Congress of Argentina. Thus, the country took a firm step in the fight against the climate and ecological crisis that humanity is experiencing in a generalized manner. The bill was approved unanimously in the Senate (Honorable Senado de la Nación Argentina, 2019), although there were 23 absentees. In the *Chamber of Deputies*, it was voted along with other bills without dissent or notes, and obtained 164 votes in favor, 0 against, 8 abstentions and 84 absentees (ibid.). Law No. 27,520 was enacted on 18 December 2019 and regulated on 18 December 2020, by Regulatory Decree 1030/2020 of the National Executive Branch (Infoleg, 2020).

The numbers achieved in the votes that led to its approval, the origin of its filings, and the time frame of its enactment, promulgation and regulation, show a high level of cross-cutting and inter-party consensus for this law.

Background and previous initiatives

Although the international and national commitment of the Argentine Republic to fight climate change dates back decades, it was only at the end of 2019 that it was materialized in a law of minimum budgets. However, in the framework of the Argentine National Congress, the path to the current law began previously through different initiatives to establish a regulatory framework by legislators from different political parties.

Examples of some of these initiatives that we can mention between 2015 and 2016 are a series of projects that serve as background to the Framework Legislation on Climate Change of the Argentine Republic. These initiatives are Bill S-1230/15 by Senator Sanz that “creates the National Plan for Adaptation and Mitigation to Climate Change” (Honorable Senado de la Nación Argentina, 2015b), file S-105/15 under review by the Chamber of Deputies that “establishes a regulatory framework for the development of public policies in the face of climate change” (Honorable Senado de la Nación Argentina, 2015a) or file S-1763/16 by Senator Solanas that “establishes minimum environmental budgets for adaptation and mitigation to global climate change” (Honorable Senado de la Nación Argentina, 2016).

It is important to highlight that the current wording of the Law is a unification of Bill S-1719/2018 (Honorable Senado de la Nación, 2023a) by Senator Lucila Crexel and Bill S-1839/2018 (Honorable Senado de la Nación, 2023b) by Senator Fernando Solanas, considering the changes resulting from the various debates in committee that took place in the Senate of the Nation and with the support of the Executive Branch.

Components of the legislation

As stated in the initial chapters, in order to analyze the legislation, 43 components were identified in a cross-cutting and simultaneous reading within 7 guiding axes that can be incorporated into the framework legislation on climate change. Law No. 27520 on Minimum Budgets for Adaptation and Mitigation to Global Climate Change of the Argentine Republic (Infoleg, 2019) has 16 components that correspond to 4 guiding axes, including the axes (1) General Provisions, (2) Instruments of the Paris Agreement, (3) Institutionalization of Climate Policy and (4) Social Aspects. The following is a detailed description of the components of this legislation:

The **purpose** of Law No. 27520 is to guarantee adequate actions, instruments and strategies for adaptation and mitigation to climate change throughout the national territory. It incorporates **guiding principles** complementary to those contained in the General Environmental Law: common but differentiated responsibilities, mainstreaming of climate change in State policies, priority to the needs of social groups that are most vulnerable to climate change, and complementarity of adaptation and mitigation actions. The law also includes an article on **definitions** that covers the concepts of “climate change,” “adaptation measures,” “mitigation measures,” “vulnerability” and “Greenhouse Gases” (ibid.).

A central tool and instrument of the Paris Agreement, the Law establishes the obligation to prepare a **National Climate Change Adaptation and Mitigation Plan (PNACC)**, i.e., a set of strategies, measures, policies and instruments developed to comply with the specific objectives of the law (which must be updated every five years). Further, the Law details the **minimum contents** to be included in the PNACC and the obligation of the jurisdictions to prepare **Climate Change Response Plans**. In the same way, **Sectoral Action Plans** should be developed for mitigation in key sectors and for adaptation in vulnerable sectors. Within this framework, the National Climate Change Information System was created as a tool for the preparation of jurisdictional climate change response plans and to guarantee the robustness and transparency of the **National Greenhouse Gas Inventory**—which does not include a **Greenhouse Gas Foresight system**—and the monitoring of mitigation measures that are part of the series of instruments previously mentioned (ibid.).

Regarding the setting of greenhouse gas emission **mitigation goals**, Argentina has not incorporated this aspect in its legislation, leaving the Legislative Branch and therefore the citizen representation out of this relevant aspect of climate policy. The same can be said with respect to the incorporation of a **Long-Term Strategy**, as well as reference to the **Nationally Determined Contributions** in the framework, which are not expressly incorporated in the law (ibid.).

Regarding **implementation follow-up**, the Executive Branch must include in the annual report on the environmental situation, an analysis and evaluation of the measures implemented and to be implemented within the framework of the PNACC (ibid.).

It also institutionalizes the **National Climate Change Cabinet** as the national governance body for the articulation and implementation of all climate change adaptation and mitigation policies. It also incorporates an **External Advisory Council of the PNACC**, composed of representatives of the scientific/academic sector, representatives of environmental organizations, labor unions, indigenous communities, universities, academic and business entities, and representatives of political parties with representation in parliament (ibid.).

In terms of economic and financial instruments that strengthen the implementation of climate plans, initiatives and actions, the Argentine Republic has not incorporated in its legislation any carbon pricing mechanism, in the form of **emissions market**, nor in the form of carbon tax—given that Argentina already established a carbon tax in its legal framework prior to the enactment of the Climate Change Law (ibid.).

Finally, the law contains a specific chapter on the **right to participation and access to information**, through which it urges jurisdictions to promote citizen participation processes, encouraging transparency in decision making (ibid.).

2. Brazil

(a) Analysis of the national context

Socioeconomic context

In 2021, Brazil's total **population** was 214,326,223 inhabitants distributed across 27 states and one Federal District (World Bank, 2023i). Brazil's **GDP** per capita at constant 2011 international prices was US\$ 14,592 in 2021, according to the World Bank (World Bank, 2023e). The country presents a diversified productive structure. Today, the Brazilian economy is based on agricultural production, making Brazil one of the world's leading exporters of soybeans, chicken and orange juice. The country continues to be a leader in the production of sugar and sugarcane derivatives, cellulose and tropical fruits. The tourism sector also stands out as one of the main contributors to the national GDP. In terms of **Gini Index**, Brazil has been showing a downward trend since the 1990s, representing a progressive reduction in inequality measured by income distribution, and, in 2020, it reached 0.489 (World Bank, 2023c). As for poverty, 24.3% of the country's population was living in poverty in 2021 (ECLAC, 2023). Given that in the case of Brazil the World Bank does not provide data on the population below the **poverty** line, ECLAC's database was used. Therefore, the data presented here is not directly comparable with the data used in the socioeconomic contexts for the other countries.

Institutional context

In institutional terms, Brazil has advanced in terms of climate change management, even though the fact that this issue has long been discussed for three decades. Following ECO 92, the first United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, Brazil has committed to fighting global climate change at both the international and national levels. The **UNFCCC** was adopted in 1992 and approved by the Brazilian National Congress through Decree No. 2652, 7 January 1998 (Presidência da República, 1998). In 2002, the country ratified the **Kyoto Protocol** through Legislative Decree No. 144 (Senado Federal do Brasil, 2002) and later in 2017, Brazil ratified the **Paris Agreement** (Euroclima, 2016). The Federal Constitution of the Republic of Brazil of 1988 guarantees, in Article 225, that “Every person has the right to an ecologically balanced environment, a good for the common use of people and essential for a healthy quality of life, requiring the Public Power and the community to defend and preserve it for present and future generations” (Supremo Tribunal Federal, 2020).

Brazil’s commitments under the UNFCCC include developing and periodically updating national inventories of anthropogenic greenhouse gas emissions and sinks. This information is compiled in an official document, called **National Communication** (MCTI, 2023a), which is periodically submitted to the UNFCCC. Brazil has sent four National Communications on Climate Change to the UNFCCC so far in 2004, 2010 and 2016 and 2020.

In addition, Brazil also holds a commitment related to the United Nations climate agency, the **Biennial Update Report** (BUR) (MCTI, 2023b). This document presents information, to be updated every two years, on the national inventory of greenhouse gas emissions, mitigation actions and their effects, financial support received for climate change actions, and the national measurement, reporting and verification system. To date, Brazil has submitted four BURs (ibid.).

In 2015, Brazil submitted for the first time its **Nationally Determined Contribution** within the scope of the Paris Agreement (República Federativa do Brasil, 2015), and with the ratification of the Paris Agreement (Câmara dos Deputados Brasil, 2016), Brazil made a commitment to implement actions and measures that support the achievement of the goal established in its Nationally Determined Contribution. Brazil’s 2015 Nationally Determined Contribution asserts a commitment to reduce total net greenhouse gas emissions by 37% by 2025 and officially makes a commitment to reduce Brazilian emissions by 43% by 2030. In 2020, Brazil presented the first update of its Nationally Determined Contribution and, in 2022, presented the second update (República Federativa do Brasil, 2022), which is currently in force. In these updates, the country set a mitigation target of 37% by 2025 and 50% by 2030, relative to the 2005 emissions level, and committed to achieving **emissions neutrality** by 2050 (ibid.).

In 2008, in an official act at the Planalto Palace, the federal administration presented the Brazilian **National Climate Change Plan** (MMA - Ministério do Meio Ambiente do Brasil, 2008). The document, which was endorsed by then President Luiz Inácio Lula da Silva, had four structural axes: mitigation; impacts, vulnerabilities and adaptation; research and development; and education, training and communication. The main objectives are to identify, plan and coordinate actions to mitigate greenhouse gases, increase the efficiency of the sectors of the economy, maintain the high participation of renewable energies in the electricity matrix, sustainably promote the participation of biofuels in the national transportation matrix, sustainably reduce deforestation rates, eliminate the loss of forest cover, reduce the vulnerability of the population and identify environmental impacts.

Law 12187/2009 (Planalto, 2010), which established the **National Climate Change Policy**, provides principles (precaution, prevention, citizen participation, sustainable development and common but differentiated responsibilities), **objectives** (including the compatibility of economic-social development with the protection of the climate system), a series of guidelines and instruments. As a result, on 9 December 2010, Decree 7390/2010 was published (Planalto, 2010), which establishes the **sectoral mitigation and adaptation plans**. Of the anticipated plans, the following were completed: Action Plan for Deforestation Prevention and Control in the Amazon (PPCDAM) and in the Cerrado (PPCerrado),

Ten-Year Energy Plan (PDE), Low Carbon Agriculture Plan (Plan ABC), Sectoral Climate Change Mitigation Plan for the Consolidation of a Low Carbon Economy in the Transformation Industry (Industry Plan), Low Carbon Mining Plan (PMBC), Transport and Urban Mobility Sectoral Plan for Climate Change Mitigation (PSTM) and Health Sectoral Plan for Climate Change Mitigation and Adaptation (MMA - Ministério do Meio Ambiente do Brasil, 2023).

In addition, on 10 May 2016, Ministerial Decree 150/2016 (Ministério do Meio Ambiente, 2016) installed the **National Climate Change Adaptation Plan** (PNA) of the Federal Government of Brazil. The Plan was developed within the scope of the Executive Group of the Interministerial Committee on Climate Change, between 2013 and 2016. PNA is aligned with the National Climate Change Plan, with the sectoral mitigation and adaptation plans and with the adaptation decisions taken by Brazil in the context of the Conference of the Parties to the UNFCCC.

With the enactment of Law 12187/2009, Brazil joined the list of nations that have specific legislation for climate change, with its subsequent long-term developments for national emissions neutrality, the development of sectoral and national adaptation and mitigation plans. The following section of this research will focus on these legislative instruments.

Finally, it is worth noting that Brazil does not yet have a **Long-Term Strategy** that, under the terms of the Paris Agreement, sets the emissions reduction path for this century.

Climate context

Brazil produced about 2,422,625,065 tons of CO₂e in 2021, including emissions from all types of greenhouse gases and all sources, including deforestation and agriculture (SEEG, 2023). The largest portion of these emissions (49%) derives from the land use change and forestry sector, while the agriculture and livestock sector accounts for 25% of the country's total emissions. The energy sector accounts for 18%, followed by industrial processes (4%) and waste (4%; *ibid.*). In the case of the agriculture and livestock sector, emissions derived from the cattle digestion process (enteric fermentation) was responsible for 63% of the sector's emissions (*ibid.*).

Regarding the variation of the **average temperature** in Brazil, by the year 2100 a variation of between 1°C and 6°C is expected in all regions of the country (Painel Brasileiro de Mudança Climática, 2013). It also concludes that periods of extreme and prolonged **droughts** and **floods**, "particularly in the Amazon, Cerrado and Caatinga are likely to increase and that these changes will be accentuated at the beginning of the second half and the end of the 21st century" (*ibid.*). Furthermore, the increase in temperature in the Amazon region will generate a reduction of between 40% and 45% in the volume of **precipitation** by 2070, based on a scenario of a temperature increase of between 3°C and 3.5°C in the region (*ibid.*). Regarding **extreme weather events**, such as heat waves, based on an evaluation of the events and characteristics of heat waves recorded in six major Brazilian cities during the last five decades, the analysis reveals positive and significant trends in the frequency of heat waves since the 1980s, particularly for the cities of São Paulo, Manaus and Recife. In the last decades, Brasilia was the city that recorded the highest number of days per year in heat wave regime." (Geirinhas, Trigo, Libonati, Coelho, & Palmeira, 2017). Regarding frosts, the last frost in Brazil in 2022 when "with 1.4°C, the capital, Brasilia, recorded the coldest temperature in its history on Thursday" (RFI, 2022). At that time, it could be read "on the Inmet meteorological agency's website that the entire southern half of Brazil was colored orange with the legend: "Cold wave (danger)" (*sic*). (*ibid.*).

The IPCC in the Sixth Climate Assessment Report 2022 (IPCC-Intergovernmental Panel on Climate Change, 2022a), warns of "irreversible" impacts if humanity does not slow global warming. Some regions in Brazil are particularly vulnerable: northeastern region, for example, shows a high statistical confidence that drought periods will be prolonged, with a perceived 64% increase in drought area between 2010 and 2019 (*ibid.*). **Precipitation** is also considered to have a high statistical confidence for the region, with an **average temperature** increase of more than 2.5°C in the IPCC's intermediate scenario of a 2°C global increase. These guidelines indicate that the 60 million people living in the Northeast are to some degree exposed to the upcoming climatic adversities (*ibid.*).

In this context, scientists list problems already affecting the environment and point to Brazil's Northeast as one of the regions of the planet undergoing severe drought (New York Times, 2022). For instance, in Fortaleza (CE), the National Institute of Meteorology (Inmet) compared 30-year period data from 1961–1990 and 1991–2020, and showed an increase in maximum temperature over the years in all months, with the hottest days and record peaks in August and September, with an increase of 1.2°C (Instituto Nacional de Meteorología, 2022). This is not only restricted to the northeast, because in terms of drought and heat, the semi-arid region (in the northeastern and northern region of Minas Gerais) is a biome that has already felt the force of the so-called extreme events. Between 2012 and 2017, the region experienced the worst drought in history (Uol, 2018). Likewise, in the city of Brasília (Federal District), Inmet reports an increase of average temperatures of 1.5°C from 1961–1990 to 1991–2020 (Instituto Nacional de Meteorologia do Brasil, 2022).

The Brazilian Panel on Climate Change (PBMC) (Painel Brasileiro de Mudança Climática, 2013) adds to the knowledge on the impact of climate change in the Amazon. The most threatened area is the eastern part of the forest, which in addition to being more vulnerable to climate, also faces strong pressure from the agriculture frontier. There is a risk of a change in the type of forest in the region, which could become poorer, with less biomass, fauna and flora. However, it is deforestation that poses the greatest risk to the biome, with projections indicating that the loss of forest cover could deepen the rise in temperatures in the region. The study also indicates that in Brazil's South and Southeast regions, which suffer from floods and landslides, rainfall will be heavier and more frequent (ibid.). For example, Inmet (National Institute of Meteorology) reports an increase in the minimum air temperature in São Paulo in all months of the year, from 1931–1960 to 1991–2020. The elevation is greater than 1.6°C in all months of the year, with emphasis on the months of July and April, with a minimum temperature increase of 2.7°C (Instituto Nacional de Meteorologia do Brasil, 2022).

In the city of Barcelos, in northern region of the state of Amazonas, according to Inmet, there was also a change in the rainiest month, from May to April. In the quarter with the highest precipitation, for example, the average precipitation increased by an average of 244.5 mm, from 1931–1960 to 1991–2020. In October, however, rainfall decreased by 21.0 mm between the same 30-year periods (Instituto Nacional de Meteorologia do Brasil, 2022).

Yet, continued deforestation brings more immediate risks to the forest. Currently, the Amazon has already lost about 17% of its forest cover due to deforestation (RAISG, 2022).

Regarding the impacts of climate change on key sectors for the Brazilian economy and society, some considerations can be expressed. In relation to the **agriculture, livestock and forestry sector**, studies indicate that in key regions, such as "in Mato Grosso, a Brazilian state that produces 10% of the world's soybeans, [...] an increase in temperature of 1°C will cause a 9–13% reduction in soybean and corn production. Most of that decline would be due to a combination of poor harvests and farmers' decisions to plant less." (Harvard University, 2017). Also, a more recent study indicates that the impact is already a reality in the Brazilian agricultural sector, stating that "changes in rainfall patterns and temperature increase, already observed today, will worsen even more in the coming years, and the impacts will be felt mainly in the Brazilian Cerrado. In Brazil's Midwest region, 28% of the agricultural areas producing corn and soybeans no longer operate in an ideal climate [...]. These adverse conditions have already reduced soybean and corn crop yields in Matopiba and Mato Grosso, and production losses have left agricultural areas without planting a second crop, especially since 2012." In this sense, it is indicated that "if there are no investments in adaptation, the percentage of agriculture production outside its ideal conditions in central Brazil could reach 50% in the next decade and 70% in thirty years." (IPAM Amazonia, 2021).

Regarding Brazil's **greenhouse gas emissions** trajectory, World Bank indicates a 79% growth from 1990 to 2019, from 590,336 kt of carbon dioxide equivalent to 1,057,259 kt of carbon dioxide equivalent (World Bank, 2023b).

(b) Legislative analysis: the National Policy on Climate Change (Law No. 12187/2009)

In this section we will proceed to identify, review and analyze the Framework Legislation on Climate Change of Brazil. In this process, each legislative instrument is described in terms of the moment of enactment, the legislative process, its background, and the components achieved by its legislative umbrella.

