# National Adaptation Plan





Jefatura de Gabinete de Ministros Ministerio de Ambiente y Desarrollo Sostenible Secretaría de Cambio Climático, Desarrollo Sostenible e Innovación



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- the authorities, focal points and technical teams of the provincial governments and the Autonomous City of Buenos Aires (CABA), which work in coordination through the Provincial Articulation Roundtable,
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- United Nations Development Program (UNDP)

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#### Prologue

#### Alberto Fernández

#### **President of the Argentine Republic**

The time to act is now. Committed to its people and to the international community, and based on scientific evidence, the Argentine Republic has reaffirmed its commitment to the right to a healthy environment and to the consensus reached in the Paris Agreement, and has adopted climate action as state policy.

Although our contribution to global greenhouse gas emissions is significantly lower than that of more developed countries—they represent 0.7% of the total—we understand that we inhabit the same planet and that efforts must be twinned to respond to the threats that affect all the peoples of the world, based on the principle of common but differentiated responsibilities.

From this understanding, we have summoned our dear colleagues from Latin America and the Caribbean to coordinate regional and solidarity measures, and advance towards common objectives from a solid regional integration.

The price that our country pays for the impacts of climate change is high, both in its territory and in its social and productive structure. Our population, territories and infrastructures are enormously vulnerable to the consequences of climate change, in a framework of deep inequalities and unmet social needs that such impacts exacerbate and deepen.

These social needs, together with the economic restrictions we have, mean that the costs of climate action that we must face require international support. It is a reality that all countries in the Global South must grapple with when planning their responses to climate change. Unfortunately, today the flow of funds for climate action is far from sufficient.

This global crisis demands the renewal of the international financial architecture. Without it, it is impossible to make progress towards the goal we share among all countries.

We need the mobilization of concessional, non-reimbursable resources, channeled through multilateral and bilateral banking, with agile and transparent processes. We must incorporate payments for ecosystem services and debt-for-climate action swaps, and allocate new Special Drawing Rights, without discriminating against middle-income countries. Likewise, it is of the utmost importance to reconfigure the analyses of financial risk rating agencies, and to provide greater flexibility in terms, rates and conditions to deal with debts.

However, despite the obstacles our country faces in tackling this challenge, we have increased our climate ambition. We committed, through the Second Nationally Determined Contribution and its update, to limit our emissions to 349  $MtCO_2e$  by 2030, a 27.7% more ambitious target than the previous one. We are also committed to presenting our long-term low-emissions development strategy, with the aim of achieving carbon-neutral development by 2050.

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Likewise, aware of the needs of our people and territory, we committed ourselves to an adaptation goal by 2030, the year in which Argentine climate policy will have managed to

increase adaptive capacity, strengthen resilience and reduce vulnerability in the different local governments and social, economic and territorial sectors, incorporating the gender approach and intergenerational equity.

Understanding that the discussion on climate change and environmental degradation is also a discussion on social justice, human rights and global inequality, and always putting people first, we take on the challenge of designing, together with all sectors and actors, a roadmap towards integral, sustainable, resilient and low-emission human development in the coming years.

Society demands action from us. Especially the younger generations, who know that their present and future are at stake here. Scientific knowledge guides us towards the definition of that action. Listening to science, specialists and social demand, we approach the formulation of the National Plan for Adaptation and Mitigation to Climate Change.

This plan systematizes the national climate policy: the measures and instruments to be implemented from now until 2030 in order to comply with National Law 27520 on Minimum Standards for Adaptation and Mitigation to Global Climate Change and to achieve the goals assumed in the Second Nationally Determined Contribution and its update.

The National Plan for Adaptation to Climate Change outlines the path towards the just, supportive and inclusive transition to which this historic hour summons us. The Republic of Argentina, united, is committed to move through this time with more social and environmental justice.

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#### Juan Cabandié

#### **Minister for the Environment and Sustainable Development**

The climate agenda is an agenda of transformation, of the present and the future. It is also an agenda of territorial recognition, of the provinces and municipalities. It represents a responsible approach to the environmental, social and economic problems that affect us and that we must consider in order to achieve a just transition towards inclusive and sustainable development.

The challenge we face as Latin American and Caribbean countries is to define the point of convergence between socioeconomic development and a healthy environment. To generate a synthesis between production, the needs of our communities and the environmental challenges of our peoples. A discussion that necessarily implies a balance between the three pillars of sustainable development: economic, social and environmental.

This is the work that we carry out from the Ministry for the Environment and Sustainable Development from a federal perspective, seeking to enhance the capacities of each of our jurisdictions. We want to build a federal and participatory agenda and, therefore, we recognize the importance of multilevel work, which includes the national, provincial and local scales..

Much of the transformation to be achieved involves recognizing the need to leave behind the production and consumption habits that have been dominant during the last centuries. We have become accustomed to a model of production and consumption that is at odds with a sustainable world. A model that is at the same time profoundly unequal, in which the richest 1% of the population emits more than twice as much carbon as the poorest half of humanity. It is for this reason that Argentina raises in international forums the need for the central economies, mainly responsible for the climate crisis facing humanity, to finance the transition that our production systems need towards a sustainable mode and to accompany the efforts that countries like ours are already making.

Argentina is committed to climate action, as demonstrated with the update of the Second Nationally Determined Contribution made in 2021–27.7% more ambitious than the one presented in 2016–and with the inclusion of adaptation goals and reduction of vulnerabilities to climate change. It is with this very perspective that the National Plan for Adaptation to Climate Change was developed.

In a coordinated manner, the Ministry for the Environment and Sustainable Development is already making progress on a comprehensive set of environmental policies such as the creation of new national parks, the protection of biodiversity and our native forests, the strengthening of the circular economy and the modernization of the forest firefighting system, among other actions.

At the same time, we need measures that promote cultural changes, that is, that modify the set of knowledge, ideas, traditions and customs to face this challenge. This is why we promote the enactment of laws to institutionalize environmental education. Specifically, we sanctioned the Comprehensive Environmental Education Law, which is already implemented throughout the territory, and the Yolanda Law.

The consolidation of this plan and the measures that we promote from the Ministry for the Environment and Sustainable Development demonstrate once again that climate and environmental action is now.

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#### Cecilia Nicolini

#### Secretariat for Climate Change, Sustainable Development and Innovation Ministry for the Environment and Sustainable Development

Designing climate policy for our country entails thinking about the development model we want in the long term. A development that needs to be sustainable and inclusive, and that requires a paradigm shift in the way we consume and produce.

While the Secretariat for Climate Change is leading these transformations, everyone must be involved in this challenge. Because in order to be effective, to truly reach the territories, the transitions that we have to carry out must be faced collectively.

With this vision, we work from the National Climate Change Cabinet, bringing together different sectors of society, each with their own priorities and perspectives. This National Plan for Adaptation to Climate Change is the result of this articulation.

A novel highlight of the plan is that it puts adaptation policies at the center. We made this decision because we prioritize the social, economic, and environmental well-being of our communities. And also, because the adaptation agenda is an urgent issue for the Global South. Because of social vulnerabilities and economic constraints, our countries are more exposed to the risks of climate change. There, as in so many other areas, the inequality that pervades the planet is evident.

We believe that the way to turn those complexities and urgencies into growth opportunities is through strategic planning. Our country has enormous capacities that we can promote to face the climate crisis: wind potential in the south and solar in the north, conditions for the development of hydrogen, and trajectory in the peaceful use of nuclear energy, always under the highest safety standards.

However, to harness all this potential, we need financial mechanisms commensurate with the scale of the challenge. Today the flow of funds and the transfer of technology to implement the transitions, both in Argentina and in the region, are insufficient. That is why in each instance of global negotiation we reiterate the need to strengthen and expedite access to this type of resources.

The search for solutions to address the climate crisis requires, in addition to cooperation and consensus, a deeply economic debate, which contemplates the principle of common but differentiated responsibilities.

With its formal approval, this plan establishes our priorities as a country to mitigate emissions and adapt to the effects of climate change. This opens the way to a new challenge: to establish national and international financial instruments to implement its measures through scalable projects, which will strengthen the country's capacities and boost its transition towards sustainable development.

Climate action is a way to think and plan for a different future. A more equitable future that guarantees our right to our health and that of ecosystems. This plan is a contribution to build it. We have the potential to do it: with innovation, with a federal perspective and, of course, with social justice.