Context of enactment and legislative process

Law No. 12187 establishing Brazil's National Policy on Climate Change was **enacted** on 29 December 2009 (Planalto, 2009b). The law was based on a bill passed symbolically by the National Congress, i.e., without a roll vote and agreement among legislators (Senado Federal do Brasil, 2009). This gesture marks the relevance that the majority of the Brazilian Congress gave to this matter, making it the first law with this scope in the region.

At the time, the Brazilian delegation had just returned from the UNFCCC COP15 in Copenhagen, Denmark, where it had been a highlight of the conference for setting targets to reduce its greenhouse gas emissions six years before the ratification of the Paris Agreement.

At the same time, this law also represented another step in a series of measures that positioned Brazil in the debate on the international environmental agenda. Specifically, in 2009, Brazil presented significant positive results of the Action Plan for Deforestation Prevention and Control in the Amazon (PPCDAM), with a significant reduction in the level of deforestation in the region. For example, deforestation rates went from 27,772 km in 2004 to 7,646 km² in 2009, reaching the highest historical level in 2012, with 4,571 km² of deforestation (INPE, 2022). Therefore, it is reasonable to say that the period of enactment of the law was also a period in which this was a central topic in Brazilian politics.

Background and previous initiatives

Brazil's political and legislative path towards climate change management did not begin with the enactment of Law No. 12187. The first milestone was the publication of Decree No. 6263, on 21 November 2007 (Planalto, 2007), which established the Interministerial Commission on Climate Change (CIM) to steer the preparation of the National Climate Change Plan (MMA - Ministério do Meio Ambiente do Brasil, 2008). This commission, led by an executive group that was also created by the decree and together with the Brazilian Forum on Climate Change (FBMC), held a series of meetings with social participation to discuss the issue. As a result of these meetings, the then Brazilian Minister of the Environment, Carlos Minc, sent to the then President of the Republic Luiz Inácio Lula da Silva, on 4 June 2008, the Statement of Motives No. 35/MMA/2008 (Câmara Dos Deputados Brasil, 2008) and the draft of a bill to institute the National Policy on Climate Change, the bill that after the parliamentary process would become law.

The draft offered a blueprint for the National Climate Change Policy, providing the country with two permanent national objectives (MMA - Ministério do Meio Ambiente do Brasil, 2008):

- (i) Reduce the sources of anthropogenic greenhouse gas emissions and expand anthropogenic greenhouse gas sinks in the national territory;
- (ii) Define and implement measures to promote adaptation to climate change in local communities, municipalities, states, regions, and economic and social sectors, particularly from those especially vulnerable to its adverse effects.

Furthermore, as the Minister emphasized in the statement to the President, the draft was voluntary in nature, something which, at the time, Brazil, as a developing country and non-Annex I country of the UNFCCC, did not have quantifiable commitments under the Kyoto Protocol to reduce or limit greenhouse gas emissions.

In December 2009, **Law No. 12187** was signed into law after a symbolic vote in the National Congress, instituting the National Policy on Climate Change (Planalto, 2009b).

Components of the legislation

Law No. 12187/2009 (Planalto, 2009b) that instituted the National Policy on Climate Change in Brazil has 10 **components** that correspond to 5 of the guiding axes identified in this analysis, including the **axes** of (1) General Provisions, (2) Mitigation Targets, (3) Paris Agreement Instruments, (4) Institutionalization of Climate Policy and (5) Economic and Financial Aspects.

The Law was regulated by Presidential Decree No. 7390/2010 (Planalto, 2010) and updated by Decree No. 9578/2018 (Planalto, 2018).

Although Law 12187/2009 (Planalto, 2009b) does not state an express purpose for itself, it does incorporate **objectives** for the National Climate Change Plan, among which the following are worth mentioning:

- Reduction of anthropogenic greenhouse gas emissions linked to different sources;
- Implementation of measures to promote adaptation to climate change by the three branches of government, with the participation and collaboration of interested or beneficiary economic and social agents, particularly the ones that are especially vulnerable to its adverse effects;
- Consolidation and expansion of legally protected areas and the promotion of reforestation and the restoration of vegetation in degraded areas;
- Encouraging the development of the Brazilian Emission Reduction Market (MBRE).

The plan establishes **definitions** including: adaptation, impact, climate change and vulnerability; and also **principles**: precaution, prevention, citizen participation, sustainable development and common but differentiated responsibilities (ibid.).

Article 6 of the law establishes the Policy's **instruments**, which include the **National Climate Change Plan**. In addition, the following are considered part of the set of instruments: Plans to Combat Deforestation and **Sector Plans**, such as the PPCDAM; the PPCerrado; the ABC Plan; and the Industry Plan (ibid.).

It also defines **governmental** and **non-governmental** players responsible for participating in the definition of rules, plans and studies on climate change, such as: (i) the Interministerial Commission on Climate Change (CIM); (ii) the Interministerial Commission on Global Climate Change (CIMGC); (iii) the Brazilian Forum on Climate Change (FBMC); (iv) the Brazilian Global Climate Change Research Network (Rede Clima); and (v) the Coordination Committee for Meteorology, Climatology and Hydrology Activities (CMCH) (ibid.).

The National Climate Change Plan was consolidated with its regulation by the decrees above, and its revisions will be made prior to the preparation of the Multi-year Plans and the revisions of the Sector Plans and those for the protection of biomes in regular periods of no more than two years. It is also explicit that these sectoral plans and reviews will be based on Brazil's Third National Communication to the UNFCCC, focusing on the Third Brazilian Inventory of Anthropogenic Greenhouse Gas Emissions and Sinks (ibid.).

The Law further incorporates the **targets for greenhouse gas emission** reductions announced by Brazil at COP15, which establish a voluntary reduction from 36.1% to 38.9% of its projected greenhouse gas emissions by 2020 (ibid.).

Regarding the incorporation of a **Long-Term Strategy**, as well as the reference to the **Nationally Determined Contributions** in the framework of the law, and due to the moment the law was enacted—prior to the Paris Agreement—these are not expressly incorporated in the law (ibid.).

Section II, third chapter of Decree 9578/2018 (Planalto, 2018), projects greenhouse gas emission by sectors of the Brazilian economy and establishes a legal commitment to recover 15 million hectares of degraded pastures, in addition to expanding forest planting by 3 million hectares, and other guidelines.

Additionally, article 20 established the Intersecretarial Committee on Climate Change as a tool for the management of these plans in a cross-cutting manner by the Federal Administration. Finally, it was also provided that in the preparation of the Multi-Year Plans and the Annual Budget Law, the Federal Administration will propose programs and actions to address the measures set forth in the decree, whereas adjustments to the programs and actions will be implemented during the preparation of the budget laws and the review of the Multi-Year Plan.

For **tracking and monitoring purposes**, the decree requires the publication of annual estimates of greenhouse gas emissions in the country in a format to facilitate the understanding of interested segments of the society. For this purpose, the Ministry of Science, Technology, Innovations and Communications is responsible for preparing, revising and publishing estimates of national anthropogenic greenhouse gas emissions and sinks, and for improving the methodology for calculating emissions projections, in consultation with other relevant ministries and agencies (*ibid.*).

Regarding the **economic and financial mechanisms** present in the Brazilian regulations, a series of actions and measures were proposed, with the willingness to implement the following (Planalto, 2009b):

- The Brazilian Emission Reduction Market (MBRE);
- Financing and access to credit for actions and activities aimed at fulfilling the objectives of the law;
- Fiscal and tax measures aimed at climate change mitigation.

Finally, through the modification of the original law —by Law No. 12114/2009— (Planalto, 2009a) also regulates the operation of the National Climate Change Fund (FNMC, for its acronym in Portuguese), with the purpose of raising funds to support projects or studies and finance projects aimed at climate change mitigation and adaptation to climate change and its effects. This section highlights mechanisms aimed at reducing greenhouse gas emissions, including promoting the development and dissemination of technology to mitigate greenhouse gas emissions, payments for environmental services, support for sustainable production chains, and education, capacity building, training and mobilization in the area of climate change. Other activities eligible for FNMC funds include urban mobility, pollution control, basic sanitation, proper disposal of solid waste and efficient biogas collection.

3. Bolivia

(a) Analysis of the national context

Socioeconomic context

As of 2021, the Plurinational State of Bolivia had a **population** of 12,079,472 inhabitants (World Bank, 2023i). Bolivia's **GDP** per capita at constant 2011 international prices was US\$ 8,052 in 2021. For its part, according to the World Bank's development indicators (World Bank, 2023e), compiled from official sources, the **Gini Index** was 0.436 in 2020 (World Bank, 2023c). In terms of poverty, 39% of the country's population lived below the poverty line in 2020 according to World Bank (World Bank, 2023f).

Institutional context

Bolivia ratified the **UNFCCC** through Law No. 1576, 25 July 1994 (Honorable Congreso Nacional de Bolivia, 1994), and the **Kyoto Protocol** to the UNFCCC through Law No. 1988, 22 July 1999 (Honorable Congreso Nacional de Bolivia, 1999). Guidelines on climate change became increasingly important as a result of Supreme Decree No. 28218, 24 June 2005 (FAO, 2005). This Decree recognizes the national importance of supporting the implementation of climate change mitigation activities and projects in the forestry and energy sectors eligible for the Clean Development Mechanism of the Kyoto Protocol or other international greenhouse gas emissions trading schemes.

Internationally, Bolivia made two specific contributions: First, classify the right to water as a human right in the Universal Declaration of Human Rights. Second, the drafting and negotiation for inclusion in Article 6.8 (non-market approaches) of the **Paris Agreement**. By the way, the Paris Agreement was ratified by Law No. 835, 17 September 2016 (Asamblea Legislativa Plurinacional de Bolivia, 2016).

The 2009 Bolivia's Political Constitution (Estado Plurinacional de Bolivia, 2009) upholds the constitutional right to Live Well, in a healthy, protected and balanced environment, suitable for sustainable human development, to ensure that productive activities satisfy current needs without compromising the needs of future generations, as stipulated in Articles 9 and 36. The values of environmental justice were incorporated in internal regulations such as the Law of the Rights of Mother Earth, the Framework Law of Mother Earth and Integral Development for Living Well.

Bolivia has submitted three **National Communications**. The most recent National Communication was published in 2020 and was prepared by the Plurinational Authority of Mother Earth (APMT, 2020), which is an autonomous entity that regulates, implements and monitors the **Plurinational Climate Change Policy and Plan** at the national level, which has specific sections for the energy, transportation, infrastructure, productive and basic sanitation sectors under the Ministry of the Environment and Water (Estado Plurinacional de Bolivia, 2022). The previous National Communications were presented in 2001 and 2009, at COP6 and COP15, respectively. Bolivia has greenhouse gas inventories from 1990 to 2008. In the Third National Communication, Bolivia presented the greenhouse gas inventory for 2006 and 2008. The Third National Communication specified that the economic sector with the greatest impact is Land Use, Land Use Change and Forestry (LULUCF). Emissions from the LULUCF sector grew from inventory to inventory, from 1990 to 2006, by an average of 8% (APMT, 2020). Currently, LULUCF is the largest contributor of greenhouse gas emissions to the greenhouse gas inventory.

The Plurinational State of Bolivia submitted the Nationally Determined Contribution in 2016 to the UNFCCC. However, when this document was written, in addition to the National Communications, Bolivia did not submit additional **Biennial Update Reports** or any **Long-Term Strategy**.

It is also important to mention that, although Bolivia lacks a **Framework Legislation on Climate Change**, at the subnational level the Government of the Department of Santa Cruz, through Departmental Decree No. 335, 8 March 2021 (Gaceta Oficial de Santa Cruz, 2021), through the Department of Sustainable Development of the Government of Santa Cruz, passed the Departmental Policy on Climate Change. The department of Santa Cruz became the first department in Bolivia to adopt a legislation that jointly guides, with public and private actors, adaptation and mitigation mechanisms in low-carbon sustainable development actions.

At COP26 in Glasgow in 2021, Bolivia decided not to support any joint declaration on climate change. However, in April 2022, Bolivia updated its Nationally Determined Contribution (UNFCCC, 2022a), in line with the commitment the country made when it became part of the Paris Agreement, aiming to reduce its emissions by 2030 and contribute to the effort to keep the global average temperature increase to 1.5°C.

The 2022 **Nationally Determined Contribution** (UNFCCC, 2022a) presents the 2021–2030 update, which is in line with the national position expressed during the last decade in multilateral climate change negotiations, also aims to increase the country's ability to adapt, strengthen resilience and reduce its vulnerability to the climate crisis. Bolivia assumes that the Nationally Determined Contribution is a true commitment of the Plurinational State of Bolivia to achieve its paramount objective of Living Well in harmony with Mother Earth in a context of climate crisis, conditioning the goals described to international cooperation and highlighting Article 4.7 of the UNFCCC and the Paris Agreement. It is important to mention that the Nationally Determined Contribution does not set **targets for carbon reduction**.

Bolivia's Nationally Determined Contribution has established cross-cutting lines related to the management of the most important climate crisis in planning, such as: Climate justice, interculturality, complementarity of rights, fight against poverty and integral development for living well, environmental education, gender, adaptation based on life systems and cosmo-biocentrism, integral climate risk management, innovation, science, and technology.

Climate context

The Global Climate Risk Index (GRI) 2021 (Germanwatch, 2021) ranked Bolivia among the ten most vulnerable countries to the impacts of **extreme weather events** in the world. Research on vulnerabilities such as the ND-GAIM Country Index ranks Bolivia as the first most vulnerable country in South America and the second least prepared in this region to mitigate the damages of climate change by 2020 (University of Notre Dame, 2020). Thus, Bolivia is one of the most exposed countries to the phenomenon of global warming (PNUD, 2011).

In Bolivia, global warming has generated a significant average increase in **average temperature** of 1.1°C (Berkeley Earth, 2021) (Instituto Agrario Bolivia, 2021), from 1 to 2.5°C increase in the Andes Mountains compared to the 1970s, from 0.5 to 2°C in the Amazon region, and 2°C in the plains (UNFCCC, 2022a). By 2050, the scenarios projected by the Bolivian Agrarian Institute for surface temperature show an increase of +1.6°C (moderate scenario) and +4.9°C (high emissions scenario) (Instituto Agrario Bolivia, 2021). **Precipitation** is expected to vary between +0.25 mm/day and 0.5 mm/day in the Amazon basin and Titicaca basin; -4.3 mm/day in the southern altiplano region and -0.25 mm/day in the central valleys (ibid.). In the tropical region, more frequent flooding is projected (ibid.). In the tropical region and valleys, droughts will be more frequent; in the highland region, more frost events; and in the valley region, more frequent extreme weather events with hail and strong winds are expected (ibid.). In the case of Bolivia, climate variability and perceptions of extreme phenomena are recorded by local peasant and indigenous communities, and their observations and ancestral knowledge of climate prediction are used for decision-making in agricultural activities. This cultural heritage of the pre-Hispanic peoples is fundamental for productive activities.

Within the context of Bolivia's vulnerability to **extreme weather events**, it can be highlighted that this year 2023 the Ministry of Rural Development and Lands warned that in the span of a single weekend more than "2,800 communities were affected by natural phenomena in the country due to frost or drought" (Telesur, 2023), a situation that is becoming more frequent and intensified not only in the country, but also at a planetary level.

Regarding the trend of **greenhouse gas emissions**, the Third National Communication of Bolivia (APMT - Autoridad Plurinacional de la Madre Tierra, 2020) includes historical emissions up to 2008, so for the establishment of the BAU scenario it was necessary to use data from the CAIT Climate Data Explorer (CAIT) (World Resources Institute, 2023) based on CAIT24. In 2018, the total cumulative emissions were 126.21 Mt CO₂e (Estado Plurinacional de Bolivia, 2022).

Approximately 50% of the Bolivian territory is used for extensive **livestock, agriculture and forest** production (Cámara Forestal de Bolivia, 2021). In the last two decades, Bolivia has lost 10% of its total tree cover, or more than 6.1 million hectares (ha) of tropical forests (Global Forest Watch, 2021), affecting not only ecosystems but also the local economy.

(b) Legislative analysis

Bolivia does not have a Framework Legislation on Climate Change, despite the existence of relevant legal frameworks for climate change management at the subnational level.

4. Chile

(a) Analysis of the national context

Socioeconomic context

As of 2021, Chile has a **population** of 19,493,184 inhabitants, according to the World Bank (World Bank, 2023i). Based on regional standards, Chile has a high GDP per capita with US\$ 25,449 in 2021, at constant 2011 international prices (World Bank, 2023e). As such, Chile has the highest per capita income (GDP per capita) in Latin America and is classified as a high-income country by the World Bank.

The **Gini Index** in 2020 was 0.449 (World Bank, 2023c). Furthermore, as of 2020, the **poverty** incidence rate was 10.8%, one of the lowest in the region (World Bank, 2023f).

Institutional context

Within the framework of the fight against climate change, Chile has demonstrated a proactive attitude through various actions in the international arena. First, Chile has ratified the **United Nations Framework Convention on Climate Change** (UNFCCC), promulgated by Decree 123/95 (Biblioteca del Congreso Nacional de Chile, 2023). Likewise, it ratified the **Kyoto Protocol** (enacted through Decree 349/2005) (Biblioteca del Congreso Nacional de Chile, 2023) and the **Paris Agreement** (enacted through Decree 30/2017) (Biblioteca del Congreso Nacional de Chile, 2023).

Second, in terms of legislative background, the constitutional bases of environmental law can be found in **article 8** of the **Political Constitution of Chile**, which incorporates the right to live in an environment free of pollution, and the duty of the State to preserve it. Also, in 1994 Chile enacted **Law No. 19300 on General Bases for the Environment** (Biblioteca del Congreso Nacional de Chile, 2023), which was amended and complemented in 2022 with the enactment of the **Framework Legislation on Climate Change** (Biblioteca del Congreso Nacional de Chile, 2023), whereas both instruments set the basis for the consolidation of the national environmental public policy.

Third, under the UNFCCC, the Kyoto Protocol and the Paris Agreement, Chile committed to, inter alia, the preparation of reports on its national greenhouse gas inventories and the development and implementation of national climate change mitigation and adaptation policies. Indeed, it has presented **National Communications** in the years 1999, 2011, 2016 and 2021 (UNFCCC, 2021c), then presented **Biennial Update Reports** uninterruptedly from 2016 to 2022 (UNFCCC, 2022c). Also, under the Paris Agreement, it has submitted **Nationally Determined Contributions**, in 2015 and its update in 2020 through the Ministry of the Environment (UNFCCC, 2021c).

Fourth, in relation to the Nationally Determined Contributions, in its 2020 Nationally Determined Contribution, Chile stated a target of 95 MtCO₂eq by 2030, committing to reach the maximum emissions by 2025, and greenhouse gas emission budget that will not exceed 1,100 MtCO₂eq for the 2020–2030 period. Compliance with the provisions of the Nationally Determined Contribution would allow a reduction from 50 MtCO₂eq of net emissions in 2019 to slightly above zero in 2050. A substantial proportion would be due to the reduction of emissions in the electricity sector (-29 MtCO₂eq, 56% of the total) and the increase in carbon sequestration in the forestry and biodiversity sector (-9 MtCO₂eq). Consequently, Chile is on the verge of achieving **carbon neutrality** by the year 2050, a legal commitment assumed by this nation in the Framework Legislation on Climate Change (Biblioteca del Congreso Nacional de Chile, 2021).

Fifth, the institutional design of the National Climate Change Policy began in 2006 when the Chilean government established the National Climate Change Action Strategy, which defined three strategic priority lines of action (mitigation, adaptation and capacity building) to be implemented through an action plan to address the impacts of climate change. In 2008, the Council of Ministers of Chile's National Environmental Commission (CONAMA) approved the first National Action Plan on Climate Change (PANCC I) for the period 2008–2012, with the following main axes: vulnerability and adaptation, mitigation and capacity building. In 2017, the Council of Ministers for Sustainability approved the **National Climate Change Action Plan 2017–2022 (PANCC II)** (Ministerio de Medio Ambiente de Chile, 2017). It is a public policy instrument that integrates and guides the government's climate change actions, contributing to the fulfillment of Chile's international commitments under the UNFCCC. Consequently, with regard to the preparation of **Sector Plans**, two sectors have prepared climate change mitigation plans in 2017. On the one hand, the Plan for Adaptation and Mitigation of Infrastructure Services to Climate Change, which includes both adaptation and mitigation. In addition to that, there is the Greenhouse Gas Mitigation Plan for the Energy Sector.

Sixth, it is worth noting that Chile has a **Long-Term Climate Strategy** (Ministerio de Medio Ambiente de Chile, 2021), which defines the country's guidelines on climate change over a 30-year horizon.

One of the challenges stipulated in this document is the transition to a low-emissions development, until reaching and maintaining greenhouse gas neutrality, reducing vulnerability and increasing resilience to the adverse effects of climate change and complying with the international commitments assumed by the State of Chile.

Climate context

Chile is responsible for only 0.25% of global emissions, but it meets 7 of the 9 vulnerability criteria established by the United Nations (Ministerio de Medio Ambiente de Chile, 2023a). Chile's per capita share of **greenhouse gas emissions** is 4.7 tCO₂ per person, with total national emissions amounting to 112,313 ktCO₂. However, the country's emissions have increased by 114.7% since 1990 and by 20.0% since 2007. The main greenhouse gas emitted in 2016 was CO₂ (78.7%), followed by CH₄ (12.5%), N₂O (6%), and fluorinated gases (2.8%). (Biblioteca Nacional del Congreso de Chile, 2023).

In terms of the impacts of climate change in Chile, the Chilean government officially acknowledges that "in continental Chile the **average temperature** during 2020 was 13.6°C, making it the 2nd warmest year in 60 years, 0.84°C warmer than the 1961–1990 climatological average (fig. 5) and 0.6°C warmer compared to the 1981–2010 average." (Ministerio de Medio Ambiente de Chile, 2020b).

Among the most serious effects, it is worth noting that at present there has been a **water deficit** for 14 consecutive dry years, causing powerful and recurrent **droughts** (Spanish News, 2022). There is scientific evidence to affirm that accumulated **precipitation** in central Chile will decrease by an average of 15% in the medium future (Universidad de Chile, 2006). Likewise, according to the Annual Report on Climate Evolution in Chile, it foresees that "the 2010–2019 ten-year period is the driest since 1961, with an average deficit of 20.6% at the national level, exceeding by 0.2% the 2011–2020 period, with an average deficit at the national level of 20.4% for this period." ("Ministerio de Medio Ambiente de Chile", 2020a). As for the future, the Adaptation Platform "Atlas de Riesgos Climáticos (ARClím)", which has information for the entire country at the communal level, published in November 2020, and the Climate Threat Explorer, project an upward trend in **temperatures** in the period 2035–2065, with increases of 1.15°C to 2°C compared to the historical period 1980–2010. (Ministerio de Medio Ambiente de Chile, 2023b).

In terms of impacts of climate change on the Chilean economy, we highlight the impact on the **agriculture, livestock and forestry sector**. In this context of 2019, "in the last decade alone, the total cultivated area in the country fell from 719 thousand hectares to 696 thousand hectares," strongly threatening agricultural production. (La Tercera, 2019).

(b) Analysis of the Framework Legislation on Climate Change

The following document will analyze the Framework Legislation on Climate Change of the Republic of Chile. In the legislative process, we will contextualize the participatory process of drafting the bill at both national and subnational levels, its scope in Chile's long-term development strategy, the design of the institutional framework for climate change policies and the particular implications of this instrument in the construction of climate actions in Latin America.

Context of enactment and legislative process

The Framework Legislation on Climate Change of the Republic of Chile was passed on 7 March 2022 by the Chamber of Deputies with 113 votes in favor, 1 vote against and 1 abstention (Cámara de Diputadas y Diputados, 2022). On 9 March 2022, within the framework of an extraordinary session called by the Senate, the Law was approved with 33 votes in favor —unanimously— (Senado de Chile, 2022). The Framework Legislation on Climate Change was signed into law by President Gabriel Boric on 13 June 2022 (Ministerio de Medio Ambiente de Chile, 2022).

The draft Framework Legislation on Climate Change of the Republic of Chile was prepared within the framework of its policy of regional and international positioning on the subject, anchored mainly in the holding of COP25 in Santiago de Chile. Prior to the decision to hold COP25 and draft a Framework

Legislation on Climate Change, Chile had submitted its first Nationally Determined Contribution in 2015 and completed its Paris Agreement ratification process in 2017. In the same year, it also presented its first National Climate Change Action Plan for the period 2017–2022 with mitigation and adaptation measures for the energy, transportation, agriculture, housing and infrastructure and waste sectors.

In January 2020, the Framework Legislation on Climate Change began its process in the Senate (Observatorio Ley de Cambio Climático de Chile, 2023). That same year, on Tuesday, 25 August 2020, the Senate unanimously approved the legislation project (ibid.). The general discussion of the Framework Legislation on Climate Change in the Senate Committee on the Environment and National Assets was completed on this date, after being discussed in hearings with various players. The deadline for presenting indications was 25 September, after which the particular discussion began (ibid.). On 3 November 2020, the Senate Committee on Environment and National Assets began the particular study and vote on the indications presented to the bill (ibid.). On 11 January 2021, the Commission approved the indications and then on Thursday, 8 July 2021, the particular discussion of the first Constitutional Procedure of the Framework Legislation on Climate Change was concluded in the Senate Committee on the Environment and National Assets. Thus, on 12 October 2021, the Senate approved and sent the bill through the first constitutional procedure (ibid.). After that, the bill was sent to the Chamber of Deputies, where it went through the second constitutional procedure and was approved on 19 January 2022 by the Commission on Environment and Natural Resources (ibid.). On 7 March 2022, the Chamber of Deputies passed the bill in a vote and moved it to the third constitutional procedure (ibid.).

Then, on 9 March 2022, the Framework Legislation on Climate Change was discussed and unanimously approved in the Senate Chamber of Sessions. Finally, the bill was signed into law by the President of the Republic without reservations (Observatorio Ley de Cambio Climático de Chile, 2023).

Background and previous initiatives

Since 2013, the Climate Change Office of the Ministry of the Environment worked on the formulation of the first national program to quantify and manage the corporate carbon footprint called Chile Footprint Program (Ministerio de Medio Ambiente de Chile, 2020c).

Since 2018, the Ministry of the Environment, through the Climate Change Office, led the process of drafting the Framework Legislation on Climate Change. Efforts were made to establish a participatory, broad-based, multisectoral and international development of the project. (Ministerio de Medio Ambiente de Chile, 2023a).

From 29 August to 22 October 2018, meetings were held with the Regional Climate Change Committees (CORECC) and the Consultative Committees of the 15 regions of Chile. This regional and local dialogue identified the impacts of climate change in the regions, concrete initiatives already in place, and coordination mechanisms for the implementation of climate actions at the subnational level. Early public consultations were conducted in November 2018 and January 2019 during the Citizen Dialogues to gather feedback from the constituents. During the 2019 public consultations, citizens presented 1,718 comments on the preliminary draft of the Law through an online consultation portal opened by the Ministry of the Environment.

In this context, in 2019 the Chilean government announced that the country will be carbon neutral by 2050. For this goal, plans were established every ten years following the recommendations made by the panel of experts on climate change (IPCC) in its report on the 1.5°C target (SR1.5) and the Sixth Assessment Report (AR6).

Likewise, and in this context while the bill was being processed, in 2021 Chile launched the Long-Term Strategy to Address Climate Change. It was elaborated in a participatory manner and establishes: Sectoral Mitigation Plans and Regional and Communal Climate Change Action Plans prepared by the Regional Climate Change Committees (CORECC) (Ministerio de Medio Ambiente de Chile, 2021). The Municipalities will consolidate the actions of the Sector Plans in the territories and will carry out additional

actions with regional financing. The process of design and construction of the LTCS contemplated a multi-stakeholder, multilevel and cross-cutting participation process, in the same way as the draft Framework Legislation on Climate Change.

Components of the legislation

Chile's Framework Legislation on Climate Change stands out for being at the forefront in the region and in the world, reaching 28 of the components identified in the framework of this research, corresponding to 6 of the guiding axes identified in this analysis, including the **axes** of (1) General Provisions, (2) Mitigation Goals, (3) Instruments of the Paris Agreement, (4), Institutionality of Climate Policy (5), Economic and Financial Aspects and (6) Social Aspects.

The Law establishes guidelines for national and sub-national governance of climate change and the functions of government agencies to carry out public policies for mitigation and adaptation, reducing vulnerability and increasing resilience to the adverse effects of climate change; and to comply with the international commitments assumed by the Chilean State. The Framework Legislation on Climate Change makes Chile the first country in Latin America to specify the goal of **carbon neutrality** by 2050 by law (Senado de Chile, 2022b).

The Law is made up of 9 sections and 44 articles. It amends three specific laws, including Law No. 19300 on the General Bases of the Environment. The Law structures and strengthens national and subnational institutions for climate management. The **purpose** of the legislative instrument is "to face the challenges posed by climate change, to move towards a development of low greenhouse gas emissions and other climate forcing factors, until reaching and maintaining the neutrality of greenhouse gas emissions by the year 2050, to adapt to climate change, reducing vulnerability and increasing resilience to the adverse effects of climate change, and to comply with the international commitments assumed by the State of Chile on the matter." (Biblioteca del Congreso Nacional de Chile, 2023).

The Law establishes the following guiding principles (Senado de Chile, 2022b):

- (i) equity and common but differentiated responsibilities, and the corresponding capacities;
- (ii) full consideration of the needs and circumstances of developing countries;
- (iii) the precautionary principle;
- (iv) the right to sustainable development; and,
- (v) cooperation to promote an open and enabling international economic system, leading to economic growth and sustainable development of all Parties.

Paragraph III of Article 3 adopts sixteen **definitions**, including water security and vulnerability to climate change, climate resilience, greenhouse gas emission neutrality, national and sectoral greenhouse gas emission budgets, and climate change management, and others (ibid.).

Article 4 clearly establishes the **mitigation target**, according to the wording, greenhouse gas emission neutrality should be achieved by 2050 (ibid.).

The law also establishes the creation of Chile's **Long-Term Climate Strategy** as the instrument that defines the general long-term guidelines that the country will follow in a cross-cutting and integrated manner, considering a 30-year horizon (ibid.). In addition, the law establishes the basic requirements of the **Nationally Determined Contributions**. On the other hand, **sectoral climate change plans** are established (ibid.), establishing "the set of actions and measures to reduce or absorb greenhouse gases" by sector. Another fundamental aspect of the Law is that it provides for a **national greenhouse gas emission budget** for the years 2030 and 2050. By this Law, sectoral budgets for greenhouse gas emissions to the year 2030 will be assigned to specific sectors, according to cost-effectiveness and equity criteria (ibid.).

It is also important to mention that in order to manage water availability, the legislation establishes the development of Strategic Basin Water Resources Plans for the country's 101 basins, seeking optimal water management.

However, as an innovative aspect, this law establishes the creation of a **Climate Change Financial Strategy**, which provides specific guidelines and concrete obligations for the financial sector towards the transition to a resilient and low-carbon economy. For example, the State is required to report annually on public climate investment. Through the Law, Financial Institutions must annually declare the climate impacts and risks of their private investment projects (ibid.).

The Law also establishes guidelines for adaptation measures to consider nature-based solutions. There will be an emphasis on environmental sustainability in the use of water in the face of threats and risks associated with droughts and pollution. The law also instructs the establishment of **criteria for monitoring and verification** of compliance with sectoral mitigation and adaptation plans. On the other hand, and regarding climate change governance, the Law establishes the **Council of Ministers for Sustainability and Climate Change**, which must articulate the national climate strategy. Also, the Ministry of the Environment will count with the Scientific Advisory Committee for Climate Change, which was also created by this Law as an advisory body for the implementation of the legislation (ibid.).

The Law has a clear and inclusive democratic approach. It establishes **access to information and citizen participation** in matters of change through six articles. According to the specific provisions of the Law, any person or group of persons shall have the right to participate, in an informed manner, in the preparation, review and updating of climate change management instruments. The five National Bodies for Climate Change, referred to in Title IV of the Law, must facilitate instances of citizen participation, within the framework of their competencies and attributions, with special consideration for the most vulnerable sectors. National Climate Change bodies should apply a gender approach and seek the participation of these sectors (ibid.).

The Law requires all government agencies to provide relevant information to the **National Environmental Information System and creates the National Greenhouse Gas Foresight System** (SNPGEI) and the **Interministerial Technical Team for Climate Change** (ETICC) that will work on the design, development, implementation, and monitoring of climate change management instruments (ibid.).

In this regard, the Law creates two operational arms: the Climate Vulnerability Platform and the Climate Change Scientific Repository. The **Climate Vulnerability Platform** will serve as a national information system for adaptation and will contain vulnerability maps of the national territory. The **Climate Change Scientific Repository** will compile scientific research associated with climate change and will be managed and implemented by the Ministry of Science, Technology, Knowledge and Innovation (ibid.).

The Law, for its part, establishes **Regional Climate Change Action Plans**, which will be the responsibility of the Regional Climate Change Committees, and will have the purpose of defining the objectives and instruments for climate change management at the regional and communal level (ibid.).

With respect to the **economic and financial mechanisms** for implementing the legislation, Chile is a pioneer in establishing a detailed regulation on the implementation of an **emissions market** or Emissions Trade System, as well as the requirement for the Ministry of Finance to prepare the **Climate Change Financial Strategy**, and even the clarification that the **Environmental Protection Fund** (established by Law No. 1300) may be used to finance specific mitigation and adaptation projects and actions. With respect to the emissions market, the Ministry of the Environment is empowered to prepare regulations declaring the maximum amount of greenhouse gas emissions for private sector agents, based on emissions standards by technology, sector and/or activity, as well as a certification system for the reduction and absorption of emissions backed by specific verification requirements and coordinated within the framework of a public emissions registry (ibid.).

5. Colombia

(a) Analysis of the national context

Socioeconomic context

The main economic indicators provide insights for analyzing and comparing the economic situation of different nations. According to the World Bank, the **population** residing in Colombia in 2021 was 51,516,562 (World Bank, 2023i). Moreover, in 2021, Colombia's **GDP per capita** at constant 2011 international prices was US\$ 14,649. (World Bank, 2023e). On the other hand, according to the World Bank, the **Gini Index** for 2020 reached 0.535, positioning Colombia as one of the most unequal countries in the region (World Bank, 2023c). A last essential indicator for the analysis is the country's **poverty** situation is the national total the population below the poverty line, which was 42.5% for the year 2020 (World Bank, 2023f).

Institutional context

In institutional matters, the country has stood out for its constructive and ambitious positions at the national level and in international negotiations. In particular, the 1991 Political Constitution of Colombia (Asamblea Nacional Constituyente de Colombia, 1991), in article 79, establishes the environment as a superior interest, stating that all people have the right to enjoy a healthy environment and that community participation in decisions that may affect it will be guaranteed. Under this premise, Colombia has signed several international environmental treaties. First, through Law 164/1994 (Función Pública, 1994) Colombia ratified the "**United Nations Framework Convention on Climate Change**" (UNFCCC), signed in New York on 9 May 1992, which has as its final objective the stabilization of greenhouse gas concentrations. Additionally, the **Kyoto Protocol** was ratified through Law 629/2000 (Ministerio de Ambiente de Colombia, 2000), which seeks for the signed countries to reduce greenhouse gas emissions. In addition to this, Colombia ratified the **Paris Agreement** through Law 1844/2017 (Ministerio de Ambiente de Colombia, 2017), where it also actively participated in the 2015 negotiations.

In addition to said advances, Colombia launched its national climate change adaptation strategy in 2012, which seeks to be a reference for decision makers, citizens and any other interested party that wants to take part in the fight against the climate crisis in the country. This **National Climate Change Adaptation Plan** - PNACC, is constantly being renewed as more information on climate change becomes available. In addition, this plan is the result of joint work between the main institutions with expertise in climate change, which includes the incorporation of sectoral action plans and supports the country's preparedness to face extreme climate events. Likewise, we can express that Colombia has a **National Climate Change System**, created by Decree 298/2016 (Función Pública, 2016), that establishes the responsibility in charge of a set of public entities the management of climate change, including within its responsibilities not only the National Climate Change Adaptation Plan, but also the Colombian Low Carbon Development Strategy-ECDBC, the National Strategy for the Reduction of Emissions from Deforestation and Forest Degradation in Colombia-ENREDD+ and the Strategy for Financial Protection against Disasters, thus configuring all the elements of a **National Climate Change Plan** but under a diverse system of institutional organization and public policy management.