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## Acronyms and abbreviations

ACE	Action for climate empowerment
AFAC*	Association of Argentine Component Manufacturers (Asociación de Fábricas Argentinas de Componentes)
AFCI*	Family, peasant and indigenous agriculture (Agricultura familiar, campesina e indígena)
AFOLU	Agriculture, Forestry and Other Land Use
APN*	National Public Administration (except in section 5) (Administración Pública Nacional)
APN*	National Parks Administration (only in section 5) (Administración de Parques Nacionales)
AR2/AR5/AR6*	Second, Fifth and Sixth IPCC Assessment Report (Segundo, Quinto y Sexto Informe de Evaluación del IPCC)
BUR	Argentina's Biennial Update Report to the United Nations Framework Convention on Climate Change
CABA*	Autonomous City of Buenos Aires (Ciudad Autónoma de Buenos Aires)
CAE*	External Advisory Council (Consejo Asesor Externo)
CAMMESA*	Wholesale Electricity Market Administration Company, Inc. (Compañía Administradora del Mercado Mayorista Eléctrico S. A.)
CbA	Community Based Adaptation
CBD	Convention on Biological Diversity
CCAC	Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants
CCEGIRE*	Business Advisory Council on Disaster Risk Reduction and Emergency Management (Consejo Consultivo Empresarial en Reducción del Riesgo de Desastres y Gestión de la Emergencia)
CDM	Clean Development Mechanism
CIMA*	Center for Sea and Atmospheric Research (Centro de Investigaciones del Mar y la Atmósfera)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
UNFCCC	United Nations Framework Convention on Climate Change
CNEA*	National Atomic Energy Commission (Comisión Nacional de Energía Atómica)
CNM*	National Commission of Monuments, Places and Historic Assets
	(Comisión Nacional de Monumentos, Lugares y Bienes Históricos)
COFEMA*	Federal Environmental Council (Consejo Federal de Medio Ambiente)
CONADIBIO*	National Advisory Commission for the Conservation and Sustainable Utilization of Biological Diversity (Comisión Nacional Asesora para la Conservación y Utilización Sostenible de la Diversidad Biológica)

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CONAPIA*	Coordinator of National Organizations of Indigenous Peoples of Argentina (Coordinadora de Organizaciones Nacionales de Pueblos Indígenas de Argentina)
СОР	Conference of the Parties to the United Nations Framework Convention on Climate Change
CRED	Centre for Research on the Epidemiology of Disasters
CTA*	Technical Administrative Coordination of the National Cabinet on Climate Change (Coordinación Técnica Administrativa del Gabinete Nacional de Cambio Climático)
DNCC*	National Directorate of Climate Change (Dirección Nacional de Cambio Climático)
EbA	Ecosystem- based Adaptation
EFMCI*	Federal Strategy on Integrated Coastal Management (Estrategia Federal en Manejo Costero Integrado)
FAO	Food and Agriculture Organization of the United Nations
FREL	Forest Reference Emission Level
GHG	Greenhouse Gases
GGA	Global Goal on Adaptation
GGCA	Global Gender and Climate Alliance
GIR*	Comprehensive risk management (Gestión integral del riesgo)
GIS	Geographic information systems
GIZ**	German Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GNCC*	National Climate Change Cabinet (Gabinete Nacional de Cambio Climático)
I+D+i*	Research, development and innovation (Investigación, desarrollo e innovación)
IANIGLA*	Argentine Institute of Nivology, Glaciology and Environmental Science (Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales)
IAPG*	Argentine Oil and Gas Institute (Instituto Argentino del Petróleo y del Gas)
IAS	Invasive alien species
IMF	International Monetary Fund
INA*	National Water Institute (Instituto Nacional del Agua)
INAPL*	National Institute of Anthropology and Latin American Thought (Instituto Nacional de Antropología y Pensamiento Latinoamericano)
iNDC	Intended Nationally Determined Contribution
INDEC*	National Institute of Statistics and Census (Instituto Nacional de Estadística y Censos)
INGEI*	National greenhouse gas inventory (Inventario nacional de gases de efecto invernadero)

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INIDEP*	National Institute for Fisheries Research and Development (Instituto Nacional de Investigación y Desarrollo Pesquero)
IPCC	Intergovernmental Panel on Climate Change
IPCVA*	Institute for the Promotion of Argentine Beef (Instituto de Promoción de la Carne Vacuna Argentina)
IUCN	International Union for Conservation of Nature
IVSD*	Index of Social Vulnerability to Disasters (Índice de Vulnerabilidad Social frente a Desastres)
LEG	Least Developed Countries Expert Group
LGBTI+	Lesbian, gay, bisexual, transgender, transsexual, transvestite, intersex and any non-binary identity
L&D	Loss and damage
MAyDS*	Ministry for the Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible de la Nación)
MDB	Multilateral Development Banks
MGBI*	Forest management with integrated livestock (Manejo de bosques con ganadería integrada)
MINCyT*	Ministry of Science, Technology and Innovation of the Nation (Ministerio de Ciencia, Tecnología e Innovación de la Nación)
MSME	Micro, small and medium enterprises
MRV	Monitoring, review and verification
MTFS	Sustainable Finance Technical Roundtable (Mesa Técnica de Finanzas Sostenibles)
M&E	Monitoring and evaluation
NAP	National Adaptation Plan
NASA	National Aeronautics and Space Administration
NDC	Nationally Determined Contribution
NEA*	Argentine Northeast (Noreste argentino)
NOA*	Argentine Northwest (Noroeste argentino)
OECD	Organization for Economic Cooperation and Development
ONDTyD*	National Land Degradation and Desertification Observatory (Observatorio Nacional de Degradación de Tierras y Desertificación)
PA	Paris Agreement
PCN*	First National Communication from the Argentine Republic to the United Nations Framework Convention on Climate Change (Primera Comunicación Nacional de la República Argentina a la Convención Marco de las Naciones Unidas sobre Cambio Climático)

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PEN*	National Executive Branch (Poder Ejecutivo Nacional)
PIUP*	Industrial Processes and Product Uses (Procesos Industriales y Usos de Productos)
PNAyMCC*	National Plan for Adaptation and Mitigation to Climate Change (Plan Nacional de Adaptación y Mitigación al Cambio Climático)
PNRRD*	National Plan for Disaster Risk Reduction (Plan Nacional para la Reducción del Riesgo de Desastres)
PROTAAL*	Promotion of Employment, Rooting, and Local Supply (Promoción del Trabajo, Arraigo y Abastecimiento Local)
REDD+	Reducing emissions from deforestation and forest degradation in developing countries
RENAF*	National Registry of Family Farming (Registro Nacional de la Agricultura Familiar)
RENOAF*	National Registry of Family Farming Organizations (Registro Nacional de Organizaciones de la Agricultura Familiar)
RSU*	Urban solid waste (Residuos sólidos urbanos)
SAR*	Risk analysis systems (Sistemas de análisis de riesgo)
SAyDS*	Secretariat of Environment and Sustainable Development (Secretaría de Ambiente y Desarrollo Sustentable)
SCCDSel*	Secretariat for Climate Change, Sustainable Development and Innovation (Secretaría de Cambio Climático, Desarrollo Sostenible e Innovación)
SDG	Sustainable Development Goals
SDR	Special Drawing Rights
SENASA*	National Agrifood Health and Quality Service (Servicio Nacional de Sanidad y Calidad Agroalimentaria)
SES	Southeastern South America Sub-region
SFM	Sustainable forest management
SGAyDS	Secretariat of Government for the Environment and Sustainable Development (Secretaría de Gobierno de Ambiente y Desarrollo Sustentable)
SIMARCC*	Climate Change Risk Mapping System (Sistema de Mapas de Riesgo del Cambio Climático)
SINAGIR*	National System for Comprehensive Risk Management and Civil Protection (Sistema Nacional para la Gestión Integral del Riesgo y la Protección Civil)
SMN*	National Weather Service (Servicio Meteorológico Nacional)
SNC	Second National Communication from the Argentine Republic to the United Nations Framework Convention on Climate Change
SNICC*	National Climate Change Information System (Sistema Nacional de Información de Cambio Climático)

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UNDPUnited Nations Development ProgramUNDRRUnited Nations Office for Disaster Risk ReductionUNEPUnited Nations Environment Program

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WCMC World Conservation Monitoring Centre

WMO World Meteorological Organization

\* By its Spanish abbreviation / \*\* By its German abbreviation

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## **Executive summary**



Jefatura de Gabinete de Ministros Ministerio de Ambiente y Desarrollo Sostenible Secretaría de Cambio Climático, Desarrollo Sostenible e Innovación The National Adaptation Plan (NAP) is the adaptation component of the National Plan for Adaptation and Mitigation to Climate Change (PNAyMCC, by its Spanish abbreviation). The latter responds to the need of the Argentine Republic to face, in a coordinated and efficient manner, the enormous and urgent challenges of climate change, considering its three pillars of action: adaptation, mitigation and loss and damage. The PNAyMCC systematizes the national climate policy: it contains the set of measures and instruments to be implemented from now until 2030 in order to comply with Law No. 27520 (2019) on Minimum Standards for Adaptation and Mitigation to Global Climate Change and its regulatory decree No. 1030/2020. It is also the key document through which the country details the means and actions to be carried out to achieve the adaptation and mitigation goals detailed in the Second Adaptation Communication and the Second Nationally Determined Contribution (NDC) and its update, submitted by the Argentine Republic to the United Nations Framework Convention on Climate Change (UNFCCC) in 2020 and 2021, respectively.

The Argentine Republic recognizes the consensus among the international scientific community around the idea that human interference on the climate system generates already observable impacts and future risks to human and natural systems (IPCC, 2014).