The main reporting mechanisms in the national context that allow Colombia and UNFCCC member countries to present their progress on climate change are the National Communications and Biennial Update Reports (BUR). To date, Colombia has submitted three National Communications (2001, 2010 and 2017), which in addition to the international commitment, are the main source of information and technical knowledge regarding the effects of climate change in Colombia (IDEAM, 2017b). Also, since 2015 Colombia has been submitting Biennial Update Reports, which seek to update the National Communications on a regular basis (UNFCCC, 2022f). Finally, the Nationally Determined Contributions are at the heart of the Paris Agreement, through which the various signatory countries communicate their climate actions. In 2015 Colombia released its first **Nationally Determined Contribution**, in which it committed to a 20% reduction in greenhouse gas emissions, compared to the projected level for 2030. Additionally, in

December 2020 it updated the Nationally Determined Contribution (Ministerio de Ambiente, 2020). This updated Nationally Determined Contribution is more ambitious than the one proposed in 2015, since as part of the mitigation goal, it commits to reduce 51% of emissions with respect to projected emissions in 2030. In addition, Article 4 of the Paris Agreement establishes the need for a **Long-Term Climate Strategy**. In the case of Colombia, the E2050 (Ministerio de Ambiente de Colombia, 2023) identifies the transformations needed to build climate resilience and functions as a “living document” that guides the country’s actions and commitments. It is a strategy that identifies, guides and leads profound changes and transformations at sectoral and territorial levels. In particular, with respect to the carbon neutrality commitment, the country set the goal of becoming a carbon neutral country by 2050 and declaring 30% of the territory as protected (Ministerio de Ambiente de Colombia, 2021).

Finally, this journey of efforts intended to tackle the climate crisis led to the enactment of the **Framework Legislation on Climate Change - PNACC**, Law 1931/2018 (Función Pública, 2018), which establishes guidelines for climate change management, both in adaptation and mitigation actions of greenhouse gases. The Law for the management of climate change in Colombia has been preceded by an extensive legal and legislative development characterized by the adoption of international instruments. Starting in 2014, several legal provisions were developed, at the initiative of the government, to define specific commitments and policies in order to comply with international environmental obligations in the area of climate change. Law 1931/2018 constitutes the most comprehensive legislative milestone on the subject in Colombia, the specific objectives of this Law include: i) generate greater knowledge about potential risks and opportunities, ii) incorporate climate risk management in sectoral and territorial plans and iii) reduce the vulnerability of socio-economic and ecological systems to climate events. The Framework Legislation on Climate Change is the main subject of study of this report (Función Pública, 2018).

Climate context

The Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) is under the Ministry of the Environment and Sustainable Development and is the public agency in charge of generating knowledge on the state of natural resources and hydrometeorological conditions in Colombia. According to the 2018 IDEAM report on climate variability in Colombia, the average annual air temperature distribution of about 70% of the total area of the country is above 24°C, this is because much of the territory is located in low-lying areas near sea level. In this same line, the record temperature occurred in March 2016 in the Caribbean region and reached 41.6°C. In contrast, the minimum temperature recorded was in the department of Boyacá in February 2020, which reached -6.2°C (IDEAM, 2018). On the other hand, IDEAM projects that the average air temperature in the country could gradually reach +2.14°C by the end of the 21st century, 2100, if greenhouse gas levels continue to increase (IDEAM, 2015). In particular, the most affected departments could be Arauca, Vichada, Vaupés, and North Santander.

The country’s annual precipitation distribution is divided between rainy areas (Pacific, Amazon and Plains) and dry areas (Guajira and Inter-Andean valleys). In particular, there are three regimes in the dynamics of precipitation in the country; in the Inter-Andean region, annual precipitation does not exceed 4,000 millimeters per year, in the Nariño and Cundinamarca-Boyacá highlands, annual precipitation is between 500 and 1,000 millimeters, and the region with the least precipitation is the La Guajira peninsula, with annual volumes of less than 500 millimeters. On the other hand, according to IDEAM projections, for the period 2071–2100, **average annual precipitation** will decrease between 10% and 30% in 27% of the national territory (North and South of Colombia). While in 14% of the national territory (central region) an increase between 10% and 30% of annual precipitation is expected (IDEAM, 2018).

Colombia has two cyclical phenomena called the El Niño and La Niña. The first refers to the time of year when the surface waters of the central and eastern tropical Pacific are of higher-than-normal quality. On the other hand, the La Niña phenomenon refers to the extreme cold conditions that occur in this same region of the Pacific. Both climatic events alter large extensions of the sea surface, which alters the circulation in the tropical atmosphere and, due to their magnitude, induces climatic anomalies in multiple regions of the planet (ibid.). According to temperature and precipitation projections,

these changes directly impact the strength of the main climatic phenomena affecting the country. In particular, a greater variability of the El Niño and La Niña phenomena is expected. Thus, regions where temperatures are expected to increase and precipitation to decrease may be strongly affected by the El Niño phenomenon, increasing temperatures even more and decreasing precipitation to a greater extent, increasing the risk of **droughts**. On the other hand, the La Niña phenomenon will be more intense in regions where precipitation is expected to increase, as this is a phenomenon characterized by rainfall, increasing the risk of **flooding** (ibid.).

The effects of climate change have been experienced all over the planet. However, the geographic and socio-economic position conditions the level of vulnerability of the countries, which makes Colombia a highly vulnerable country. In 2014, the Economic Impacts of Climate Change Study (EIECC) detailed the potential consequences of climate change on the country's main economic sectors. Although the country's overall impact is negative, sector impacts are mixed.

Along these lines, the **agricultural** sector is highly sensitive to the effects of climate change. Some of the latent consequences are: (i) loss of productivity, (ii) loss of unconserved genetic resources, (iii) increased vulnerability of small producers, (iv) intensification of soil degradation and desertification and increased movement of pests and diseases to new regions. In fact, one of Colombia's star crops, coffee beans, are and will be strongly affected. It was recently indicated that by 2050 and under a moderate scenario of an increase in global average temperature, the area cultivated with coffee in Colombia would be reduced by 63% (BBC, 2022).

In aggregate terms, the future scenarios projected by IDEAM estimate an annual loss of GDP between 0.48% and 0.50% by the year 2100. Regarding households, a reduction in consumption of 2.9% per year is estimated with respect to the scenario without climate change (IDEAM, 2018).

The **inventory of greenhouse gas emissions** is part of the country's commitments with the ratification of the UNFCCC. It is also an essential tool for guiding decision-making on climate change mitigation. According to the National Greenhouse Gas Inventory of the 3rd National Communication on Climate Change issued in 2017 (UNFCCC, 2017), the country emitted 258 MtCO₂eq in 2012, where the main emissions are given by the conversion of natural forests to pastures and the burning of fuels in the land transport sector.

In conclusion, there are visible effects that demonstrate how climate change has been negatively impacting different ecosystems, from extreme precipitation to significant increases in droughts. According to IDEAM, 100% of Colombia's municipalities are at some degree of risk due to climate change (IDEAM, 2017a), consequently different public entities have worked on making decisions to mitigate climate change. In particular, the framework legislative on climate change in Colombia will be analyzed as a tool for combating climate change.

(b) Legislative analysis: Law 1931/2018 establishing guidelines for climate change management.

This section describes the main elements of the Climate Change Management Law adopted by Colombia. To this end, we will examine the time of enactment of the law, its background, the legislative process and the main components and provisions that are part of the law.

Context of enactment and legislative process

The bill was presented by the Colombian Ministry of the Environment and Sustainable Development. The national government assigned urgent status to the bill¹ in order to accelerate the legislative process in Congress. As a result, the bill was debated and unanimously approved jointly by the Fifth Commission

¹ The urgent status is an exclusive power of the executive administration, granted by article 163 of the Political Constitution of Colombia of 1991. In accordance with the provisions of the aforementioned constitutional text and articles 169 and 191 of Law 5/1992, when the President of the Republic uses that status, the bill must be processed with priority over the agendas of the Permanent Commission of the Congress in charge of the bill, depending on the matter involved in the bill. Moreover, the first debate will be simultaneous between the Chamber and the Senate, given that the counterpart commissions of both chambers will hold joint sessions.

of the Senate and the Fifth Commission of the House of Representatives, responsible for environmental issues, and others matters, on 31 May 2018 (Senado de Colombia, 2018). The bill was **unanimously approved** by the Senate of the Republic and by the Chamber of Representatives on 27 June 2018, and entered into force on 27 July 2018 after being signed into law by the President of the Republic (ibid.).

Background and previous initiatives

In addition to the legislative development described in the national context section, in 2017 two legislative measures aimed at adaptation and mitigation of the effects of climate change were filed before the Congress of the Republic (Cámara de Representantes de Colombia, 2017). Even though these initiatives were not approved, the bill that finally became Law 1931/2018 incorporated elements of both initiatives (Función Pública, 2018).

Thus, Law 1931 considered the need to develop the international commitments adopted by Colombia in various international instruments on environmental matters. During the legislative process it was emphasized that the bill was in line with the provisions of the United Nations Framework Convention on Climate Change, ratified by Colombia through Law 164/1994 (Función Pública, 1994) and the corresponding Kyoto Protocol, ratified by Colombia through Law 629/2000 (Ministerio de Ambiente de Colombia, 2000). Thus, the Law was inspired by the principles of sustainable development based on the concept of common but differentiated responsibility and developed measures to combat the causes and mitigate the adverse effects of climate change. The third relevant international instrument that inspired the law is the Paris Agreement, ratified by Colombia through Law 1844/2017 (Ministerio de Ambiente de Colombia, 2017), which led to the adoption of measures to reduce greenhouse gas emissions.

Likewise, Law 1753/2015 (Función Pública, 2015b), which established the National Development Plan 2014–2018, adopted policies to achieve the reduction of greenhouse gases, to control deforestation and for economic development with an environmental approach through sectorial plans in carbon reduction. This law also stated the government's commitment to submit to Congress a climate change law that would develop and adopt the lessons learned from the pre-existing National Climate Change Policy. Consequently, the construction of Law 1931/2018 (Función Pública, 2018) started in 2015 within the Intersectoral Commission on Climate Change and allowed the participation of various sectors of civil society and entities such as the Ministry of the Environment and Sustainable Development and the Ministry of Mines and Energy.

In parallel to the bill that would become Law 1931/2018 (ibid.), the tax reform Law 1819/2016 established a national carbon tax and mechanisms to certify carbon neutrality (Función Pública, 2016b), Decree 1076/2015 that regulated the environmental sector in the country adopted guidelines to reduce air pollution (Función Pública, 2015a) and in 2016 the National Climate Change System was created through Decree 298 of that year (Función Pública, 2016a).

Components of the legislation

Law 1931/2018 “Whereby guidelines are established for the management of climate change” (Función Pública, 2018), is Colombia's main legal instrument to establish guidelines to reduce the vulnerability of the population and ecosystems of the country to climate change, develop a sustainable low-carbon economy and develop the international commitments made by Colombia in environmental matters.

At the national level, the Climate Change Law develops the principles of the so-called ecological constitution, which are a series of articles of the 1991 Constitution by virtue of which it is the State's obligation to protect the environment and sustainable development. Since the ratification of the said international instruments, Colombian legislation has included provisions for the reduction of greenhouse gases, and the Framework Legislation on Climate Change has incorporated and updated these policies.

Law 1931/2018 (ibid.) addresses 22 **components** within 4 of the **axes**, including the axes (1) General Provisions, (2) Instruments of the Paris Agreement, (3) Institutionalization of Climate Policy

and (4) Economic and Financial Aspects. The law does not provide details or implementation in the areas of emission targets and binding measures with a sectoral approach. As far as the normative analysis is concerned, we can state the following:

The purpose of the Law is to establish guidelines to guide the actions of the State and private parties to manage climate change. On the part of the State, it links national, departmental and metropolitan (regional), municipal and district (local) entities. The objective of these guidelines is to reduce greenhouse gas emissions, reduce the vulnerability of the population to climate change and move towards a sustainable, low-carbon economy (ibid.).

The law establishes ten **guiding principles**, namely: self-management to contribute to climate change management, coordination between the nation and territorial entities, co-responsibility of social actors, the search for cost benefit and cost effectiveness, gradualness in the implementation of measures in accordance with the State's fiscal framework, integration of policies and legislation at all administrative levels of the State, the prevention of risks and vulnerabilities associated with climate change, the responsibility of all public and private persons in the fulfillment of the purposes of the law and the subsidiarity by virtue of which the nation must support the departments and municipalities in technical, institutional and financial terms for the correct implementation of the law (ibid.).

Article 3 of the law adopts eighteen **definitions** including: vulnerability and climate vulnerability, risks and risk reduction associated with climate change, climate change management and adaptation, low carbon development and climate change (ibid.).

As part of a **National Climate Change Plan**, the law, instead of creating a **climate change institute or agency**, recognizes the National Climate Change System (SISCLIMA) as the institutional scaffolding. This is understood as the set of legislation, policies, processes, entities, plans, strategies, instruments, mechanisms and information on climate change aimed at mitigating greenhouse gases and adapting to climate change (ibid.).

As part of the SISCLIMA, the **Intersectoral Commission for Climate Change** is in charge of the national coordination of the System and must incorporate in its action the Ministry of Commerce, Industry and Tourism, the Ministry of Housing, City and Territory, the National Risk Management Unit and the Climate Change Adaptation Fund. Finally, a **National Council on Climate Change** was created as a permanent consultation body of the Intersectoral Commission and as a space for articulation between the State, trade unions, social organizations, Congress and academia (ibid.).

As part of the national policy, Article 6 of the Law establishes that the ministries that make up the SISCLIMA, as well as all departments, municipalities, districts of the country, regional environmental authorities and the office of National Natural Parks are the state actors responsible for meeting the goals of adaptation to climate change (ibid.).

In accordance with the Law, the **Sectoral Climate Change Plans** are called Integrated Sectoral Climate Change Management Plans and must be formulated, and their implementation monitored by the Ministries belonging to the SISCLIMA, subject to the provisions of the Intersectoral Commission on Climate Change. Therefore, the national government is responsible for monitoring implementation and must submit annual reports on the matter to the Congress of the Republic (ibid.).

Regarding **departmental plans**, the Law establishes that departmental authorities must consider climate change management within their development plans. As a consequence, departmental authorities are required to formulate Integrated Territorial Climate Change Management Plans jointly with the regional environmental authorities and the Intersectoral Council. At the regional level, SISCLIMA coordination is the responsibility of the Climate Change Nodes, and the departmental authorities themselves will be in charge of monitoring implementation and reporting to SISCLIMA (ibid.).

Paragraph 2, article eight of the Law determines some minimum issues of these mitigation plans for the reduction of greenhouse gases, stipulating that they must incorporate measures in the areas of

transportation and infrastructure, agricultural development, commerce, industry and tourism. Coastal departments should include actions on coastal erosion and protection of coastal ecosystems (ibid.).

The Law also establishes guidelines for municipal and district (local level) action on climate change. Similar to the departmental regulation, it was ordered to incorporate the perspective in the local development plans considering the sectoral and departmental plans. All of them can be considered as **Climate Change Adaptation Plans**, although with a territorial, departmental and national focus; in accordance with Article 20 of the Law, they must first be proposed with goals for 2029 and then updated with **Long-Term Strategies** to operate until 2050 (ibid.).

The Law makes explicit that the referred mechanisms for planning and management of climate change must first consider the **Nationally Determined Contributions** provided for in the United Nations Framework Convention on Climate Change and comply with them. In addition, they should be integrated with the pre-existing National Climate Change Policy and development plans (ibid.).

Regarding the **emission goals for 2020, 2030, 2040 and 2050** and the expected greenhouse gas emissions, the Law warns that the National Contributions are the commitments defined by Colombia to reduce greenhouse gas emissions but specifies that the goals must be agreed with each sector before the Intersectoral Commission for Climate Change and with the participation of the Ministries that comprise the SISCLIMA. The law does provide that the targets must respect the 2020, 2030, 2040 and 2050 timeframes and progressively increase and become more ambitious (ibid.).

Although the Law does not specify specific guidelines regarding **greenhouse gas inventories**, it does provide that they must be linked and taken into account in regulatory processes and in national, regional and local climate change adaptation and mitigation instruments. These regulatory processes should culminate in instruments called greenhouse gas adaptation and mitigation programs and projects. It also mandates the development of sectoral greenhouse gas mitigation action plans (ibid.).

The law delegates to the Ministry of the Environment and Sustainable Development the authority to set the total number of quotas and the rules for the **Private Sector Emissions Registry System**. It also specifies that the PNCTE will be directly in charge of verifying and certifying the reduction of greenhouse gas emissions or removals, both in the public and private sectors (ibid.).

With regard to the **regulation of private sector emissions**, the Law delegates to the Ministry of the Environment and Sustainable Development the authority to regulate the conditions for verifying, certifying and registering greenhouse gas emissions and reductions over time. Likewise, the Ministry will be in charge of regulating the procedures for monitoring and controlling the agents subject to regulation. However, the verification must be done by an independent third party (ibid.).

Regarding the **establishment or regulation of the emissions market**, article 29 of the Law recognizes the figure of the tradable greenhouse gas emission quota. The quota is valid for one year and authorizes the holder to emit one ton of CO₂ or an equivalent amount of any other greenhouse gas. In turn, article 30 mandates the creation of the National Program of Tradable Greenhouse Gas Emission Quotas (PNCTE) to auction some tradable quotas and to grant others to regulated agents (ibid.).

The Law stipulates that the **Information System** should be linked to the National Forest Information System (SNIF), the National Forest Inventory (IFN), and the Forest and Carbon Monitoring System (SMBYC) as a means of obtaining better information for climate change management. The Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), under the leadership of the Ministry of the Environment and Sustainable Development, is in charge of managing and coordinating these information systems (ibid.).

In terms of **information on vulnerability and risks of climate change**, the law stipulates that efforts will focus on risks and vulnerabilities related to hydrometeorological and hydroclimatic phenomena and their modifications caused by climate change. To this end, the strategies for action and information gathering in this area should be articulated with the Integrated Climate Change Management Plans at the territorial, departmental and municipal levels (ibid.).

The law provides that the **National Climate Change Information System** will be integrated into the Environmental Information System for Colombia in order to consolidate and publish information on climate change management, adaptation and vulnerabilities. The National Registry for the Reduction of Greenhouse Gas Emissions (RENARE) will be part of the National Information System on Climate Change (ibid.).

Regarding a **financial strategy for climate change**, article 23 of the Law provides that the National Planning Department will develop guidelines for the formulation of projects to be incorporated into climate change management projects in national, territorial and environmental entities. In addition, article 33 provided that the resources received by the nation as a result of auctioning tradable greenhouse gas emission quotas would be specifically destined to finance policies to reduce the emission of these gases in policies for adaptation to climate change and in policies to improve the quality of the information necessary for the implementation of the Law (ibid.).

In addition, article 28 of the Law provides for the State to finance, through the National System of Competitiveness, Science, Technology and Innovation, research topics on climate change. Although it does not establish a **specific fund for climate change**, the bill does mandate that 1% of what the General Royalties System allocates to the Science and Technology and Innovation Fund be used for climate change mitigation and adaptation projects (ibid.).