#### 1. Methodological basis of the NAP

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The National Adaptation Plan (NAP) is the adaptation component of the National Climate Change Adaptation and Mitigation Plan (PNAyMCC), which structures climate action in Argentina into three interrelated and complementary pillars: adaptation, mitigation and loss and damage.

- Adaptation measures. Adaptation measures are considered to be "policies, strategies, actions, programs and projects that can prevent, mitigate or minimize damages or impacts associated with Climate Change and explore and take advantage of new opportunities from climate events" (Law No. 27520, 2019, art. 3).
- Mitigation measures. Mitigation measures are considered to be "actions aimed at reducing greenhouse gas emissions responsible for climate change, as well as measures aimed at enhancing, maintaining, creating and improving carbon sinks" (Law No. 27520, 2019, art. 3).
- Loss and damage. In general, they are defined as the residual costs that cannot be avoided through adaptation and mitigation—it should be noted that there is still no internationally agreed definition of this concept. In particular, the notion includes losses as "negative impacts for which remediation or restoration is impossible", and damages as "negative impacts for which remediation or restoration is possible" (UNFCCC, 2012, p. 3).

The way in which the NAP proposes climate action, as well as the methodology adopted for its elaboration, is based on the following concepts: adaptation-mitigation complementarity, multiexposure, cross-cutting and multisectorality, multiscalarity, integration of adaptation-mitigation-development, interdisciplinary and transdisciplinary, interculturality, science-policy linkages, monitoring, reporting, evaluation, ecosystem-based adaptation, and community-based adaptation.

In this context, the planning of the adaptation process is structured in four main work stages: 1) laying the groundwork and identifying gaps; 2) preparatory elements; 3) implementation strategies; and 4) monitoring, evaluation and reporting.

Within this framework, the approach was the result of a participatory methodology based on the co-construction of contents among representatives of the provinces and the Autonomous City of Buenos Aires (CABA, by its Spanish acronym), national ministries, Indigenous Peoples' representatives and civil society actors.

First, a preliminary assessment of threats and impacts by region was prepared, according to the data indicated in the Third National Communication of the Argentine Republic to the United Nations Framework Convention on Climate Change (TCN, by its Spanish abbreviation) and other available sources of information (SAyDS, 2015a; SGAyDS, 2019b). This assessment identified gaps and needs for the process of developing the adaptation component of the PNAyMCC and was submitted to the provincial technical teams for consideration.

It is important to clarify the regionalization used in this plan, since it is different from the one used in the TCN. In the PNAyMCC, the regionalization agreed upon in the framework of the Federal Environmental Council (COFEMA, by its Spanish acronym) was used. It groups the provinces into six regions: Argentine Northeast (NEA, by its Spanish acronym) (comprising the provinces of Entre Ríos, Santa Fe, Corrientes, Misiones, Chaco and Formosa); Argentine Northwest (NOA, by its Spanish acronym) (comprising the provinces of Jujuy, Salta, Tucumán, Catamarca and Santiago del Estero); Cuyo (comprising the provinces of Mendoza, San Juan, La Rioja and San Luis); Central (comprising the provinces of Buenos Aires, Córdoba, and CABA); Northern Patagonia (La Pampa, Neuquén, Río Negro), and Southern Patagonia (Chubut, Santa Cruz, Tierra del Fuego, Antarctica and South Atlantic Islands). However, the last two regions were unified into a single region called "Patagonia", resulting in five regions.

In relation to the assessment, chains of threats were developed, which focus on the expected changes in climate variables that lead to consequences in ecosystems and that may constitute threats to different units of analysis. The objective was to have an explanation of the causal relationships, congruent with the most updated scientific knowledge, detailing the links between climate signals (changes in climate variables resulting from climate change) and the potential impacts on ecosystems and urban and rural populations, in order to achieve a deeper understanding of the processes that cause climate risks.

Subsequently, the jurisdictions agreed on regional management priorities, based on the prior identification of provincial management priorities, not necessarily linked to climate change issues.

Then, for the characterization of climate risk, an adapted version of the risk chain elaboration methodology proposed in the Risk Supplement to the German Society for International Cooperation (GIZ, by its German acronym) Vulnerability Sourcebook (GIZ and EURAC, 2017) was followed. This makes it possible to qualitatively detail the different risk components graphically (hazard, vulnerability and exposure), to specify cause-effect relationships to facilitate understanding of the different risks, and to identify the adaptation measures needed to address them. It should be clarified that the qualitative description of the risk was

complemented and strengthened with data provided by the different areas of the national government, in order to gather quantitative aspects that would strengthen the assessment.



#### Figure ES 1. Risk chain structure

In this NAP, the units of analysis or exposed elements are the rural and urban population and ecosystems, which are the target sectors for adaptation measures as defined in Law No. 27520.

With regard to the definition of measures, adaptation was integrated into the various national planning bodies, identifying new measures or mainstreaming adaptation into existing measures. This process was carried out jointly with subnational and national sectoral representatives.

Finally, the methodology incorporates the monitoring and evaluation (MyE) stage of the NAP process, analyzing its progress, effectiveness and opportunities for improvement. Considering that the NAp is the adaptation component of the PNAyMCC, it was decided to design a single monitoring system for both mitigation and adaptation, recognizing the substantial difference between the two. In other words, mitigation refers to monitoring, review and verification (MRV), while adaptation refers to monitoring and evaluation (MyE). In this framework, for the elaboration of the monitoring system, a seven-step methodological path is proposed (GIZ and IISD, 2017), with a co-construction dynamic.

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#### 2. Regulatory framework and climate governance

Argentina has ratified several international conventions and agreements on climate issues, among them: the United Nations Framework Convention on Climate Change (UNFCCC), including its treaties such as the Kyoto Protocol and the Paris Agreement; the Convention on Biological Diversity; the United Nations Convention to Combat Desertification; the 2030 Agenda for Sustainable Development; and the Sendai Framework for Disaster Risk Reduction.

At the national level, on November 20, 2019, Law No. 27520 —Law on Minimum Standards for Adaptation and Mitigation to Global Climate Change—was enacted, which establishes the minimum environmental protection budgets to ensure adequate actions, instruments and strategies for mitigation and adaptation to climate change throughout the national territory. This law reaffirms the climate commitments assumed by the country at the international level and promotes the design and institutionalization of tools, instruments and actions to address the issue at the national and subnational levels. It provides, thus, a formal framework of institutional linkage for the development of any national, regional, or international document on climate change adaptation and mitigation. This includes the PNAyMCC (of which the NAP is an integral part) and jurisdictional response plans, to be designed, approved, and implemented by the provinces and the Autonomous City of Buenos Aires.

#### 2.1. National Climate Change Cabinet

The National Climate Change Cabinet (GNCC, by its Spanish abbreviation) is a collegiate body, chaired by the Chief of Cabinet of Ministers, whose purpose is to coordinate the different government areas of the National Public Administration (APN, by its Spanish abbreviation) and interjurisdictional, the Federal Environmental Council (COFEMA) and different actors of the civil society. The purpose of the GNCC is to design consensual public policies with a strategic view to reduce greenhouse gas (GHG) emissions, generate coordinated responses for the adaptation of sectors and actors in vulnerable situations to the impacts of climate change and, in particular, develop and implement the PNAyMCC. Specifically, through the GNCC, the aim is to design the national climate policy with technical solvency and through institutional and inter-agency agreements.

The GNCC constitutes the main coordination and articulation instance among the different government areas for the discussion and development of climate public policies. The internal working structure of the GNCC, as established by Law No. 27520 and Regulatory Decree No. 1030/2020, is organized into the Meeting of Ministers and its three Working Tables: the Focal Points Roundtable, the Provincial Articulation Roundtable, and the Expanded Roundtable (Law No. 27520, 2019; Decree No. 1030/2020, 2020).

#### 3. Diagnosis

#### 3.1. Analysis of risks associated with climate change

In order to define the scope of the adaptation component of this plan, the priority risks by region associated with regional development management priorities were selected jointly with the provinces and CABA.

#### **Risks present in all regions**

In all regions, the increase in the extent, occurrence and spread of fires constitutes a risk to the integrity of ecosystems. The probability of an increase in fires is related to the increase in the frequency and intensity of droughts and temperatures, but also to the probability of occurrence of ignition sources of anthropogenic origin. This risk is associated with vulnerabilities of different kinds, such as uncontrolled or inadequate burning as an agroecosystem management practice, together with insufficient knowledge of alternative practices. Woody communities that emerge after vegetation disturbances, such as degraded forests and abandoned plantations, also favor the spread of fire. Fire risk is also associated with institutional vulnerabilities, such as insufficient coordination between civil defense, environmental and production areas of the provinces and private actors to prevent, control and report fires; the lack or scarce implementation of fire management plans that are updated and include climate projections; and insufficient early warning systems and response capacity in the event of events. Finally, on an economic and financial level, fire risk requires a better distribution of resources among subnational jurisdictions for fire prevention, control and management.

The general decrease in water availability is a climate impact that is highly associated with the risk of reduced access to drinking water, which was identified in all regions. This affects both the rural and urban population and can lead to health problems. Restrictions in access to drinking water are related to vulnerabilities derived from the poor state or non-existence of water catchment and transport infrastructure; contamination of surface and groundwater or the existence of salinized or unsuitable water for consumption; insufficient resources and knowledge for the construction and maintenance of water catchment, storage and treatment systems, as well as scarce regulations or institutional framework for the integrated management of water resources. The vulnerability associated with competition for water use within the same watershed and the insufficient instruments to regulate urban expansion into areas with little feasibility of providing basic services also increase the risk of drinking water scarcity for dispersed rural and periurban populations.

In all regions, the risk of limiting hydroelectric generation due to a decrease in water availability is also identified, which is related to previous existing vulnerabilities, such as the insufficient diversification of electricity generation sources and the lack of provincial participation in national energy policies.

The risk of affecting the livelihoods of small, medium, family, peasant and indigenous producers was also identified throughout the country, although the climatic variables associated with the probability of this risk vary by region. In all regions, the risk of affecting

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producers' livelihoods is associated with the existence of different vulnerabilities. These include the lack of adequate technological development for small-scale agriculture and failures in the transfer of and access to existing technologies to producers; insufficient network organization and community participation; insufficient support for the transition to agroecology; degradation of productive land with the consequent loss of agroecological conditions; insufficient regulation and equitable access to land; and poor infrastructure for the transfer of supplies or national products. Likewise, vulnerabilities stemming from the inadequate consideration of ancestral, traditional, or local best practices are relevant, along with insufficient technological development or transfer; the inability to compete with large-scale companies (resulting in the weakening of regional supply chains), and the limited availability of financial tools with an adaptation focus.

#### **Central region**

In addition to the risks mentioned above for the entire national territory, the Central region presents other risks, which are detailed below. More frequent heavy rainfall events, rising sea levels and repeated storm surges and south storms are causes of flooding that translate into risk of loss of access to housing and adequate habitation. Susceptibility to this risk is increased by the construction of housing and infrastructure, as well as their spontaneous location, in areas at risk of flooding and along the shores of fluvial-marine environments. These situations usually occur in contexts of difficulty of access to urban land and/or in the framework of institutions with opportunities for improvement, both at the municipal and provincial levels, with deficiencies in territorial environmental planning and in urban and habitation planning and management (particularly low-income habitation), as well as in the management of the basic housing demands themselves. There is also insufficient knowledge, application, and regulations that take climate change into account in the design variables of infrastructure and housing.

Floods are also a cause of health risks for people, both because of the higher incidence of infections, the physical damage caused by these events, and their impact on the mental health of those affected

In rural populations and in poor urban and peri-urban neighborhoods, the temperature, humidity and rainfall conditions that favor the reproduction of the *Aedes aegyiptiy* mosquito also generate a health risk due to an increase in cases of dengue fever. This risk is especially present in areas of unplanned urban expansion—which occur in contexts of insufficient regulation and inequalities in access to land—, and is aggravated in conjunction with deficiencies in contingency and recovery plans for floods, and in general, in institutional situations with opportunities for improvement—both at the municipal and provincial levels— for territorial environmental management, planning, management and, especially, the integrated management of water resources. Another factor that increases susceptibility to damage is the insufficient internalization in the health area of the link between vectors and climate change. Similarly, insufficient prevention programs during inter-epidemic periods and control programs during epidemics constitute weaknesses in the response and adaptation capacity that increase vulnerability to this health risk.

Another risk to people's health and comfort occurs in urban centers in the region due to cuts in the supply of electricity during heat waves. Consumption increases during these periods, overloading the infrastructure of the transmission and distribution networks, which are already strained in the face of urbanization that is advancing at the same time as energy demands increase. These heat waves increase hospitalizations and deaths of the elderly, young children and people with chronic diseases (cardiovascular, renal, respiratory, hypertension, diabetes and obesity), people with disabilities and others in vulnerable situations: homeless people, indigenous peoples or other people living in precarious habitation. The low level of health care coverage and accessibility is an underlying vulnerability for this and the other health risks identified.

Sea level rise, storm surges and south storms affect port and coastal protection infrastructures in the Central region, generating risks of loss of sources of monetary income for various productive activities in the region that depend on port operations. Insufficient knowledge of specific climate projections for coastal areas (e.g., shoreline retreat, coastal erosion, sea level rise, storm surges, Sudestadas, other winds) and coastal defenses and port infrastructure designed without consideration of these climate projections are factors that increase the predisposition of some ports to be negatively affected. Productive activities that depend on infrastructure for transporting supplies and products are also exposed to losses when they are affected by the increasingly frequent rains and floods.

The predisposition for the aforementioned risks to have a negative impact is increased by the insufficient knowledge of local governments on integrated risk management and the adaptation approach in policies, initiatives and public works.

#### **Cuyo region**

As in other regions, institutional situations that constitute vulnerabilities to the risks described also affect Cuyo: insufficient early warning systems and capacity to respond to events; insufficient policies for the design and planning of urban drainage systems that consider climate change projections; difficulties for access to urban land and institutions with opportunities for improvement—both at the municipal and provincial levels—with deficiencies in territorial environmental planning and in urban and habitation planning and management (particularly low-income habitation), as well as for the management of the same basic housing demands; insufficient knowledge of local governments on comprehensive risk management and insufficient adaptation approach in policies, initiatives and public works in general. In addition, there are other particularly critical vulnerabilities in Cuyo: insufficient institutional framework for monitoring and controlling the use of water resources and insufficient institutional

#### Argentine Northeast region (NEA)

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The NEA region is affected by the risks previously identified as general for the entire territory of Argentina: the risk of affecting ecosystems due to an increase in the extension, occurrence and spread of fires; the risk of decreased access to drinking or safe water due to droughts; the risk of limitation in hydroelectric generation due to decreased water availability (the extreme downspouts of the Paraná River standing out in the NEA), and the risk of affecting the

livelihoods of small, medium, family, peasant and indigenous producers due to fires, desertification, floods and other threats. In the case of the NEA, artisanal fishermen are among the groups exposed to this risk. The vulnerabilities associated with these risks are also similar, and refer to biophysical aspects, widespread agricultural practices, situations related to infrastructure and habitation, transport and infrastructure, particular situations of the health system, socioeconomic and financial aspects, knowledge and technological problems and deficiencies at the institutional level.

The NEA also records a risk of loss of access to adequate housing and habitation associated with flooding. In this region, those caused by the rises in the Uruguay River stand out. In addition to the projected risk to the habitation, these floods put the health of the riparian population and the island population at risk due to physical damage, proliferation of infections and mental health referrals. The vulnerabilities associated with these health risks do not differ from those identified in other regions: insufficient capacity of primary health care centers (lack of supplies, lack of building conditions, skills and knowledge regarding the subject) and low level of health care coverage and accessibility.

Flooding also puts at risk the trafficability and physical connectivity of people and the transfer of supplies and services due to flooding or damage to routes and roads due to flooding, to which is added, in the NEA, a vulnerability associated with the insufficient strengthening of river transport that harms local and regional economies. In this region, extreme downstream and rising river events affect riverbanks as well as the livelihoods of populations dependent on these ecosystems.

#### Argentine Northwest region (NOA)

In addition to the risks already identified, shared with the other regions of the country, there are other specific risks in the NOA region. One of them is the risk of loss of sources of monetary income due to effects on tourism, which is an important component of regional economic activity. In the NOA region, the rise in temperature and heat waves could increase stress conditions, lack of comfort and the risk of heart disease, especially in individuals who are exposed to high temperatures and changes in altitude or who practice outdoor activities. In addition to high temperatures, other extreme events such as heavy rains, avalanches and fires are more frequent, which could redirect tourism flows, particularly in the critical season, with impacts on the sector's profitability, investment and employment.

For the same reasons, this region also includes the risk of loss of sources of monetary income due to a decrease in production caused by the health of workers during transportation or in outdoor work spaces due to exposure to extreme weather events or endemic diseases. In this case, the population mainly affected is that of rural areas. Insufficient epidemic prevention and control is a type of health vulnerability that influences the occurrence of this risk that affects the population in general, but for which the effect on workers in particular is analyzed.

These two risks are conditioned by vulnerabilities related to infrastructures, characteristics of the health system and institutional aspects that hinder the adequate prevention and management of climate events.

#### Patagonia region

Patagonia is affected by the risks already indicated for the rest of the Argentine regions and has some risks specific to the region. Among these, there is the risk of loss of access to housing and adequate habitation due to interphase fires, which would especially affect the population living in these areas. The climate threats that affect this risk are similar to those that put ecosystems at risk due to the occurrence of fires: droughts, heat waves, etc.

Vulnerabilities are also shared with the risk of affecting ecosystems due to the occurrence of fires, to which in this case is added the lack of awareness about the use of fire in areas bordering forests.

Two other risks identified in this region are: the risk of affecting the health and comfort of the urban and rural population due to lack of access to energy, and the risk of affecting the trafficability and physical connectivity of people and transfer of supplies and services due to flooding or damage to routes and roads. These two risks are highly conditioned by the occurrence of extreme events typical of the region, such as intense rainfall, snowfall and avalanches.