The Law does not create a **differentiated tax policy or eco-taxes** since at the time of its issuance it considered that tax policies in the face of climate change were set in Law 1819 of 2016 so the legislator considered that those were the tax rules that should operate in the matter. However, it did specify that the government could recognize the tons of CO₂ paid as carbon taxes as part of the tradable greenhouse gas emission quotas up for auction. Furthermore, article 34 grants the government the margin to establish incentives to both public and private persons that carry out actions aimed at climate change adaptation and mitigation (ibid.).

6. Costa Rica

(a) Analysis of the national context

Socioeconomic context

According to the World Bank, Costa Rica will reach a **population** of 5,153,957 inhabitants by 2021 (World Bank, 2023i). Costa Rica's **GDP** per capita at constant 2011 international prices was US\$ 21,199 in 2021 (World Bank, 2023e). The **Gini Index** was 0.492 in 2020, placing Costa Rica in the medium inequality category (World Bank, 2023c). Finally, also according to the World Bank, the percentage of the population living below the **poverty line** reached 30% by 2020 (World Bank, 2023f).

Institutional context

In institutional terms, we can highlight Costa Rica's strong commitment to the fight against climate change. The central pillar of environmental law in this nation is article 50 of the Political Constitution (Sistema Costarricense de Información Jurídica, 1949). It states that "Every person has the right to a healthy and ecologically balanced environment." In addition, it provides for citizen petition mechanisms in the event of violation of these rights, establishing that "they have standing to denounce acts that infringe this right and to claim reparation for the damage caused." Regarding Costa Rica's participation in the international framework, it ratified the **United Nations Framework Convention on Climate Change (UNFCCC)** through Law 7414 (Sistema Costarricense de Información Jurídica, 1994). Likewise, it ratified the **Kyoto Protocol** in 2002 through Law 8219 (Sistema Costarricense de Información Jurídica, 2002) and the **Paris Agreement** in 2016, through Law 9405 (Sistema Costarricense de Información Jurídica, 2016). However, Costa Rica does not have a framework legislation on climate change.

In the context of the above international agreements, Costa Rica committed to reporting on the nation's social and environmental context, as well as on policy development and long-term goals. To this end, **National Communications** have been published, starting in 2000. Three others were also published in 2009, 2013 and 2021 (UNFCCC, 2021e). In addition, following the enactment of the Paris Agreement, **Biennial Update Reports** began to be published, starting in 2015 and updated in 2019 (UNFCCC, 2019b), and a **Nationally Determined Contribution** was submitted in 2020 (UNFCCC, 2020a).

Costa Rica established the goal of not emitting more than 9.11 million tons of CO₂ annually by 2030. This goal is consistent with the 2019 National Decarbonization Plan, which serves as this nation's Long-Term Strategy, and which seeks net-zero emissions by 2050 (UNFCCC, 2019c). In addition, the Nationally Determined Contribution states that the nation "commits to an absolute maximum net emissions budget of 106.53 million tons of carbon dioxide equivalent for the period 2021–2030."

Costa Rica approved in 2018 the **Carbon Neutrality 2.0 Country Plan** (Euroclima, 2019) with the aim of achieving the contribution of all social and national stakeholders. Specifically, it sought to "provide a mechanism to recognize the proper management of greenhouse gas emissions to public, private organizations, cantons, district councils and/or communities" (Ministerio de Ambiente y Energía, 2018). The plan would rely on a regional approach that would enable municipalities and cantons to adhere to carbon neutrality goals through this tool, and on the coordination of an intersectional climate change commission. It also establishes 5 central objectives (ibid.):

- (i) Raise awareness among organizations and their target population regarding climate change and the challenges involved in the process of decarbonizing the country's economy.
- (ii) Enhance the climate action of organizations through the management of greenhouse gas emissions in their processes, prioritizing greenhouse gas reporting and reduction efforts.
- (iii) Integrating stakeholders from the different sectors in climate action.
- (iv) Produce verified and therefore reliable information on greenhouse gas inventories at the organizational level.
- (v) Contribute to the sustainable improvement of the efficiency and productivity of organizations through the implementation of the PPCN normative documents and guidelines and the reduction of costs associated with the demonstration of greenhouse gas emission reductions.

Costa Rica also has the **National Climate Change Strategy Action Plan (PAENCC)** (Dirección Nacional de Cambio Climático de Costa Rica, 2018) that seeks to "reduce the social, environmental, and economic impacts of climate change and take advantage of opportunities, promoting sustainable development through economic growth." Within this plan, the Transportation, Energy and Agroindustry sectoral axes are distinguished as the central focuses of the plan. Several sectoral plans were also designed to identify the environmental impacts of these different sectors and seek ways to mitigate them. It is worth highlighting the VII National Energy Plan (2015–2030), the National Transportation Plan of Costa Rica (2011–2035), the National Forestry Development Plan 2011–2020 and the Sectoral Plan for Agricultural and Rural Development 2015–2018.

Finally, keeping in mind the purpose of this research, it is important to clarify that Costa Rica does not have a **Framework Legislation on Climate Change**.

Climate context

The observed and future impacts of climate change in Costa Rica can be based on data provided by the 2021 National Communication, the Nationally Determined Contribution, and the National Climate Change Strategy Action Plan (PAENCC). These provide data on the current situation as well as projections of future climatic conditions. Provided by the Ministry of the Environment, Energy and Telecommunications, we have projections for low emissions (RCP2.6) and low emissions (RCP8.5). These climate scenarios

organize their contents in three periods, the short term (2010–2039), medium term (2040–2069), and long term (2069–2099). The information provided by the World Bank will also be used to evaluate the evolution of temperatures and precipitation in recent years.

Thus, in 2020, an **average temperature** of 25.08°C was observed in Costa Rica, which represents an increase of 0.8°C compared to the annual average of 1900 (24.128°C) (World Bank, 2023a). As established in the Fourth National Communication (UNFCCC, 2021e), the future climate scenario according to the RCP-8.5 scenario analysis shows an increase of between 1.1°C and 1.6°C for the 2010-2039 period, especially in areas close to the Caribbean Sea. Then in the period 2040–2069, it is estimated that there will be a greater increase, ranging between 2.4°C and 2.8°C. Finally, temperatures are expected to rise from 3.8°C to 4.8°C for the period 2070–2099, and we can highlight that “the path of maximum increase goes from the Talamanca Mountains, passing through the Central Valley, and ending in the North Pacific”. (ibid.)

In addition, **precipitation** in Costa Rica varies greatly by region. The areas of the North Pacific have the lowest precipitation rates, around 2000 mm per year. Likewise, in the mountain range regions and in the Central Valley, in which the Greater Metropolitan Area is located, rainfall varies between 2,000 mm and 3,000 mm. In contrast, in regions in the Northern Caribbean, the South Pacific and in mid-mountain areas, especially those that receive winds from the Pacific, the rainfall rate can reach 6,000 mm. As for the RCP-2.6 projections, a systemic decrease in precipitation is estimated for the medium term, while, in the long term, large variations will be observed, with regions that will increase drastically and others that will continue to decrease. In the case of RCP-8.5, systematic drops would also be observed in the medium term; however, it is expected that in the long term, an exponential increase of up to 40% in precipitation would be observed in all regions, except the North Pacific (ibid.).

Several **extreme weather events** have been recorded in Costa Rica, falling into two categories. First, the extreme weather events (EWE), which include droughts, extreme temperatures, hurricanes, tropical storms, and extreme rainfall. Second, slow-onset events, such as gradual temperature increases, biodiversity loss, soil and forest degradation, ocean acidification, sea level rise, and marine intrusion. In addition, the Comptroller General’s Office estimated that in 2010 the costs for repairing infrastructure affected by EWE were 1.01% of GDP (Ministerio de Ambiente y Energía de Costa Rica, 2022). In the future, it is estimated that these costs could reach between 0.68% and 1.05% of GDP in optimistic scenarios, and up to 2.5% in more pessimistic scenarios. Finally, it is estimated that 1.3 million people have been affected by landslides, floods, and water heads, and that at least 546 people have died as a result of an EWE (ibid.).

The Fourth Communication (UNFCCC, 2021e) also outlines the vulnerabilities and impacts of climate change in 6 priority sectors. First, the **agricultural and fishing sector** stands out as one of the most vulnerable, largely due to its dependence on natural resources. Specifically, rainfall variations can be highlighted as a detrimental factor in this sector, mentioning that “The intensity and frequency of rainfall can cause floods that trigger losses in agro-productive and fishing systems.” Between 1988 and 2019, 5994 damages due to natural phenomena were recorded, 98% of which were related to hydrometeorological events, with an estimated cost of US\$ 460 million (ibid.). Second, the **water resource sector** is suffering from increased water rationing due to “declining water capacity resulting from climate variability.” In addition, there is a “loss of vegetation cover in protection and aquifer recharge areas, unsustainable or unreported extraction, for example, from illegal wells, and contamination of water sources,” and other problems (ibid.). Third, in the **biodiversity sector**, the risks to communities highly dependent on vegetation and ecosystem services are highlighted, as well as changes in the distribution of species due to displacement and loss of habitat, increased presence of invasive species, pests and diseases, and increased incidence of forest fires (ibid.). Fourth, in the **health sector**, changes in the environment could lead to destabilization of people’s health. In particular, the effects of high temperatures on the health of older adults and children, as well as an increase in the prevalence of mosquito-borne diseases. In addition, a higher incidence of diarrheal diseases and other water-borne pathologies is expected, especially in areas affected by EWE (ibid.). Fifth, the **infrastructure sector** is expected to suffer large economic losses, especially from EWEs. Finally, the **tourism sector**, one of the largest in the country, is expected to be affected by changing

weather patterns. Specifically, changes are expected in the composition and distribution of species of tourist interest, changes in the structure and functions of ecosystems of tourist interest, destruction or deterioration of tourist infrastructure due to the expansion of areas subject to tidal flooding or changes in the coastline, sea level rise, and extended periods of extreme temperatures (ibid.).

In the **Greenhouse Gas Inventory**, published within the Fourth National Communication (ibid.), it is estimated that Costa Rica's emissions in 2017 were 14,477.6 Gg CO₂eq excluding the FOLU sector (Forestry and other land uses). The energy sector accounts for 55.1%, agriculture for 20.5%, waste for 14.8%, and IPPU (Industrial Processes and Product Use) for 9.6%. These emissions increased by 76.6% between 1990 and 2017. However, "the net estimates for the FOLU sector are absorptions and are equivalent to 20.5% of total gross emissions," so considering this sector in the calculation of emissions leads to the figure of 11,509.2 Gg of CO₂eq per year. In addition, the FOLU sector went from being the sector that provided most of the emissions around 1990 (~80%) to having absorptions, mainly thanks to a forest recovery effort, with the goal of 60% of the Costa Rican territory being covered by trees. Therefore, considering the FOLU, there has been a 69.1% drop in emissions since 1990 (ibid.).

Legislative analysis

Despite having a complex institutional framework in terms of climate change management, Costa Rica does not have a Framework Legislation on Climate Change as of the date of publication of this report.

7. Guatemala

(a) Analysis of the national context

Socioeconomic context

Firstly, and according to the World Bank, Guatemala had a **population** of 17,109,746 million inhabitants in 2021 (World Bank, 2023i). Likewise, World Bank reports a **GDP per capita** at 2011 constant international prices for Guatemala was US\$ 8,926 in 2021 (World Bank, 2023e). In terms of the Gini Index, Guatemala has a value of 0.483 (according to its last measurement in 2014), which positions it as a country with high inequality (World Bank, 2023c). Finally, Guatemala had 52.4% of the **population below the poverty** line in 2020 (World Bank, 2023f).

Institutional context

The journey of the Republic of Guatemala regarding climate change management is nearly three decades old. Beginning in 1995, the Republic of Guatemala undertook the commitment to fight against global climate change both internationally and nationally, by ratifying the **United Nations Framework Convention on Climate Change (UNFCCC)**, approved by Legislative Decree No. 15-95, 28 March 1995 (Congreso de la República de Guatemala, 1995). Also, Guatemala ratified the **Kyoto Protocol**, which was approved by Legislative Decree No. 23-99 in 1999 (Congreso de la República de Guatemala, 1999), and the **Paris Agreement**, approved by Decree 48-2016 in 2016 (Congreso de la República de Guatemala, 2016).

However, in terms of antecedents that constitute the bases of environmental law in the Republic of Guatemala, article 97 of the Constitution establishes that "The State, the municipalities and the inhabitants of the national territory shall promote social, economic and technological development that prevents environmental contamination and maintains the ecological balance" (Congreso de la República de Guatemala, 1993).

Within the framework of the UNFCCC, the Kyoto Protocol and the Paris Agreement, the Republic of Guatemala commitments included, but were not limited to, the preparation and reporting of national greenhouse gas inventories and the design and implementation of national policies for mitigation and adaptation to climate change. In this context, it submitted **National Communications** in the years 2001, 2015 and 2022 (UNFCCC, 2022e). It also submitted, within the framework of the Paris Agreement,

its **Nationally Determined Contributions**, in 2015, which was updated in 2016 and 2021 (Ministerio de Ambiente y Recursos Naturales, 2021). It should be noted that Guatemala has not submitted **Biennial Update Reports** to the UNFCCC.

With respect to the Nationally Determined Contributions, the 2015 **Nationally Determined Contribution** of the Republic of Guatemala indicated for the year 2030 the unconditional goal of not exceeding the net emission of 0.73 million tons of carbon dioxide equivalent (MtCO₂eq) (Sistema Guatemalteco de Ciencias del Cambio Climático, 2021), with a more ambitious goal of 0.45 million tons MtCO₂eq conditional, i.e., Guatemala's commitment would vary between 11.2% and 11.6% MtCO₂eq depending on the international support and financing to promote the local climate policy. With the submission of the Nationally Determined Contribution update in 2021, the country strengthened its climate ambition by committing to an absolute and unconditional target, applicable to all sectors of the economy, to reduce emissions to 64.9 million tons CO₂-eq (unconditional) and to reduce emissions to 56.6 million tons CO₂-eq as a conditional target (UNFCCC, 2021b).

Additionally, the National Council on Climate Change, established in art. 8 of the "Framework Legislation to Regulate the Reduction of Vulnerability, Mandatory Adaptation to the Effects of Climate Change and Mitigation of Greenhouse Gases", Decree 7-2013 of the Congress of the Republic, approved the Nationally Determined Contribution, becoming an instrument of national priority in terms of compliance to make the necessary efforts to achieve the defined goals, nationally and internationally (UNFCCC, 2021b).

Within this framework, over the years Guatemala has built a comprehensive and robust institutional structure for climate change management, with elements such as the K'atun National Development Plan: Our Guatemala 2032 (Consejo Nacional de Desarrollo Urbano y Rural, 2014), the National Policy on Climate Change (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2009), the Framework Law to Regulate the Reduction of Vulnerability, Mandatory Adaptation to the Effects of Climate Change and Mitigation of Greenhouse Gases (Decree 7-2013, or Framework Legislation on Climate Change) (Ministerio de Ambiente y Recursos Naturales, 2013), the National Climate Change Action Plan PANCC (Consejo Nacional de Cambio Climático de Guatemala, 2018), the National Strategy for Low Greenhouse Gas Emissions Development (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2021) and the National Strategy for the Reduction of Deforestation and Forest Degradation in Guatemala (FAO, 2021) (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2020a). The country has also taken into consideration instruments such as the Institutional Strategic Plans that were available according to the different economic sectors directly linked to climate change. Likewise, Guatemala has instruments regarding gender mainstreaming in climate change management, such as: the Gender Environmental Policy (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2015) and the Strategy to Incorporate Gender Considerations in Climate Change in Support of the Nationally Determined Contribution (Ministerio de Ambiente y Recursos Naturales, 2020b), and others. These instruments set Guatemala apart from other nations and are an example of the efforts that have been made to enhance the gender perspective in addressing climate change, and through them, to promote the full and effective participation of women in programs, projects and policies on climate change adaptation and mitigation.

Particularly with respect to the **National Climate Change Action Plan** published in October 2016, which aims to operationalize the Framework Legislation on Climate Change and other national and international instruments related to the subject; we can say that said plan determines the country's environmental and climate management principles (*in dubio pro natura*, precaution, integrality, cultural identity, support capacity, participation and polluter pays and rehabilitates), as well as the cross-cutting guidelines (adequately protect human lives, protect agricultural production, build infrastructure according to quality rules and standards, give preference, take into account the promotion of traditional and ancestral practices, adopt integrated water resource management, incorporate climate change-related variables in all development planning plans and instruments, and strengthen interinstitutional coordination) for its development. Specifically, the Plan focuses on adaptation in the following sectors: human health; coastal marine areas; agriculture, livestock and food security; forest resources, ecosystems and protected

areas; infrastructure and integrated water resource management. With respect to mitigation, the focus is on energy; industrial processes; the agricultural sector; land use, land-use change, forestry, and the waste sector.

It is also important to highlight that as a subsequent step to this plan, Guatemala presented the **National Strategy for Low Greenhouse Gas Emissions Development** (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2021), which despite not explicitly incorporating a carbon neutrality goal aligned with the Paris Agreement, institutes a framework for climate change management with a long-term horizon for this nation.

Finally, and in accordance with the purpose of this research, we can mention that in 2013 Guatemala joined the list of nations that have a **Framework Legislation on Climate Change**, through the sanction of Decree 7-2013 (Ministerio de Ambiente y Recursos Naturales, 2013) which aims to establish the necessary regulations to prevent, plan and respond in an urgent, adequate, coordinated and sustained manner to the impacts of climate change in Guatemala. It is to this legislative instrument that we will dedicate the following section of this research.

It is important to highlight that, despite having a robust institutional framework in terms of climate change management, Guatemala does not have a **carbon neutrality** goal for the year 2050 set out in any binding instrument at the domestic or international level.

Climate context

Regarding the present and future scenario of climate change in Guatemala, we can use the official data published by the National Information System on Climate Change created by article 9 of the Framework Legislation to Regulate the Reduction of Vulnerability, Mandatory Adaptation to the Effects of Climate Change and Mitigation of Gases of Effect, as well as the National Climate Change Adaptation and Mitigation Action Plan.

In general terms and according to the published climate records, it can be deduced that Guatemala has had an **average temperature** increase of approximately 0.66°C between the 1960s and 1990s. In fact Guatemala's temperature could increase 0.6°C by 2030, 1.4°C by 2050 and up to 4.9°C by 2100, compared to the 1960–2000 average (ECLAC, 2018). In relation to this increase in average temperature, there is an increase in hurricanes, which cause storms that lead to flooding. During the 1966–1990 period, eight extreme events were recorded, and in the 1991–2015 period, 52 have been recorded, corresponding to an increase of 150%. Another important fact is the increase in the intensity of **extreme events**. In a review of the scientific literature, the ECC CA initiative found that the intensity of hurricanes could increase between 5% and 10% this century compared to what was recorded between 1970 and 2008 in the North Atlantic (ibid.).

Regarding droughts, it was reported that anthropogenic influences have contributed to the intensification of extreme precipitation on a global scale and to the intensification of droughts in some areas, including Central America, due to reductions in rainfall or increases in evapotranspiration. The same ECC CA initiative warns that the areas of Guatemala with the highest frequency of droughts between 1974 and 2004 (8 to 18 droughts in the period) were the departments of San Marcos, Quetzaltenango, Huehuetenango, El Quiché, Escuintla, Santa Rosa. The severity of droughts was greater in departments such as Huehuetenango, El Quiché, Alta Verapaz, Baja Verapaz and Izabal, since there was a greater coefficient of variation in precipitation in these departments (ibid.).

In terms of average annual precipitation, a generalized decrease is expected, especially in the departments of the Atlantic region, i.e., Zacapa, El Progreso and Chiquimula, with reductions from 54% to 59% by 2100. The departments of Retalhuleu and Petén will experience a smaller reduction. The exception to this rule would be in the months of September and October when rainfall increases (ibid.).

In this sense, impacts and risks derived from climate change in different socioeconomic sectors of the country have also been identified for the Republic of Guatemala, the most important of which are

described below. First, for **agriculture and livestock**, mainly grains and coffee, the rise in temperature and the potential disruption of the hydrological cycle will modify water availability, aridity conditions and the frequency and duration of droughts. These conditions lead to a higher frequency of forest fires, grain production losses, and delays in the execution of agricultural practices such as planting, pest control, and harvesting (ibid.). Second, with respect to the energy sector, the scenarios of potential changes in temperature, annual precipitation and interannual patterns foresee greater risks and uncertainty for hydroelectricity. The combined effect of temperature rise and precipitation changes affect evapotranspiration in the basins, their flow and evaporation in hydroelectric reservoirs (ibid.).

Subsequently, the health and **sanitation system** is affected by the increase in temperature and extreme hydrometeorological events such as floods, droughts and hurricanes. In addition, its effects can be potentiated by adverse social conditions such as poverty. Thus, climate change influences the increased proliferation and changing incidence patterns of climate-sensitive diseases such as diarrheal and acute respiratory diseases, dengue, malaria, Chagas disease, leishmaniasis and emerging diseases such as zika and chikungunya (ibid.). In its national communications to the UNFCCC, Guatemala reports the evaluation of the effects of climate variability on the incidence of acute respiratory infections (ARI), acute diarrheal diseases (ADE) and malaria in the country (UNFCCC, 2001).

Regarding the possible impact of climate change on the country's **surface water resources**, the combination of changes in the demand and availability of this vital resource with climate change would increase the intensity of water use by 8.6% in 2030, 19.9% in 2050 and 251% in 2100 if adaptation and saving measures are not taken. The 2100 level of water use intensity would be well above the 20% threshold internationally accepted as critical for water stress (ECLAC, 2018).

According to the **greenhouse gas inventory**, Guatemala is the country with lowest greenhouse gas emissions in Central America because it was one of the countries with the highest land use absorption. In the 2005 inventory, CO₂e emissions from land use change represent 27% of total gross emissions (without land use change absorption). The largest source of emissions was the energy sector with 39%, followed by the agriculture and livestock sector with 25%, industrial processes with 5% and waste with 4% of gross emissions. With respect to net emissions, land use change emissions were negative, i.e., removals were greater than emissions, so net emissions are 70% lower than gross emissions. The CO₂e intensity per capita without land use change was 2.7 tons in 2000, higher than the target of two tons per person in 2050 (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2023).

In summary, the Republic of Guatemala is facing major environmental, economic and social problems derived from climate change. Water stress, temperature increase, high frequency of extreme precipitation and floods, or the receding flows in rivers and waterways further affect Guatemalan society as a whole. Fires, droughts, heat waves, floods, and vector-borne diseases, among others, jeopardize access to human rights such as the right to health, work, education, and a healthy and balanced environment. Thus, the response to climate change, specifically from a legislative point of view, will be the subject of the following section.

(b) Analysis of the Framework Legislation on Climate Change (Legislative Decree 7-2013)

In this section we will proceed to identify, review and analyze the Framework Legislation on Climate Change of the Republic of Guatemala, enacted in 2013. In this process, each legislative instrument is described in terms of the moment of enactment, the legislative process, its background, and the components achieved by its legislative umbrella.

Context of enactment and legislative process

The Framework Legislation on Climate Change of the Republic of Guatemala, entitled "Framework Legislation to Regulate the Reduction of Vulnerability, Mandatory Adaptation to the Effects of Climate Change and Mitigation of Greenhouse Gases" was **signed into law** on 23 September 2013 by the Congress of the Republic of Guatemala through Decree 7-2013, promulgated on 4 October and published on

8 October 2013 (Congreso de la República de Guatemala, 2013). This legislation was sponsored by the Ministry of the Environment and Natural Resources as a “tool to make national efforts towards sustainable development viable,” and was **passed** with 92 votes in favor and 36 against out of a total of 158 deputies of the sole Chamber of the Guatemalan Congress (ibid.). The bill was filed by the following deputies: Byron Juventino Chacón Ardón, Carlos Enrique Bautista Godínez, Edgar Abraham Rivera Estévez, Jorge Enrique Gordillo Cortéz, Juan Manuel Giordano Estrada, Juan Ramón Ponce Guay, Miguel Angel Cabrera Gándara, Oliverio García Rodas, Ronnie Danilo Escobar and Rubén Eduardo Mejía Linares, and was filed on 9 November 2009 (ibid.).

Background and previous initiatives

Said bill (initiative no. 4139) received a favorable opinion (Congreso de la República de Guatemala, 2010) from the Environment, Ecology and Natural Resources Commission on 12 August 2010, and after three debates in the plenary between 2011 and 2013, the final draft was passed on 5 September 2013 (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2013).

The background mentioned in the opinion states that the purpose of the law is to “contribute to the legal framework that makes it possible for the State, and not only the government, to act in a consistent and appropriate manner in the face of the challenge posed by the phenomenon of climate change” (Congreso de la República de Guatemala, 2010). In this regard, the legislation is framed within the Framework Convention on Climate Change and its Kyoto Protocol, and the Central American Convention on Climate Change.

There is no record of previous bills along the same lines. However, there was an initiative by Congressman José Rodrigo Valladares Guillén in 2019 to amend article 8 of that law, to delegate to the Vice Minister of Natural Resources and Climate Change, the function of Secretary of the National Council on Climate Change as a way to “regulate the aspects that have impeded the effectiveness” of the law to date (Congreso de la República de Guatemala, 2019).

Components of the legislation

This section corresponds to the analysis of the framework legislation on climate change of each member country of the Climate Change Working Group of the Parliamentary Observatory on Climate Change and Just Transition of Latin America and the Caribbean. In order to analyze the legislation, 43 components were identified in a cross-cutting and simultaneous reading within 7 guiding axes that can be incorporated into the framework legislation on climate change.

Decree 7-2013 “Framework Legislation to Regulate Vulnerability Reduction, Mandatory Adaptation to the Effects of Climate Change and Greenhouse Gas Mitigation” (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2013) features 24 of these **components** that correspond to 6 guiding **axes**, including the axes of (1) General Provisions, (2) Instruments of the Paris Agreement, (3) Binding Implementation of Sectoral Measures (4), Institutionalization of Climate Policy (5), Economic and Financial Aspects and (6) Social Aspects.

The Guatemalan legislation is structured in 8 chapters and 27 articles and aims to establish the necessary regulations to prevent, plan and respond in an urgent, adequate, coordinated and sustained manner to the impacts of climate change in the country. It incorporates the following **guiding principles**: “*in dubio pro natura*,” “polluter pays and rehabilitates,” “cultural identity,” “carrying capacity,” “precaution,” “integrality,” and “participation”. The law also includes **definitions** that cover the concepts of “climate change,” “land use change,” “carbon sequestration,” “Greenhouse Gases,” “Carbon Market,” “Environmental Service,” and others (ibid.).

As a central tool and instrument of the Paris Agreement, it establishes the obligation to prepare a **National Climate Change Adaptation and Mitigation Action Plan (PNACC)**, and provisions on Territorial Planning for Adaptation and Mitigation to Climate Change (ibid.).

The legislation also includes the preparation of **sectoral plans for climate change** in health; marine-coastal zones; agriculture, livestock and food security; forestry resources; ecosystems and protected areas; and infrastructure. This provision includes details of the **minimum measures to be contemplated** in each of these plans (ibid.).

On the other hand, within the framework of the regulation of a **Carbon Market**, the law creates a **Registry of Greenhouse Gas Emissions Removal or Reduction Projects**, for the procedures of disclosure, promotion, registration, validation, monitoring and verification of projects (ibid.).

Regarding the institutional framework for climate policy, the law establishes a **National Council on Climate Change**, chaired by the President of the Republic and with the participation of the various relevant ministries, and representatives of the business sector and civil society. This Council is responsible for **monitoring the implementation** of the standard, through the power to “supervise the implementation of actions and conflict resolution.” The law also provides for the establishment of a **National Climate Change Information System**—which facilitates access to the information that the national government is obliged to provide—, and the participation of all public sector entities dedicated to the **study, research and scientific** and technological applied to the preparation of different plans (ibid.).

On the other hand, the **proactive participation of the population** is contemplated both in the composition of the National Council as well as “in its different roles, in the face of imminent danger to the physical integrity, production capacity, health, assets and development of the population.” (ibid.)

Finally, as a **financial strategy**, the legislation establishes a series of financing mechanisms to be implemented through the creation of a **National Climate Change Fund** “with the purpose of financing plans, programs and projects for risk management, vulnerability reduction, forced adaptation and forced mitigation, as well as the improvement of national capacities to face climate change, payment for natural services for carbon fixation, production and protection of water, protection of ecosystems, scenic beauty and others” (ibid.).

8. Uruguay

(a) Analysis of the national context

Socioeconomic context

According to the World Bank, the **population** residing in Uruguay in 2021 was 3,426,260 inhabitants (World Bank, 2023i). Likewise, the **GDP per capita** at constant 2011 international prices of this country for 2021 was US\$ 22,800, one of the highest in the region (World Bank, 2023e). On the other hand, according to the World Bank, the **Gini Index** for 2020 reached 0.402, positioning Uruguay as one of the most unequal countries in the region (World Bank, 2023c). Also, in terms of poverty, the percentage of total population below the **poverty** line was 11.6% for the year 2020 (World Bank, 2023f).

Institutional context

Uruguay enacted the **United Nations Framework Convention on Climate Change** in 1994 by Law No. 16517 (IMPO Centro de Información Oficial de Uruguay, 1994); the **Kyoto Protocol** in 2000 by Law No. 17,279 (IMPO Centro de Información Oficial de Uruguay, 2000); and the **Paris Agreement** in 2016 by Law No. 19439 (IMPO Centro de Información Oficial de Uruguay, 2016).

Uruguay has been one of the first countries to submit National Reports to the United Nations Framework Convention on Climate Change, such as **National Communications**, Biennial Update Reports or National Inventories of Greenhouse Gas Emissions and Absorptions (Ministerio de Ambiente de Uruguay, 2020). The First **National Communication** was submitted in 1997, the Second in 2004, the Third in 2010, the Fourth 2016, and the Fifth in 2019 (UNFCCC, 2019). While the First **Biennial Update Report** was published in 2010, the Second in 2017, the Third in 2019, and the Fourth in 2022 (UNFCCC, 2022b).

According to the Fifth National Communication (UNFCCC, 2019d) submitted by Uruguay as a member of the United Nations Framework Convention on Climate Change (UNFCCC), published in 2019, and the Greenhouse Gas Inventory-INGEI for 2016, total net greenhouse gas emissions for the country, measured using the GWP₁₀₀ AR₂ metric, were 24,492.4 ±49.5% Gg CO₂-eq, which represented 0.05% of global anthropogenic greenhouse gas emissions. Net methane emissions represent 51.6% of total national emissions, while nitrous oxide emissions account for 26.7%, carbon dioxide emissions 21.3%, and HFCs and SF for 0.4% of total emissions. The Fourth Biennial Update Report to the Conference of the Parties to the UNFCCC (UNFCCC, 2022b) presents the evolution of greenhouse gases from 1990 to 2019, and indicates that for 2019, the total net greenhouse gas emissions for Uruguay were 31,020 CO₂-eq GWP₁₀₀ AR₂ composed by 51% of methane, 26% of nitrous oxide, 22% of carbon dioxide, and 1% of HFC-SF.

In turn, Uruguay has an instrument that serves as the National Climate Change Plan. Such instrument is the **National Climate Change Policy**, which was adopted through **Decree No. 310/017** (IMPO Centro de Información Oficial de Uruguay, 2017), reflecting the need to deepen the actions of adaptation and mitigation to climate change throughout the national territory in the framework of the different national public policies and the commitments based on the ratification of international agreements such as the Paris Agreement.

With respect to the national adaptation planning strategy, Uruguay has developed different **sectoral plans** (National Plan for Adaptation to Climate Variability and Change for the Agricultural Sector, National Plan for Coastal Adaptation, National Adaptation Plan for the Energy Sector, National Adaptation Plan for Cities, National Adaptation Plan for the Health Sector) (Ministerio de Ambiente de Uruguay, 2023), which have enabled it to implement specific measures by sector and are cross-cutting to the gender and generations perspective.

Together with the National Policy, the country has a Long-Term Climate Strategy, instruments that allow for a sustained strategic framework over time to contribute to the fulfillment of internationally assumed commitments. The programmatic instrument that includes the long-term vision and sustainable development strategy is the **Long-Term Climate Strategy** (LTCS) (UNFCCC, 2021f), whereas the Nationally Determined Contribution is the instrument that allows the implementation of the climate change policy in 5-year cycles. Thus, within its framework, Uruguay plans to become **CO₂ neutral** by 2050, and to implement adaptation, resilience and risk reduction measures. On the other hand, at the Conference of the Parties (COP26) in Glasgow in 2021, Uruguay ratified its commitment to reduce global methane emission levels in 30% by 2030 (Diálogo Chino, 2021). In this sense also based on the need to apply criteria with financial benefits with the fulfillment of the objectives set with respect to climate change and therefore, Uruguay recently announced a new sovereign bond linked to the climate action of this nation (Ministerio de Finanzas y Economía de Uruguay, 2021). On the other hand, for disaster risk reduction, the National Emergency System was created in 2009 by Law No. 18621 (IMPO Centro de Información Oficial de Uruguay, 2009), with the purpose of protecting the people, significant assets and the environment in case of disasters.

In accordance with the ratified agreements, Uruguay must submit its Nationally Determined Contribution every five years. In 2017, Uruguay submitted the First Nationally Determined Contribution (República Oriental del Uruguay, 2017). This document includes the efforts that the country is planning in terms of mitigation and adaptation, to achieve medium-term objectives (to 2025) to reduce the risks and adverse effects of climate change. In 2022, Uruguay submitted the Second Nationally Determined Contribution (República Oriental del Uruguay, 2022) with targets to 2030. In this regard, the National Climate Change Response System, created by Decree No. 238/009, and later expanded by Decree No. 79/010 (IMPO Centro de Información Oficial de Uruguay, 2010), has generated a publicly accessible information on the progress by country in achieving global and specific objectives to mitigate climate change since 2020. It is important to note that each Nationally Determined Contribution measure is also categorized according to its potential impact on gender inequalities (SNRCC, 2023).

The short-term strategy includes 13 Specific Objectives, which make up the Nationally Determined Contribution¹, to mitigate the effects of climate change with goals set for the year 2025, which to date

have varying degrees of progress compared to 1990. These specific objectives include: reduce CO₂, CH₄, N₂O and CO₂-eq emissions per unit of real GDP; reduce CH₄ and N₂O emissions per unit of product (beef in live weight); maintain 100% of the 2012 native forest area (849,960 ha); at least maintain 100% of the 2015 effective area under commercial forestry plantation management (763,070 ha); avoid CO₂ emissions from COS in 10% of the grassland area (1,000,000 ha); avoid CO₂ emissions from COS in 50% of the 2016 grassland area (4,183 ha); avoid CO₂ emissions from COS in 75% of the 2016 crop area under Soil Use and Management Plans (1,147,000 ha); sequester CO₂ in 25% of the 2016 crop area under Soil Use and Management Plans (383,000 ha). In the Nationally Determined Contribution² the goals for 2030 include the following: not exceed the level of emissions of 9,267 Gg of CO₂, 818 Gg of CH₄ and 32 Gg of N₂O; reduce HFC consumption by 10% with respect to the baseline established based on the average consumption for the years 2020 to 2022; reduce the intensity of CH₄ emissions per unit of product (Gg of live weight of beef) by 35%, and reduce the intensity of N₂O emissions per unit of product (Gg of live weight of beef) by 36%.

In the last few years and since 2010, the substitution of renewable sources—particularly for wind energy—in the country's energy matrix, has been one of the most significant changes to reduce CO₂ emissions at a national level and also allowed the country to move from a scenario of occasional energy imports from neighboring countries to being able to export energy, thereby improving energy sustainability. The National Energy Balance in 2019–2020 was composed of 31% from hydro, 31% from wind, 24% from fossil fuels, 9% from biomass and 5% from solar; reflecting a low dependence on fossil fuels.

Specifically, in order to mitigate emissions, the agricultural sector aims to promote productivity and at the same time reduce greenhouse gas emissions per unit of product; maintain the area of native forests and promote commercial forestry plantations for the production of quality timber and cellulose.

Finally, Law No. 19889/2020 established the Ministry of the Environment in Uruguay, and Law No. 19924/2020 established, within the Ministry of the Environment, the National Directorate of Climate Change—assigning powers over national climate change policies—, together with three other National Directorates and a General Directorate as part of its organizational structure. However, Uruguay is one of the countries covered by this research that does not have a **Framework Legislation on Climate Change**.