On the other hand, the Patagonia region registers the risk of loss of sources of monetary income due to effects on tourism activity. In this case, the magnitude of this risk is associated with the climatic threats of less snow and water availability.

These last three risks are associated with the existence of vulnerabilities related to habitation and infrastructure, such as insufficient maintenance and control of accesses, routes and roads or the existence of homes with precarious housing conditions. Regarding the institutional aspects, vulnerabilities related to the non-existence or insufficient implementation of contingency and recovery actions in the event of avalanches or avalanches can also be mentioned.

#### 4. Climate vision and goals

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The climate vision of a sustainable, inclusive and innovative Argentina by 2030, defined by consensus during the preparation of the Second NDC and the Second Adaptation Communication, is internalized in this plan and is here transformed into an action plan with concrete measures.

The vision was developed taking into account national circumstances as a starting point and based on the best available science and information. It also considers the principle of equity in the global effort, in line with the principle of common but differentiated responsibilities and respective capabilities.

Argentina submitted its Second Adaptation Communication through the Second NDC in December 2020. Within this framework, the country developed its National Adaptation Goal<sup>1</sup>, which coordinates key elements of climate policy in this area and contributes to the fulfillment of the Global Goal on Adaptation (GGA):

By 2030, Argentines will be aware of the adverse effects of climate change, the corresponding adaptation measures and will have built capacities that allow them to respond in solidarity to the urgent challenge of protecting the planet.

The climate policy of the Argentine Republic will have succeeded in increasing adaptive capacity, strengthening resilience and reducing vulnerability in the different local governments and social, economic and environmental sectors, through measures that, among others, will prioritize communities and social groups in vulnerable situations and will incorporate the gender approach and intergenerational equity. This process will be based on the best available scientific knowledge and could generate mitigation co-benefits, as appropriate.

All of this will be with a view to contributing to sustainable development, building a more equitable, just and supportive society and achieving an adequate response to climate change that is compatible with the objectives of the Paris Agreement (MAyDS, 2020, p. 48).

In order to operationalize the National Adaptation Goal and facilitate the monitoring of the progress of its fulfillment, a series of key dimensions, sub-dimensions, goals and indicators are identified that seek to address its first two paragraphs and that should be understood within the framework of what is established in the third paragraph. In this sense, the dimensions identified are: 1) perception of the impacts of climate change and adaptation measures; 2) social involvement; 3) reduction of vulnerability; 4) incorporation of communities and social groups in vulnerable situations, gender approach and intergenerational approach, and 5) generation of co-benefits. Thus, the proposed methodology for addressing the goal and evaluating its progress combines a variety of approaches, including quantitative and qualitative ones, the achievement of which will be verified through the fulfillment of 33 specific goals.

#### 5. Measures to address climate change

The NAP is structured around four cross-cutting approaches, four instrumental lines and six strategic lines. Each of them will be implemented through 196 measures to be carried out by the different portfolios of the National Executive Branch.

The cross-cutting approaches of the NAP are themes of the public agenda and social reality that cut across each of the climate policies, thus becoming the foundations for the implementation of climate change adaptation and mitigation measures. These approaches are: gender and diversity; comprehensive risk management; health; and just labor transition.

<sup>&</sup>lt;sup>1</sup> The National Adaptation Goal was established in section 7.2.1 of the Second Adaptation Communication of the Argentine Republic (p. 48); the one stated in section 5 of the NDC (p. 29) is incomplete.

Cross-cutting approach	Description
Gender and diversity	The gender and diversity perspective is based on the axes of sovereignty, habitability and care, which seek to promote interventions that transform gender gaps in climate policy. The sovereignty axis emphasizes the possibilities for cis heterosexual women and LGBTI+ to access and participate in decision-making on the use and control of natural and productive assets in their territories. The habitability axis focuses on the living conditions and quality of life of cis heterosexual women and LGBTI+ people in order to build dignified spaces and ways of life, with a view to gender equality and sustainability. Finally, the axis of care refers to the indispensable activities to satisfy the basic reproductive needs of people, which have historically been assigned to cis heterosexual women and LGBTI+.
Comprehensive risk management	Comprehensive risk management is a continuous, multidimensional, interdepartmental and systemic process for the formulation, adoption and implementation of policies, strategies, planning, organization, direction and execution aimed at reducing disaster risk and its effects. It includes risk awareness, prevention, mitigation, preparedness, warning, response, rehabilitation and reconstruction actions. This approach includes the practice of avoiding and mitigating disaster risk through systematic efforts aimed at the analysis and understanding of pressures, such as root causes (such as structural ones), dynamics (such as the social construction of risk) and unsafe conditions that consider the fragility and weaknesses of systems and hazards of any origin (natural, anthropogenic, socio-natural, biological, among others). In this way, it is possible to intervene in the global vulnerability and the degree of exposure of both populations and critical infrastructures with a specific objective: disaster risk reduction.
Health	The inclusion of health in the context of climate change takes into account the social and environmental determinants of health, which include physical, chemical and biological factors, such as air quality, water quality and availability, and exposure to toxins, as well as socioeconomic living conditions. Health is and will be affected by changes in climate through direct impacts, such as heat waves and droughts, and indirect impacts, such as respiratory and vector-borne diseases, and food and water insecurity. Thus, it is assumed that a complex and cross-cutting health perspective will be incorporated in order to address the public health and environmental challenges brought about by climate change. The "One Health" approach is essential to prevent and control events caused by climate change, given that the health of ecosystems is closely linked to that of people and human health is dependent on the balance in ecosystems. In this sense, it recognizes that the health of people, animals (domestic and wild), plants and the environment in general are closely linked and interdependent. Thus, its also important to note that the "One Health" approach is applicable at the community, municipal, provincial and national levels.
Just labor	Just transition is a roadmap that guides the actions of States, social actors and

## Table ES 1. Cross-cutting approaches



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Cross-cutting approach	Description
transition	international organizations in the transformation of societies and economies towards sustainable, low-emission and resilient development, centered on people and focused on the creation of supportive and inclusive policies that ensure social and environmental justice for all. Such an approach involves the adequacy of production systems and their impacts on the world of work, both formal and informal, as well as the changes in people's lives brought about by them. It includes the importance of social dialogue and tripartite work between government, business organizations, unions and social organizations, outlining common objectives. This axis also incorporates the relevance of decent work and sustainable jobs, the need for training and skills acquisition for new jobs, as well as the contributions of the circular, social and popular economy as tools available to achieve sustainable development. Implicit in this perspective is also a commitment to the protection of the most vulnerable groups and territories, and the health of working people. A just labor transition includes, in its foundation, both the importance of participatory social dialogue and the promotion of respect for and protection of fundamental labor rights. It also includes a coherent approach that guides the actions of the State and promotes sustainable macroeconomic, industrial and sectoral policies and the generation of conditions for the growth of green jobs.

For their part, the instrumental lines generate the enabling conditions for the effective implementation of the strategic lines and cross-cutting approaches. There are four such lines: financing for transition; institutional strengthening; research, development and innovation; and action for climate empowerment.

Instrumental linie	Description
Action for climate empowerment (ACE)	It consists of institutionalizing environmental education and culture as public policy. The ACE contributes to achieving the country's vision for the year 2030 and is composed of seven key components: education, training, awareness-raising, citizen participation, public access to information on environmental and climate issues, international cooperation and cultural transformation for climate action. This instrumental line is based on a series of international, regional and national agreements and regulations.
Financing for transition	It consists of the design and implementation of a set of actions aimed at promoting the financing of the climate action presented in the PNAyMCC, considering the management of information to facilitate the traceability of public investments in climate action; the strengthening and development of economic, financial and non-financial instruments; the coordination with the private sector, and the proposals to promote and align international financing with the objectives of the PNAyMCC.

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#### Table ES 2. Instrumental lines

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Instrumental linie	Description
Institutional strengthening	It involves promoting a solid system of polycentric and multi-scale governance for the design, management and implementation of effective climate action, with cross-cutting views and integrated and consolidated strategic visions in coordination with all actors and sectors.
Research, development and innovation	It consists of promoting active research, development and innovation (R+D+I) policies in relation to climate change. The incorporation of innovation as a transversal axis in climate policy will be the basis for deepening and accelerating—through projects, disruptive actions and the development and transfer of technologies—the achievement of global climate action objectives.

Finally, the strategic lines of the NAP are aimed at promoting development that is resilient to the effects of climate change and represent the central axes for achieving national commitments. The six strategic lines of the NAP contain a series of action guidelines under which the measures designed in this plan are grouped. These lines are: conservation of biodiversity and common goods; sustainable management of food systems and forests; sustainable mobility; sustainable and resilient territories; energy transition; and productive transition.