Climate context

The effects of climate change in the country have been reflected, among other aspects, in an increase in the frequency of **extreme events** (heat/cold waves, very strong winds, thunderstorms and intense rainfall, turbulence and very strong gusts of wind, etc.) which, together with the effects of La Niña and El Niño, frequently generate significant economic losses due to droughts or floods and create risks for people. The **average temperature** in Uruguay increased by about 0.8°C compared to the decades 1961–1980 and 1995–2015 (Universidad de la República, 2019). As for **precipitation**, there were increases in cumulative annual values of 10–20% from 1961 to 2017 (ibid.). Surface wind trends also showed changes in recent years, with an increase in mean easterly winds in autumn and spring (Barreiro et al 2021a), and an increase in southwesterly winds in the coastal zone associated with extratropical cyclones during winter (Barreiro et al 2021b).

Future climate change scenarios for Uruguay and the region anticipate greater increases in **average annual temperatures** in the coming years. The National Institute of Agricultural Research of Uruguay, “the country is expected to face higher average annual air temperature in the 2050s than in the 2020s, from 1° to 2°C in the region (INIA - Instituto Nacional de Investigación Agropecuaria de Uruguay, 2009).

According to academic studies, official sources and international organizations, Uruguay is currently facing risks derived from climate change for one of its most important economic activities: **agriculture and livestock farming**. This was expressed by the World Bank Director for Argentina, Paraguay and Uruguay when he said that: “in the last decade, rural producers from Uruguay have been exposed to a higher

frequency and intensity of floods and extreme droughts” (World Bank, 2017). Given these impacts, the agency and the government of Uruguay are making progress on adaptation measures for the agricultural sector to increase resilience to the impacts of climate change (ibid.).

Taking into account the direct effects of climate change on production systems (open air), people’s health, coasts, cities and infrastructure, Uruguay is implementing specific National Adaptation Plans for these sectors with the necessary adaptation plans for different scenarios.

In terms of Uruguay’s **greenhouse gas emissions**, the first national greenhouse gas inventory was published in 1997 during COP₃ for the 1990 reference year. Later, the inventory was subject to multiple updates, the last of which referred to the 1990–2019 series and was published in 2021. According to last year’s inventory, Uruguay emitted 760 Gg of methane in 2019, emitted 26.1 Gg of nitrous oxide emissions, captured the net amount of -4,850 Gg of carbon dioxide (CO₂), while the AFOLU sector was the main emitter of greenhouse gases, and the main absorber of these gases. Likewise, the total calculation shows that net emissions for 2019 were 19,463 CO₂-eq GWP₁₀₀ AR₂ (Ministerio de Ambiente de Uruguay, 2021).

(b) Legislative analysis

Uruguay does not yet have a Framework Legislation on Climate Change in its national legislative system.

II. Comparative analysis

Based on the legislative analysis developed in the previous section, this chapter presents a comparative analysis of the Framework Legislation on Climate Change in the eight selected OPCC countries.

This process addresses general aspects, such as the period of enactment, the degree of consensus and the regulatory scope of the legislative instruments. Notwithstanding this general analysis, the comparative analysis focuses on the main axes and components of the climate legislation in the central aspects of any Framework Legislation on Climate Change, such as the association with the Paris Agreement, the incorporation of greenhouse gas mitigation goals, the establishment at the domestic level of an institutional framework for climate policy and the economic and financial aspects as tools for the implementation of global climate change adaptation and mitigation measures.

A. General information

The following information emerge from the analysis carried out in the previous section for the eight countries considered in this study.

1. Number of passed laws

Argentina (Law No. 27520), Brazil (Law No. 12187/09), Guatemala (Legislative Decree 7-2013), Chile (Bulletin No. 13191-12) and Colombia (Law No. 1931) have a Framework Legislation on Climate Change, while Bolivia, Costa Rica and Uruguay do not have this legislative instrument (see map 1). This fact illustrates the merits of this study to encourage the enactment of framework legislation on climate change in the countries that do not yet have it, based on the inspiration and legislative experiences of neighboring countries.



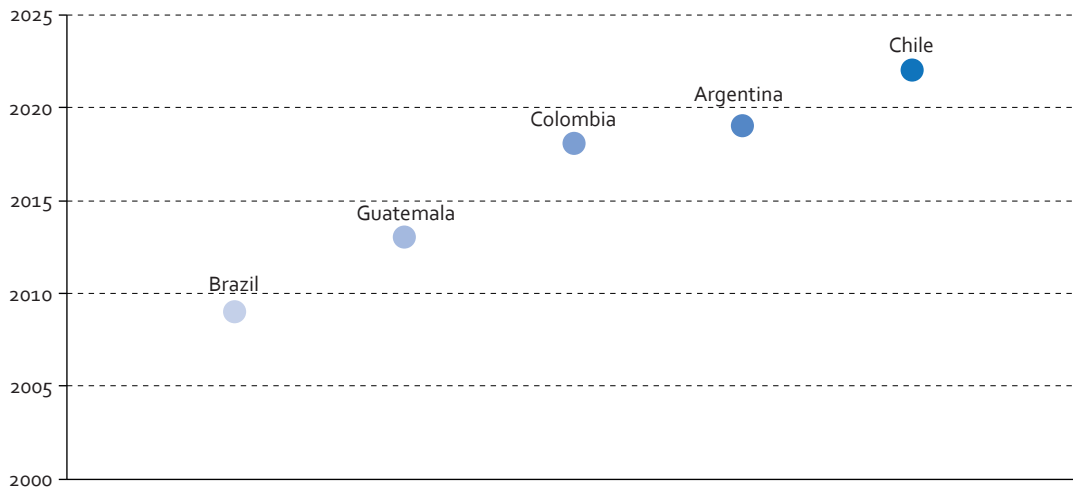
Source: Prepared by the authors.

Note: The boundaries and names shown on the maps included in this publication do not imply official acceptance or endorsement by the United Nations.

2. Year of enactment

Argentina enacted the Law in 2019, Brazil enacted the Law in 2009, Guatemala enacted the Legislative Decree in 2013, Colombia enacted the Law in 2018, and Chile enacted the Law in 2022, demonstrating that climate policy has been a priority for the region even before the Paris Agreement came into force, and that the legislative progress has been consolidated over the years.

Figure 1
Time of enactment of the Framework Legislation on Climate Change by country
of the region covered by this study



Source: Prepared by the authors.

3. Extent of consensus

Argentina passed its Law unanimously in the Senate, although there were 23 absentees (Honorable Senado de la Nación Argentina, 2019). In the *Chamber of Deputies*, it was voted along with other bills without dissent or notes, and obtained 164 votes in favor, 0 against, 8 abstentions and 84 absentees (Honorable Cámara de Diputados de la República Argentina, 2019).

Chile passed its Law with 33 votes in favor, and unanimously in the Senate (Senado de Chile, 2022a), while in the Chamber of Deputies it obtained the favorable vote of 113 deputies, 1 against and 1 abstention (Cámara de Diputadas y Diputados, 2022).

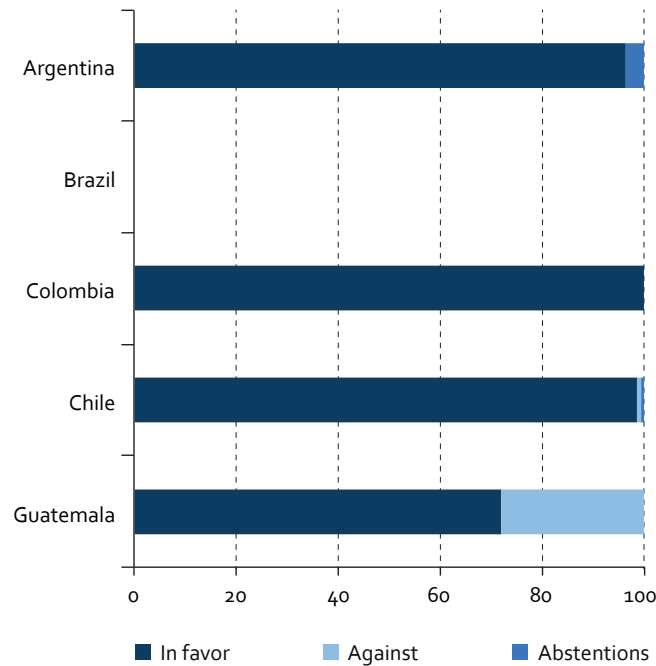
Colombia passed its Law unanimously in the Senate of the Republic and in the Chamber of Representatives (Senado de Colombia, 2018).

Guatemala passed its Legislative Decree with 92 votes in favor, and 36 against, out of a total of 158 deputies of the sole house of the Guatemalan Congress (Congreso de la República de Guatemala, 2013).

Brazil had a different experience. The bill was symbolically passed by the National Congress, i.e., without a roll-call vote, based on agreement among legislators, reflecting the relevance of the matter for the Brazilian political system.

Thus, in all cases, the enactment of the framework legislation on climate change was supported by more than 70% of the legislators present, indicating a high degree of consensus and mainstreaming of the subject.

Figure 2
Passing percentages of the Framework Legislation on Climate Change
of the countries in the region covered
by this study



Source: Prepared by the authors.

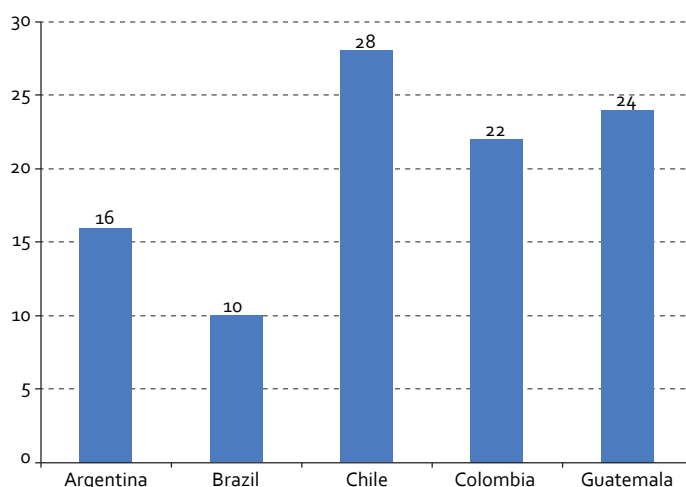
Note: Brazil's case is not comparable with the other countries for the reasons described above. The chart shows "in favor", "against" and "abstentions" votes, while absences were not considered.

4. Scope of the legislation

The legislative analysis was based on the main axes and components presented in the initial sections of this research. More specifically, in the 'National Case Studies' section, corresponding to the 'Contextual Framework' of the study.

Using this classification, we can compare the scope of the legislative instruments that serve as the Framework Legislation on Climate Change in Argentina, Brazil, Colombia, Chile, and Guatemala. It is clear, for instance, that the number of elements achieved by each instrument and the year of its enactment are not correlated. This follows from the fact that Chile, Colombia and Guatemala all have more than 20 components, whereas Guatemala, where the law was enacted prior to 2015, a turning point since the Paris Agreement, while Chile was the last country to enact a Framework Legislation on Climate Change. The same can be said about the Republic of Argentina, which adopted similar components to those of Brazil, although there is a time gap of ten years between the enactment in 2009 for Brazil and the enactment in 2019 for the Republic of Argentina.

Figure 3
Number of components adopted by the Framework Legislation on Climate Change
in the countries of the region covered by this study



Source: Prepared by the authors.

Likewise, the main axes on which we can perceive greater normative amplitude are the general provisions, the incorporation of the instruments of the Paris Agreement, the institutional framework of the climate policy and the economic and financial aspects. At the middle of the list are the social aspects, on which three of the five laws analyzed legislate. On the other hand, mitigation targets and the binding implementation of sectoral measures are aspects on which, as we will see below, there is still a legislative window of opportunity. This is an opportunity for countries that do not have any type of legislation on the subject to take inspiration from countries such as Chile, which has cutting-edge legislation on the matter.

Table 5
Axes adopted by the Framework Legislation on Climate Change
in each country of the region covered by this study

Axis/Country	Argentina	Brazil	Chile	Colombia	Guatemala	Total (Percentages)
General Provisions	Yes	Yes	Yes	Yes	Yes	100
Mitigation Goals	No	Yes	Yes	No	No	40
Instruments of the Paris Agreement	Yes	Yes	Yes	Yes	Yes	100
Implementation of Sectoral Binding Measures	No	No	No	No	Yes	20
Institutionalization of Climate Policy	Yes	Yes	Yes	Yes	Yes	100
Economic and Financial Aspects	No	Yes	Yes	Yes	Yes	80
Social Aspects	Yes	No	Yes	No	Yes	60

Source: Prepared by the authors.

5. Main axes and components

The following is a detailed comparative analysis of each of the seven axes of the Framework Legislation on Climate Change.

(a) Instruments of the Paris Agreement

The Paris Agreement, adopted by 196 Parties at COP21 in Paris on 12 December 2015, effective on 4 November 2016, is the strongest, most comprehensive and robust basis of existing international law in shared global efforts to limit global warming. For this reason, the integration of domestic law and international law on climate change has as its structural piece the link between the various legislative instruments that serve as the Framework Legislation on Climate Change and the Paris Agreement.

Before proceeding with the detailed country-by-country analysis, it is worth clarifying that two of the five laws covered by this study were approved prior to the Paris Agreement. However, some elements contained within the regulatory framework of the Paris Agreement were born prior to and are independent of the Agreement and, therefore, may be contained in legislation enacted prior to the Agreement. This is the case, for example, of the development of national inventories of greenhouse gases or the establishment of national plans for mitigation and adaptation to climate change. Therefore, we proceed to analyze the components of this axis for all the countries covered by this study.

In the case of **Argentina**, the Paris Agreement is expressly referred to in Law 27520/2019 (Infoleg, 2019) at the time of establishing the enforcement authority of the legislation. As such, it is specified that the Department of the Environment and Sustainable Development or, in its absence, the highest-ranking agency with environmental jurisdiction will be the authority for the enforcement of the framework legislation on climate change, and for “the United Nations Framework Convention on Climate Change, the Kyoto Protocol, the Paris Agreement, and any other international treaty on climate change” (ibid.). Even though this is the only reference to the Agreement, different instruments of the Agreement are expressly mentioned, such as the “National Climate Change Adaptation and Mitigation Plan”, the preparation of which is contemplated in Article 16. As for the “long-term strategy”, it is not expressly contemplated as such, but it can be incorporated into such National Plan, which should include “long-term” mitigation and adaptation measures.

In the case of **Chile**, the Paris Agreement is included in different points of the recently approved law (Senado de Chile, 2022b). First, at the time of defining the “national greenhouse gas emissions budget”, indicating the link with the fulfillment of the Paris Agreement target. Second, in article 5, the Long-Term Climate Strategy is recognized as “an instrument recognized in the Paris Agreement” and then again, article 6.2 provides that “the obligations established in the Paris Agreement” were considered at the time of preparing said Strategy. Next, it is referenced in article 7 on the Nationally Determined Contribution, which ratifies the framework of Chile’s commitments to the international community to mitigate greenhouse gas emissions, this one under the Paris Agreement. Finally, again, article 7 provides for the last time a deadline to prepare, review and update the Nationally Determined Contribution. These references include not only express references to the Paris Agreement, but also to its main instruments.

In the case of **Colombia**, the law was enacted in 2018 (Función Pública, 2018). Although it does not expressly refer to the Paris Agreement, it does mention the United Nations Framework Convention on Climate Change (UNFCCC), to be developed within the framework of which the “Integrated Sectoral Climate Change Management Plans (PIGCCS) and refers to “instruments resulting from international climate change agreements ratified by Colombia.” It also mentions other instruments of the Agreement as part of climate change planning (Article 14) such as the Nationally Determined Contributions and National Greenhouse Gas Inventories.

As for the **Brazilian** law (Planalto, 2009b), since it predates the signature of the Paris Agreement, there is no express reference to it. However, it does refer to the UNFCCC and the Kyoto Protocol in article 6, recognizing the economic and financial instruments for climate change mitigation and adaptation. It also

mentions other instruments, such as the National Climate Change Plan, specific greenhouse gas emission reduction targets and financial instruments such as the creation of a Brazilian Emission Reduction Market (MBRE - by its acronym in Portuguese).

Finally, something similar occurs with **Guatemala**. Its law (Ministerio de Ambiente y Recursos Naturales de Guatemala, 2013) also predates the Paris Agreement. There is no explicit reference to the Paris Agreement, nor to the UNFCCC or the Kyoto Protocol, although the latter are mentioned in the recitals of the law. Notwithstanding this, the legislation is in line with the guidelines of this Agreement, regulating issues such as the carbon market, or the National Climate Change Adaptation and Mitigation Action Plan.

With respect to the subject covered in this section, the Paris Agreement is expressly mentioned in two of the five legislative instruments analyzed. In this regard, the three laws that do not mention it, somehow do refer to the United Nations Framework Convention on Climate Change, under which the Paris Agreement was developed, and two of the three laws that do not mention the Paris Agreement (Brazil and Guatemala) are prior to its adoption. However, all the instruments deal with some element contained in the Paris Agreement, as detailed in the preceding paragraphs. In this way, Latin America is positioned as a region with a broad integration of the Paris Agreement in the corresponding instruments that serve as the Framework Legislation on Climate Change. Similarly, there is a strong correlation and coincidence between the objectives of the Paris Agreement and the objectives of the Framework Legislation on Climate Change and, in some cases, an express subordination to certain instruments of the Agreement.

(b) Mitigation goals

The next step after the analysis of the integration of domestic and international law on climate matters in the framework of the legislative instruments that serve as the Framework Legislation on Climate Change is —without a doubt— the establishment of specific and binding greenhouse gas mitigation goals. In this regard, that countries have adopted different approaches and legal perspectives to establish specific and binding greenhouse gas emission mitigation targets.

Some countries, such as **Argentina** (Infoleg, 2019) and **Guatemala**, have not incorporated this aspect into their legislation, leaving the Legislative Branch, i.e., the representatives of citizens, out of this relevant aspect of climate policy. On the other hand, countries such as Chile, Brazil and Colombia have incorporated —in different ways— greenhouse gas mitigation goals into their legislative instruments that serve as the Framework Legislation on Climate Change.

First, in the case of Brazil, the law (Planalto, 2009b) incorporates the greenhouse gas emission reduction targets announced by the country at COP15, which consist of a reduction of between 36.1% and 38.9% of its projected greenhouse gas emissions by 2020. However, this goal was not updated in the framework of the law at a later date, thus becoming outdated in terms of time horizon, as well as in terms of ambition.

Next, **Chile's** case is paradigmatic and a model for the region in terms of setting greenhouse gas mitigation goals. This is because the Framework Legislation on Climate Change (Senado de Chile, 2022b) makes Chile the first country in Latin America to expressly establish the goal of carbon neutrality by 2050 through a national law. Article 4 clearly establishes from its very purpose the mitigation goal of the Republic of Chile, stating that "By the year 2050, greenhouse gas emissions neutrality shall be achieved". (Senado de Chile, 2022b). In this way, Chile stands out in terms of ambition incorporated in its Framework Legislation on Climate Change, in line with the provisions of the Paris Agreement.

Next, **Colombia** also presents relevant characteristics to be highlighted, as Law 1931/2018 (Función Pública, 2018) is the legislative instrument that incorporates greater precision in terms of incorporating ten-year goals. First, the emission goals for 2020, 2030, 2040 and 2050, the Law warns that the National Contributions are the commitments defined by Colombia to reduce greenhouse gas emissions but specifies

that the goals must be agreed with each sector before the Intersectoral Commission for Climate Change and with the participation of the Ministries that comprise the SISCLIMA. However, as mentioned above, the law stipulates that the goals must respect the 2020, 2030, 2040 and 2050 deadlines, as well as comply with a criterion of progressivity, as they must increase and be progressively more ambitious.

In summary, with respect to this section, the legislative instruments that serve as the Framework Legislation on Climate Change present a powerful opportunity for improvement in terms of setting harmonized, standardized and measurable greenhouse gas emission mitigation targets. In terms of best practices and lessons learned, it is worth highlighting (a) the short, medium, and long-term planning from Colombia's Law 1931 and (b) the degree of ambition in line with the Paris Agreement found in Chile's Framework Legislation on Climate Change when establishing the goal of carbon neutrality by the year 2050.

Table 6
Regulation of greenhouse gas emission targets in the framework legislation on climate change of the member countries of the Parliamentary Observatory on Climate Change

State	Regulation with targets	Time	Goal
Argentina			
Brazil	Yes	2020	36.1%–38.9% ^a
Chile	Yes	2050	Carbon neutrality
Colombia	Yes	2020, 2030, 2040, 2050	To be defined by the PEN
Guatemala			

Source: Prepared by the authors.

^a Referring to emissions projection for the year 2020.

Institutionalization of climate policy

In this section we will address the institutional design proposed by each Framework Legislation on Climate Change in order to organize and structure the management of climate change in each country.

In the case of **Argentina**, we can first identify as a tool derived from Law 27520 (Infoleg, 2019) the National Climate Change Cabinet, a national governance entity for the articulation and implementation of all climate change adaptation and mitigation policies. In addition, Argentine legislation establishes an Advisory Council for the National Climate Change Adaptation and Mitigation Plan, which is composed of representatives of environmental organizations, labor unions, indigenous communities, universities, academic and business entities, and representatives of political parties with representation in parliament. In this sense, Argentina has solid scientific consultation and comprehensive citizen participation, fostered by timely access to information, thereby building an institutional framework that allows for monitoring the implementation of policies related to climate action. Notwithstanding the above, it is noted that Argentina's Framework Legislation on Climate Change does not expressly mention any Climate Change Institute or Agency, nor does it have a public information system that identifies climate risks and vulnerabilities.

Brazil's law (Planalto, 2009b), in turn, establishes an institutional instrument called Interministerial Committee on Climate Change, which coordinates and monitors the National Climate Change Policy, to be reviewed prior to the preparation of the Multi-year Plans and revisions of the Sectoral Plans and those for the protection of biomes in regular periods of no more than two years. Also, the Brazilian climate policy counts on constant scientific consultation, since the Ministry of Science and Technology is in charge of coordinating the working group that prepares the estimates and improves the methodology for calculating the emissions projection, and even proposes, if necessary, the revision of the legislation underpinning the National Climate Change Policy. In addition, the Commission for the Coordination of Meteorology, Climatology and Hydrology Activities is in charge of gathering information on vulnerability and risks in the face of climate change. In contrast to the above, we can see that Brazil does not have a

Climate Change Institute or Agency, nor is there any official evidence that it promotes access to information or comprehensive citizen participation. There is also no record of the existence of a Climate Change Vulnerability Platform or strategies or measures on just transition.

With respect to Chile, the Council of Ministers for Sustainability and Climate Change is noted within the framework of the law (Senado de Chile, 2022b), which, among other measures, is responsible for monitoring the implementation of sectoral policies for climate change adaptation and mitigation, whose follow-up is carried out by the sectoral authorities responsible for their preparation. In addition, the law provides for the establishment of the Scientific Advisory Committee for Climate Change, which works together with the Ministry of the Environment to advise on the scientific aspects required, such as the elaboration, design, implementation and updating of climate change management instruments. The Chilean government has also promoted access to information in order to encourage citizen participation in the preparation, review and updating of climate change management instruments. It also has provincial plans for this matter. In addition, the Framework Legislation on Climate Change expressly regulates the creation of a Climate Vulnerability Platform, whose purpose is to serve as a national information system for adaptation, containing maps and information on the vulnerability of the national territory to climate change. However, Chile did not include in its Framework Legislation on Climate Change any reference to the creation of a Climate Change Institute or Agency or of strategies on just transition.

In relation to Colombia, the National Climate Change System (SISCLIMA) is recognized as the main instrument of the institutional scaffolding of the law (Función Pública, 2018), which is made up of state, private and non-profit entities for the management of policies, standards, processes, resources, plans, strategies, instruments and mechanisms to coordinate and articulate actions and measures to reduce greenhouse gases. SISCLIMA also aims to monitor the implementation of climate change responsibilities and commitments. Additionally, Colombia's law encourages citizen participation in the comprehensive and informed participation in the vulnerability and risks of climate change. Efforts are directed to the risks and vulnerabilities related to hydrometeorological and hydroclimatic phenomena and their modifications caused by climate change. To this end, the strategies for action and information gathering in this area should be articulated with the Integrated Climate Change Management Plans at the territorial, departmental and municipal levels. In that sense, the National Climate Change Information System is integrated into the Environmental Information System for Colombia in order to consolidate and publish information on climate change management, adaptation and vulnerabilities. However, Colombian law does not articulate its policies with scientific consultation nor it has strategies on just transition.

Guatemala's law establishes the **National Council on Climate Change**, chaired by the President of the Republic and with the participation of the various relevant ministries, and representatives of the business sector and civil society, as the main institutional coordination body for climate change management. This Council is responsible for monitoring the implementation of the standard, through the power to supervise the execution of actions and conflict resolution. The law also provides for the establishment of a National Climate Change Information System—which facilitates access to the information that the national government is obliged to provide—and the participation of all public sector entities dedicated to the study, research and scientific and technological applied to the preparation of different plans. Also, the law provides for the proactive participation of the population in the formation of the National Council. However, Guatemala's law does not design a Climate Change Institute or Agency, nor a platform or information related to vulnerability and risks to climate change. Similarly, the Guatemalan government has no just transition strategies or provincial plans established in its framework legislation.

Therefore, most countries have incorporated, through their framework legislation on climate change, an institutional scaffolding, which is continually strengthened by the feedback generated by interministerial and intersectoral coordination, comprehensive citizen participation and scientific consultation. The National Cabinet for Climate Change in Argentina or the Council of Ministers for Sustainability and Climate Change in Chile demonstrate the above. However, there is still a long way to go. For example, none of the developed countries have mentioned the development of just transition strategies, nor do they have a Climate Change Institute.

In conclusion, the trend of institutional strengthening in climate change is visible, which constitutes a positive outlook for the future with respect to climate change adaptation and mitigation.

(c) Economic and financial aspects and carbon pricing instruments

This section will address the economic and financial aspects of the region's framework laws on climate change as tools that enable the implementation of global climate change adaptation and mitigation measures, facilitating the flow of capital and resources for climate action.

In the case of **Brazil's** Framework Legislation on Climate Change (Planalto, 2009b), the 2018 decree (Planalto, 2018) regulates the operation of a National Climate Change Fund, which aims to obtain resources to support projects or studies and finance initiatives and contemplates as a payment tool for environmental services. It was also provided that in the preparation of the Multi-Year Plans and the Annual Budget Law, the Federal Administration will propose programs and actions to address the measures set forth in the decree, whereas adjustments to the programs and actions will be implemented during the preparation of the budget laws and the review of the Multi-Year Plan. Therefore, a mandate has been established to support the fund. In addition, as reflected in the section on Brazilian framework legislation on climate change, the following initiatives can be highlighted: specific lines of credit and financing to develop climate actions and activities; development of the Brazilian Emission Reduction Market; and the willingness to determine fiscal and tax measures to stimulate the reduction of greenhouse gas emissions, and others. In this sense, it is relevant to express that the Brazilian law has a proxy nature, from which it mandates the Executive Branch to advance the initiatives to facilitate the flow of capital towards low-carbon initiatives.

In the case of **Colombia**, these two main elements are worth mentioning. First, in relation to the emissions market, its Framework Legislation on Climate Change (Función Pública, 2018) recognizes the figure of the Tradable Greenhouse Gas Emission Quota. The quota is valid for one year and authorizes the holder to emit one ton of CO₂ or an equivalent amount of any other greenhouse gas. It also creates a National Program of Tradable Greenhouse Gas Emission Quotas (PNCTE) to auction some tradable quotas and to grant others to regulated agents, promoting a trading scheme of emission quotas in the market. In addition, the Law provides that the resources received by the nation as a result of auctioning tradable greenhouse gas emission quotas will be specifically remitted to the financing of policies that contribute to reduce the emission of these gases. On the other hand, the Law provides that the country, through the National Competitiveness, Science, Technology and Innovation System, will finance research on climate change, also establishing that 1% of what the General Royalties System allocates to the Science and Technology and Innovation Fund will be used for climate change mitigation and adaptation projects.

In this regard, **Chile's** Framework Legislation on Climate Change is also paradigmatic and a model (Senado de Chile, 2022), incorporating innovative elements such as the design of a Climate Change Financial Strategy, the regulation of greenhouse gas emission legislation and emission reduction certificates, and the establishment of a specific fund dedicated to financing actions within the framework of the law. Regarding the Climate Change Financial Strategy, Chile stands out by designing this strategy as the instrument that establishes "the main guidelines to orient the contribution of the public and private sector towards the consolidation of a greenhouse-gas neutral and climate resilient development" (ibid.), including within these guidelines measures aimed at, i.a., "promoting investments aimed at greenhouse-gas neutral and climate resilient development," "capacity building in climate finance in the public and private sectors" or "promoting the management of risks associated with climate change in the financial sector" (ibid.). Subsequently, a fundamental part of this legislation is the regulation of Greenhouse Gas Emission Standards and Certified Emission Reductions. The Framework Legislation on Climate Change establishes a set of greenhouse gas emission standards aimed at limiting and reducing emissions in key sectors of the economy. These standards apply to sectors such as energy, industry, transportation and

agriculture, among others. Some highlights of the regulation include (a) the establishment of quantitative emission reduction targets in each sector, which must be met within certain timeframes. These goals are based on scientific criteria and consider Chile's international commitments in the fight against climate change, (b) the establishment of clear obligations for companies and relevant actors in each sector, defining specific emission standards that must be met. This involves the implementation of clean technologies, the adoption of sustainable practices and the progressive reduction of emissions over time, and (c) the creation of monitoring and compliance mechanisms to ensure that emissions standards are effectively enforced. Players who do not comply with the established goals and standards are subject to sanctions and control mechanisms. In addition, the Framework Legislation on Climate Change also introduces the Certified Emission Reduction (CER) system, which aims to incentivize the reduction of emissions beyond the limits established by norms. In this sense, the law contemplates the creation of a carbon market in Chile, in which CERs can be bought, sold and transferred between different players. Finally, the law provides that the Environmental Protection Fund, established in Title V of Law No. 19300 (Biblioteca del Congreso Nacional de Chile, 1994), will be the body "responsible for financing specific mitigation and adaptation projects and actions that contribute to addressing the causes and adverse effects of climate change, taking into account the principle of territoriality" (Senado de Chile, 2022b). <https://www.bcn.cl/leychile/navegar?idNorma=30667&idParte=8640148><https://www.bcn.cl/leychile/navegar?idNorma=30667>.

Guatemala, like Brazil, has a series of financing mechanisms to be implemented through the creation of a National Climate Change Fund with the purpose of financing plans, programs and projects for risk management, vulnerability reduction, forced adaptation and forced mitigation, as well as the improvement of national capacities to face climate change, payment for natural services for carbon fixation, production and protection of water, protection of ecosystems, scenic beauty and others. Guatemalan law, in this sense, still has room for improvement for the constitution of a framework of economic and financial solutions that promote the transition to a resilient and low-carbon economy.

Finally, **Argentina** has not incorporated these aspects in its Law 27520 (Infoleg, 2019) and has opted to leave the budget appropriation necessary for compliance with the Law to the will of the Executive Branch.

To conclude this section, it is possible to indicate that although not all Latin American countries have incorporated financial and economic mechanisms into their climate legislation, we can perceive a multiplicity of tools and initiatives in different modalities and expressions, such as those related to the regulation of the emissions market and green taxes in Colombia and Chile, and those linked to the establishment of national climate change funds and payments for environmental services in Brazil and Guatemala. These tools, used separately or together, constitute good practices that can be used as a guide for future legislation in the region.

III. Final considerations and conclusions

Climate change poses significant challenges for states and communities worldwide, and Latin America and the Caribbean are one of the regions most affected by the climate and ecological crisis in the world. In this context, a comparative study of the legislative strategies adopted by eight countries in Latin America and the Caribbean in relation to climate change was carried out within the framework of the OPCC. The main objective of this report was to provide information on this topic to the different stakeholders through a comparative analysis of legislative strategies and best practices in the region.

First, the current state and contextualization of the climate change issue highlight the region's high level of exposure. Key economic sectors, such as agriculture and livestock farming, are highly exposed to the impacts of climate change in all Observatory member countries. Furthermore, the region is characterized by inequality, high levels of poverty and unstable economies. In this context, it was decided to undertake this work to analyze the legislative response of OPCC member countries to the challenge of climate change.

Based on the case studies carried out, it can be concluded that not all countries have a Framework Legislation on Climate Change, while those that do have one have different strengths and weaknesses, which provides opportunities for improvement at the regional level.

Among the main findings of this work, we can express that:

- The enactment of the framework legislation on climate change was supported by more than 70% of the legislators present at the time of voting, indicating a high degree of consensus and mainstreaming of the subject that transcends national borders.
- When analyzing the relationship between the scope of the legislation and the time of enactment of each law, there is no close correlation between the scope of each instrument and the year of its enactment. It is therefore impossible to assume that as the years go by, the enactment of more extensive and ambitious legislation will follow.
- The main axes on which the most comprehensive regulations are perceived are the general provisions, the integration of domestic law with the Paris Agreement, the institutional framework of climate policy, and the economic and financial aspects aimed at promoting the flow of capital towards low-carbon resilient economies. On the other hand, mitigation targets and the binding implementation of sectoral measures are aspects on which there is a legislative window of opportunity.

- In this sense, the legislative instruments that serve as the Framework Legislation on Climate Change in the region do not present a harmonious, standardized, measurable and ambitious approach in terms of setting greenhouse gas mitigation goals, presenting a powerful opportunity for improvement. This opportunity lies mainly in terms of (i) ambition of the goals and (ii) temporal structuring of the goals in short, medium, and long term horizons that respect the principle of progressivity in terms of the greenhouse gas mitigation goals of the countries analyzed.
- Most countries have incorporated an institutional scaffolding that is continually strengthened by the feedback generated by interministerial and intersectoral coordination, comprehensive citizen participation and scientific advice, as evidenced in institutional bodies such as the National Climate Change Cabinet in Argentina or the Council of Ministers for Sustainability and Climate Change in Chile. However, it can be affirmed that none of the countries analyzed has any mention of the development of just transition strategies, nor does it regulate the design and establishment of an institute or agency specialized in climate change.
- Although not all countries have incorporated financial and economic mechanisms into their climate legislation, we can perceive a multiplicity of tools and initiatives in different modalities and expressions that can serve as inspiration for future legislation, including in this sense and among others the regulation of emissions markets, the institution of specific funds dedicated to financing climate action or specific lines of credit and financing to develop climate change adaptation and mitigation actions and activities.

Consequently, it is important to emphasize that the region has innovative, ambitious and pioneering legislative experiences in terms of framework legislation on climate change. However, it is still necessary to promote the design and adoption of these instruments in countries that do not have them, as well as to improve and strengthen existing legislation. In this way, these regulations can provide a clear roadmap for decision-makers when establishing climate strategies, policies and measures, while prioritizing and avoiding setbacks in climate action by enshrining regulatory developments in law. Moreover, these norms can serve as a guide for decision making outside the public sector, encouraging actions by the private sector, science and civil society to build resilient, low-carbon economies and societies. In many cases, this can generate comparative advantages when it comes to receiving international funding for climate action.

In this context and in line with the Observatory's mission, this bulletin fulfills its objective of studying in a comparative manner the legislative strategies to address climate change and, therefore, provides information on this topic to the different social actors, including the Observatory's participants. The ultimate goal is for the region to have solid and robust legislative instruments that address the various aspects of the fight against climate change, taking advantage of the good practices that have emerged from comparative legislation. This implies the need to foster cooperation between countries, share good practices and learn from the experiences of other States, objectives that have been present since the origin of the Observatory.

Thus, advancing along this path of continuous improvement of framework legislation on climate change in Latin America and the Caribbean through the implementation of evidence-based legislation and public policies in line with best practices is an opportunity to strengthen the region's resilience to the impacts of climate change, promote sustainable development and improve people's quality of life. It is essential to take advantage of the identified opportunities for improvement and work together to strengthen existing legislation, promoting the adoption of more ambitious and effective measures in the fight against climate change.

Carrying out these actions will not only raise the region's climate ambition, design better climate change mitigation and adaptation measures, and promote sustainable finance, but also promote access to environmental information, justice and participation in environmental matters, and ensure greater legal stability. These measures will help to reduce the possibility of setbacks on the issue and provide a mandate for decision-makers to manage climate policy at the national level.

The challenge now is to take action.

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Climate change is a key issue on the parliamentary agenda in Latin America and the Caribbean, and its proper management can boost economic development and foster social inclusion in the region. Legislators belonging to the Parliamentary Observatory on Climate Change and Just Transition (OPCC) therefore requested their parliamentary teams, under the supervision of the Economic Commission for Latin America and the Caribbean (ECLAC) office in Brasilia, to prepare this document, which analyses the framework legislation on climate change in eight countries, selected according to criteria of diversity and representation in OPCC –Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, the Plurinational State of Bolivia and Uruguay– and highlights some good practices that offer opportunities for improvement. One of the conclusions drawn from a comparative analysis is that this type of legislation is generally enacted with a broad consensus, evolves over time, and tends to regulate institutional frameworks for climate policy and the economic aspects of climate change management. However, other elements appear less frequently, such as mitigation targets or comprehensive approaches to just transition strategies.