Strategic line	Description
Conservation of biodiversity and common goods	The biodiversity of the national territory is the basis for most human activities. It is also the basis for a wide variety of ecosystem goods and services (climate regulation, $CO_2$ fixation, recovery of soil fertility, flood mitigation and other adverse effects of climate change, and even waste decomposition). This line seeks to promote the conservation of biodiversity and other common goods at all levels in the face of the impacts of climate change and human action. It also aims to promote and strengthen the role of ecosystems in GHG mitigation and sequestration, together with the services provided for climate change adaptation, based on ecosystem-based approaches.
Sustainable management of food systems and forests	Safeguarding food sovereignty and security and reducing the vulnerability of agricultural, fishing, forestry and agroindustrial production systems to the impacts of climate change is a fundamental priority. Climate actions related to these productive sectors are designed and implemented considering the significant contributions they make to the national GDP. In addition, the country adopts policies for the conservation, restoration, recovery and sustainable management of native forests, in order to promote the inclusive development of local communities in harmony with natural resources and guarantee the preservation of ecosystem goods and services in forests.

#### Table ES 3. Strategic lines

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Strategic line	Description
Sustainable mobility	The transportation sector is a fundamental pillar of climate policy, whose actors are committed to implementing measures to reduce GHG emissions generated by the activity and to adapt its infrastructure and operation. Promoting sustainable mobility requires a systemic and detailed analysis, which takes into account the particularities of the management and planning of mobility and transport subsystems (distinguishing types of demand and scale of flows) and promotes an introspective review of each, as well as dialogue between them. These criteria are based on the "avoid-change-improve-adapt" approach. The implications of this approach transcend the sector and seek to maximize the positive impact on national and regional industrial development, reducing structural socioeconomic differences and improving the quality of life.
Sustainable and resilient territories	The aim is to strengthen infrastructure and territorial development to favor adaptation and minimize exposure to current and future climate risks. This requires policies that incorporate climate change criteria in the planning and execution of public works; contribute to the consolidation of inclusive, compact, resilient and biodiverse cities; promote access to water and sanitation services, both for the population and for productive systems; and promote actions and instruments for territorial and environmental planning, considering the improvement of habitability, energy efficiency and the possible impacts of climate change on the development of cities.
Energy transition	The decarbonization of the energy matrix as a long-term goal implies a structural change in energy supply and use systems. The energy transition, driven by the demand for climate action, must be fair, affordable and sustainable. For the decarbonization path of the Argentine energy matrix to be virtuous and sustainable over time, it must be based on the country's technological and productive capacities, considering its macroeconomic possibilities, its energy resources and its social context, promoting the active participation of the provinces and local actors in the process. Thus, mitigation and adaptation to climate change will be planned in harmony with energy security, just transition, economic and techno-industrial development.
Productive transition	This strategic line involves structural changes in the modes of consumption and production in a context of national and global economic recovery. In this sense, it aims to integrate the macroeconomic, social and environmental components, implementing policies and improvements in the competitiveness of national productive development that are focused on sustainable production, accompanied by active financing policies and oriented to industry 4.0 (interconnectivity, automation and availability of data in real time). All of this is aimed at promoting production chains that are resilient to climate variations and changes in market conditions.

Each strategic line, cross-cutting approach and instrumental line is made up of lines of action. They group measures by particular theme according to the definitions previously detailed. The measures, within the framework of this plan, represent the policies designed by the different ministries of the national government that will be implemented between now and the year 2030.

The measures define a roadmap to achieve the reduction of at least one of the previously identified risks, the treatment of possible effects (economic or non-economic) derived from climate change, the generation of instruments that have a broad impact on national climate policy or to ensure the implementation of cross-cutting approaches.

Each measure that makes up the PNA details (through a worksheet) its scope, goals, monitoring indicators, budget, financing sources, execution period, application instruments, barriers and needs for implementation, application areas, the link with Law No. 27520 and, in the case of measures that respond to a strategic line, the analysis through a cross-cutting approach.

The cross-cutting approaches will have specific strategies detailing the policies to be implemented to ensure their implementation. The following table shows the instruments to be developed, the lines of action and the amount of measures included in this plan.

Cross-cutting approach	Strategy	Line of action	Number of measures	
		Institutionalization of policies and training in gender and diversity perspective		
		Planning and budgeting with a gender and diversity perspective		
Gender and diversity	National Strategy on Gender, Diversity and Climate Change (in preparation) National Plan for Disaster Risk Reduction	Mechanisms for the participation and decision making of cis heterosexual women and diversities in strategy formulation	Measures in progress	
		Technical-professional training and labor inclusion of cis heterosexual women and LGBTI+ in strategic sectors		
		Financing of projects with a gender perspective		
Comprehensive risk management		Analysis of climate impacts and risks in the different geographic environments of the national territory		
		Strengthening of the actors involved in National System for Integrated Risk Management (SINAGIR, by its Spanish		

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## Table ES 4. Cross-cutting approaches and their strategies, lines ofaction and measures

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Cross-cutting approach	Strategy	Line of action	Number of measures	
		acronym)		
		Mainstreaming comprehensive risk management in national climate policy		
Health	National Health and Climate Change Strategy	Strengthening health sector governance to address climate change challenges		
		Strengthening the health system in the face of climate change	16	
		Mainstreaming health into national climate policy		
	In process of delineation	Political coherence and strengthening of social dialogue for the achievement of a just transition	15	
Just labor transition		Development of job skills and job retraining for new jobs		
		Occupational health and safety and social protection		
		Equal opportunities for access to new jobs that may be generated in the transition and respect for labor rights		

The instrumental lines, as well as the cross-cutting approaches, will have their own strategies for the generation of tools that contribute to the implementation of the rest of the national climate policy. The following table shows the linked documents, lines of action and measures present in the NAP.

## Table ES 5. Instrumental lines and their strategies, lines of action or components and measures

Instrumental Line	Strategy	Line of action or components	Number of measures
Action for climate	National Climate	Access to public information	Measures
empowerment	Action Strategy (in	Education	in progress

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Instrumental Line	Strategy	Line of action or components	Number of measures	
	preparation)	Training		
		Awareness-raising		
		Public participation		
		Culture		
	National Strategy	Mainstreaming climate change criteria in resource management decision making		
Financing for	for Sustainable Finance (in	Mobilization and management of resources for climate action	11	
transition	preparation)	Innovative mechanisms		
Institutional strengthening	In process of definition	Updating and adaptation of regulations	15	
		Multi-level and multi-actor governance		
		Strengthening of technical and management capacities		
		Prospective planning processes		
	In process of definition	Generation of climate information		
Research, development and innovation		Orientation of research agendas		
		Promotion of innovative solutions	- 11	
		Transfer and extension of knowledge and technologies		

Finally, a table is presented with the six strategic lines, their lines of action and the number of total measures.

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# Table ES 6. Strategic lines and their strategies, lines of action and measures

Strategic line	Line of action	Number of measures	
	Sustainable use of biodiversity		
	Increase in the area allocated to conservation		
Conservation of biodiversity and	Increased connectivity at landscape level	39	
common goods	Adaptive ecosystem management		
	Ordenamiento ambiental del territorio		
	Ecosystem restoration and conservation		
	Soil conservation		
	Production efficiency and diversification		
Sustainable management of food	Agroforestry and fisheries climate risk management		
systems and forests	Integrated management of agroecosystems	25	
	Production traceability mechanisms		
	Deforestation reduction		
	Relocation and population rooting		
	Adaptation of transport infrastructure and operation to climate change		
	Development of sustainable mobility at the urban level		
Custainable mobility	Strengthening of the railway system		
Sustainable mobility	Hierarchization of waterways	5	
	Reduction of emissions from Argentine aviation		
	Progressive replacement of fossil fuels		
	Efficient use of energy in the		

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Strategic line	Line of action	Number of measures
	transportation sector	
	Tools for waste and effluent management	
	Sustainable infrastructure and equipment	
Sustainable and resilient territories	Territorial planning and comprehensive management of water resources	23
	Sustainable housing	
	Development of national technological capabilities	
	Energy efficiency	
	Clean energy in GHG emissions	
Energy transition	National strategy for the development of hydrogen	17
	Gasification	
	Energy system resilience	
	Energy development planning and monitoring	
	Development of national value chains	
	Sustainable design and process innovation	
Productive transition	Climate risk management	14
	Productive resilience	
	Circular economy	

The worksheets of each one with the detail of all the measures can be consulted in Annex 1.

### 6. Monitoring system

The establishment of a monitoring system for PNAyMCC measures has several objectives. Firstly, to make visible the actions that are being carried out, in accordance with the periodic reporting commitments to the UNFCCC and those at the national level. Secondly, to use and take advantage of the monitoring system for learning and management improvement; that is,





to observe and measure whether what is being done through the NAP effectively leads to the adaptation goals committed to in the Second Adaptation Communication or whether, on the contrary, it is necessary to modify the lines of action or measures. In this way, monitoring facilitates planning and decision making.

It should be clarified that, in the context of the PNAyMCC, a joint monitoring system for mitigation and adaptation is being designed. Although at the international level slightly different terms are used for mitigation and adaptation monitoring, it was decided to unify languages and concepts in order to arrive at a simple monitoring plan and, above all, a feasible implementation plan.

The monitoring system is based on the following pillars:

- The monitoring system respects and takes as a basis for all its actions Law No. 27520 on Minimum Standards for Adaptation and Mitigation to Global Climate Change and is inserted in a clear, concrete and transparent way to the context of adaptation and mitigation in Argentina.<sup>2</sup>
- The monitoring system seeks articulation with other information or monitoring and evaluation systems corresponding to different agencies of the national government.
- The monitoring system will be part of the National Climate Change Information System (SNICC, by its Spanish acronym).
- Within the framework of the GNCC, the participatory instances of jurisdictions, key actors and sectors such as the national scientific-technological sector will be promoted for the design and implementation of the system, thus achieving a process of continuous feedback and review.
- The National Directorate of Climate Change (DNCC, by its Spanish abbreviation) will seek to provide the system with specific and sustained funding over time for its proper functioning in terms of stakeholder participation, data collection, interpretation and synthesis of information, report writing and updating processes.
- The monitoring system will ensure the dissemination and communication of progress or results in a transparent manner.
- The monitoring system is flexible, with a view to continuous development and improvement, based on national capacities and resources available for such purposes.

Considering that the NAP is the adaptation component of the PNAyMCC, for which a joint monitoring system for mitigation and adaptation is being designed, the purpose of the monitoring system is set out below:

The monitoring system of this plan shows the degree of progress and results of Argentina's adaptation and mitigation goals assumed in its Second NDC and of the adaptation and mitigation measures included in the PNAyMCC.

<sup>&</sup>lt;sup>2</sup> Article 27 of Law No. 27520 states, "The Executive Branch, through the competent agencies, shall incorporate into the annual report on the environmental situation, created by Article 18 of Law No. 25675 (General Environmental Law), an analysis and evaluation of the measures implemented and to be implemented within the framework of the National Plan for Adaptation and Mitigation to Climate Change" (Law No. 27520, 2019).

Through the lessons learned during its implementation, the monitoring system ensures the continuous improvement of national climate policy management, facilitating planning and decision-making.

In addition, the monitoring system allows the communication or dissemination of progress and results in a transparent manner.

In the NAP monitoring system, it was decided to monitor two major components, according to their purpose:

On the one hand, progress will be measured and, where possible, also the results with respect to the National Adaptation Goal established in the Second Adaptation Communication and the regional goals established in this plan.

In this case, a set of indicators will be formulated to give an idea of the progress and results of the goals established until 2030.

On the other hand, progress will be measured and, where possible, the results of adaptation measures implemented in the different sectors, which are an important part of the NAP.

For this second component of the monitoring system, indicators of progress or results of the measures included in the NAP will be used. Initially, existing indicators will be monitored and progressively new ones will be identified, developed and quantified, taking into account that both the monitoring system and the NAP are dynamic and evolve over time.

#### 7. Resources required

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The diverse nature of the proposed action measures, how they interweave with cross-cutting actions, and the multitude of sectors and actors involved over various time frames pose the challenge of providing an immediate and simple answer to the cost of their implementation. However, some global values of the resources required—calculated at the date of writing of this document—for the six strategic lines identified can be presented. Although these are broad values that need to be thoroughly analyzed when implementing the measures, estimating them is highly valuable to anticipate the scale of required efforts and identify opportunities to secure this financing.

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## Table ES 7. Estimated costs by strategic line

<b>Strategic line</b> (123 total measures)	Cost in millions of dollars	Percentage of measures with associated cost	Number of measures with associated cost/total
Conservation of biodiversity and common goods	26,062.10	82.05	32/39
Sustainable management of food systems and forests	6,160.38	88.00	22/25
Sustainable mobility	350.00	100.00	5/5
Sustainable and resilient territories	117,737.62	73.91	17/23
Energy transition	73,559.10	70.59	12/17
Productive transition	8.97	35.71	5/14
Total	223,878.17		

# Table ES 8. Estimated costs of adaptation measures by strategicline of action

<b>Strategic line</b> (72 total measures)	Cost in millions of dollars	Percentage of measures with associated cost	Number of measures with associated cost/total
Conservation of biodiversity and common goods	148.07	86.36	19/22
Sustainable management of food systems and forests	6,109.20	93.33	14/15
Sustainable mobility	350.00	100.00	5/5
Sustainable and resilient territories	114,909.45	82.35	14/17
Energy transition	4,004.80	66.67	2/3
Productive transition	5.69	30.00	3/10
Total	125,527.21		

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# I National Adaptation Plan



Jefatura de Gabinete de Ministros Ministerio de Ambiente y Desarrollo Sostenible Secretaría de Cambio Climático, Desarrollo Sostenible e Innovación

#### Introduction

The **National Adaptation Plan (NAP)** responds to the need of the Argentine Republic to face, in a coordinated and efficient manner, the enormous and urgent challenges presented by the effects of climate change. This is presented in accordance with the Cancun Adaptation Framework adopted by Decision 1/CP.16 at the 16th Conference of the Parties to the UNFCCC, and as mandated in Article 7.9 of the Paris Agreement.

The formulation of this plan takes place within the framework of the preparation of the **National Plan for Adaptation and Mitigation to Climate Change (PNAyMCC)**, developed in compliance with Law No. 27520 (2019) on Minimum Standards for Adaptation and Mitigation to Global Climate Change and its regulatory decree No. 1030/2020. The PNAyMCC systematizes national climate policy, addressing in a comprehensive and complementary manner the three pillars of climate policy: adaptation, mitigation and loss and damage. Therefore, adaptation policies were formulated taking into account synergies, parallels and trade-offs with mitigation, thus achieving a comprehensive approach.

The PNAyMCC contains both the set of measures and instruments to be implemented from now until 2030 and the detail of the means and actions to be carried out to achieve the adaptation and mitigation goals detailed in the Second National Determined Contribution (NDC) and its update, submitted by the Argentine Republic to the United Nations Framework Convention on Climate Change (UNFCCC) in 2020 and 2021, respectively. In particular, the NAP is the adaptation component of the PNAyMCC and indicates actions to advance the fulfillment of the National Adaptation Goal presented in the Second Adaptation Communication, included in the last NDC.

The development of the NAP was carried out under the understanding of adaptation process planning as a continuous, progressive and iterative process, whose formulation is based on regional development priorities. Thus, adaptation planning is part of a development policy and, therefore, seeks to coordinate with the country's sustainable development policies, plans, programs and objectives.

In line with the above, the courses of action that are established at the national level will contribute to the global efforts that have been agreed within the UNFCCC. Considering that the Parties of this multilateral space have paved the way to advance in the global adaptation process, through the formulation and implementation of National Adaptation Plans as a way to facilitate adaptation planning in developing countries, Argentina makes its contribution by presenting this NAP.

The NAP is organized into seven sections:

- Section 1: The conceptual and methodological bases adopted for the preparation of this plan are addressed.
- Section 2: The background regarding the international and national legal framework, the governance scheme and the state of play of the country in the international framework of climate agreements is explained.

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• Section 3: Climate hazard and risk analysis in Argentina is indicated.

- Section 4: The country's 2030 climate vision is presented along with the guiding principles that guide the design and implementation of this plan and its goals.
- Section 5: Contains the adaptation measures presented by the different areas of the National Executive Branch (PEN, by its Spanish acronym).
- Section 6: The characteristics of the monitoring system of this plan are exposed.
- Section 7: The resources necessary to carry out this plan are indicated.

The definition of the structuring axes of the present plan, as well as the measures reported here, have been the result of a broad participation process given in the framework of the National Climate Change Cabinet (GNCC), led by its Technical Administrative Coordination (CTA, by its Spanish abbreviation), carried out by the Secretariat for Climate Change, Sustainable Development and Innovation (SCCDSeI) of the Ministry for the Environment and Sustainable Development (MAyDS) as defined in Law No. 27520 (2019) and its regulatory decree (Decree No. 1030/2020, 2020).

The federal nature of climate policy requires joint and coordinated work between the national government, subnationals and local authorities in order to provide responses that are, at the same time, adequate to the climate emergency and representative of the various socio-environmental and economic realities. Thus, different instances were carried out that led to the definition and validation of the PNAyMCC, which includes the present plan. They took place from February 2021 to October 2022 and involved the participation of representatives of the different PEN portfolios and subnational governments, Indigenous Peoples' representatives and civil society actors.

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### Section 1 Conceptual and methodological bases

#### 1.1. What is climate change?

The climate system depends on the balance between several factors, both internal to the system itself and exogenous. The internal factors respond to the dynamics that occur between the atmosphere (the gaseous layer that envelops the Earth), the hydrosphere (fresh and salt water in a liquid state), the cryosphere (water in a solid state), the lithosphere (the soil) and the biosphere (the set of living beings that inhabit the Earth). The interactions between them give rise to the biogeochemical cycles of water, carbon, oxygen, nitrogen, among others, which contribute to the distribution of elements throughout the globe. External factors include solar radiation and the cycles of the Earth's orbit.

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Solar radiation reaching the Earth is absorbed by the continental zones and the oceans. A fraction of it returns to the atmosphere in the form of infrared energy and momentarily retained by water vapor and gases, whose presence is determined by the cycles mentioned above. These gases can be of both natural and anthropogenic origin, such as carbon dioxide ( $CO_2$ ), methane ( $CH_4$ ) and nitrous oxide ( $N_2O$ ). Certain gases are emitted exclusively by human activity, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride ( $SF_6$ ), among the most important. Some of this energy is then radiated back to Earth, contributing to the warming of the surface and the lower part of the atmosphere.

This natural phenomenon is called the greenhouse effect, and the gases that have the property of absorbing and re-emitting radiation are called greenhouse gases (GHG). Thanks to the greenhouse effect, the Earth's average temperature is around 15 °C (NASA, 2022), which makes life, as we know it, possible. Otherwise, the average temperature of the Earth's surface would be below the freezing point of water (IPCC, 2007).





Source: SAyDS (2019a).

It should be mentioned that each of these gases has a different heat retention capacity, since they do not all absorb infrared radiation in the same way, nor do they all have the same average lifetime in the atmosphere. This property is measured by the global warming potential (GWP), which uses  $CO_2$ —whose GWP is determined to be equal to 1—as a reference for measuring other GHGs. The higher the GWP produced by a gas, the greater its capacity to retain heat in the atmosphere.

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#### Table 1. Greenhouse gases

Gas	Emitting source	Persistence of molecules in the atmosphere (years)	Global Warming Potential (GWP). Time horizon: 100 years
CO <sub>2</sub> Carbon dioxide	Fossil fuel burning, changes in land use, changes in land use, cement production.	Variable	11
CH <sub>4</sub> Methane	Fossil fuel burning, agriculture, livestock, waste management.	12±3	21
N₂O Nitrous oxide	Fossil fuel burning, agriculture, livestock farming, land use changes	120	310
PFC Perfluorocarbons	Production of aluminum, solvents and fire fighting products.	2600 - 50,000	6,500 - 9,200
HFC Hydrofluorocarbons	Refrigeration and air conditioning, fire fighting products and aerosols.	1.5 - 264	140 - 11,700
SF <sub>6</sub> Sulphur hexafluoride	Thermal insulators	3,200	23,900

Source: IPCC (1995).

The UNFCCC defines climate change as a change in climate, attributed directly or indirectly to human activity, that alters the composition of the global atmosphere and that adds to the natural climate variability observed over comparable periods of time (UNFCCC, 1992).

Since the Industrial Revolution, anthropogenic activities related to the burning of fossil fuels, industrial processes, urban waste generation, agriculture, livestock and deforestation have increased exponentially. All these activities have caused the concentration of GHGs in the atmosphere to increase considerably, reinforcing the natural greenhouse effect and contributing to global warming. According to the Intergovernmental Panel on Climate Change (IPCC, 2018), current concentrations of  $CO_2$ ,  $CH_4$  and  $N_2O$  record values unprecedented in the last 800,000 years.

Consequently, the global surface temperature has increased by 1.09 °C between the period 1850-1900 and the period 2010-2019. The record of this increase is evidence that the warming of the climate system is unequivocal—as stated in the conclusions of the contribution of Working Group I to the Sixth Assessment Report (AR6) (IPCC, 2021)—and removes the possibility of doubt about human influence on climate.

The increased energy retained by GHGs and the associated warming cause alterations in the natural cycles that regulate the main climate variables, such as temperature and precipitation, modifying climate patterns in all regions of the world. Such modification causes the essential climatic variables to tend to increase or decrease compared to the historical average value, making it necessary to analyze recurrence over time.

There is a consensus among the international scientific community that human interference with the climate system generates already observable impacts and future risks for human and natural systems. The most significant in natural physical systems correspond to changes in precipitation, alteration of hydrological systems, rise in sea level and temperature, warming of the oceans, melting, loss of glaciers and effects on runoff. In terms of biological systems, many terrestrial, freshwater and marine species have changed their geographic range, seasonal activities, migratory patterns, abundances and interactions with other species (IPCC, 2014).

With respect to human systems, climate change directly impacts both the population and economic activities. Extreme weather events such as droughts, floods, cyclones and forest fires have impacts such as water and food shortages, damage to infrastructure and settlements, displacement, morbidity and mortality. In a large number of regions, climate change has had negative impacts on crops. In particular, the productivity of maize and wheat crops has been affected and, to a lesser extent, that of rice crops. For the regions of Central and South America in particular, the impacts that the IPCC attributes to climate change with medium and high levels of certainty are glacier melting, impacts on water systems, impacts on food production, and impacts on households, health and livelihoods.

It should be noted that, although there is no region of the planet that is exempt from the impacts of climate change, they do not affect all populations in the same way. Quite the contrary, they exacerbate existing inequalities, increase the conditions of vulnerability of the poorest groups and, in particular, of women, children, cis heterosexual LGBTI+ and Indigenous Peoples (IPCC, 2022).

#### 1.2. Conceptual framework for planning

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The National Adaptation Plan (NAP) is the adaptation component of the National Climate Change Adaptation and Mitigation Plan (PNAyMCC), which structures climate action in Argentina into three interrelated and complementary pillars: adaptation, mitigation and loss and damage.

- Adaptation measures: Adaptation measures are considered to be "policies, strategies, actions, programs and projects that can prevent, mitigate or minimize damages or impacts associated with Climate Change and explore and take advantage of new opportunities of climate events" (Law No. 27520, 2019). Adaptation measures aim to reduce the risks that communities—especially the most vulnerable sectors—, ecosystems and productive systems suffer the negative impacts of climate change.
- Mitigation measures: Mitigation measures are considered to be "actions aimed at reducing greenhouse gas emissions responsible for climate change as well as measures aimed at enhancing, maintaining, creating and improving carbon sinks" (Law No. 27520, 2019).
- Loss and damage: These are generally defined as the residual costs that cannot be avoided through adaptation and mitigation—it should be noted that there is still no internationally agreed definition of this concept. In particular, it includes losses as "negative impacts for which remediation or restoration is impossible", and damages as "negative impacts for which remediation or restoration is possible" (UNFCCC, 2012, p. 3).
- Adaptation-mitigation complementarity: This notion is embodied in principle d) of Law No. 27520, inasmuch as no adaptation or mitigation measure is sufficient on its own. Effectively reducing and managing climate change risks requires cooperation and cross-cutting policies that integrate adaptation and mitigation, both with each other and with other social objectives. Substantial emission reductions over the coming decades pursued by mitigation actions can reduce climate risks, thereby reducing the challenges and costs of future adaptation, loss and damage from climate change. Moreover, emission reductions are an opportunity to adopt patterns that bring us closer to sustainable and resilient development.
- Multi-exposure: It refers to the combination of climate change impacts with other non-climatic economic and social change processes (increasingly globalized economy, territorial and land use processes that generate social and productive segregation and exclusion, technological risks, etc.) and other non-climatic natural hazards, such as earthquakes. When combined, these generate multiple exposures that have a particular impact on vulnerable social groups and productive sectors that are weakly integrated into the global economy. This is especially relevant for the PNAyMCC, since it articulates the climate change and development agendas.
- Transversality and multisectorality: Given its global nature, a process such as climate change does nothing but highlight the need to break down silos and connect sectors and systems (energy, ecosystems, human habitats, food, meteorological, water, environmental systems, etc.) and adopt transversal approaches and polycentric schemes. Integrated, multi-sectoral solutions that address social inequalities, differentiate climate risk-based responses and are cross-system increase the feasibility and effectiveness of adaptation across multiple sectors (IPCC, 2022).

- Multiscalarity: For the purposes of this plan, it includes the capacity of climate action to recognize the various territorial scales and levels of environmental governance. Thus, the PNAyMCC has integrated the common interests of the Nation with the particularities of each region and the local perspectives in each jurisdiction.
- Integration of adaptation-mitigation-development: It refers to the convergence of the agendas for climate change adaptation, mitigation, and development (at the national, regional, and local levels), which, in this Cross-cutting and multi-scale climate action can significantly reduce the current and future vulnerability of the most exposed sectors, socioeconomic systems or geographic regions, while contributing to the achievement of poverty reduction goals within the framework of long-term strategies for low greenhouse gas emission development. Likewise, many of the actions under development from sectoral policies become doubly relevant when they are integrated into this Cross-cutting and multi-scale climate action can significantly reduce the current and future vulnerability of the most exposed sectors, socioeconomic systems or geographic regions, while contributing to the achievement of poverty reduction goals within the framework of long-term and future vulnerability of the most exposed sectors, socioeconomic systems or geographic regions, while contributing to the achievement of poverty reduction goals within the framework of long-term strategies for low greenhouse gas emission development. Likewise, many of the actions under development from sectoral policies become doubly relevant when they are integrated into this PNAyMCC.
- Interdiscipline and transdiscipline: Interdiscipline refers to a perspective that crosses traditional boundaries between various academic disciplines to enable the complexity required to comprehensively address mitigation and adaptation problems. Complementarily, transdiscipline makes it possible to merge this academic knowledge with non-academic knowledge provided by management, civil society and community actors, to capture the complexity of the problems, link abstract and specific knowledge of each case and consider the diversity of perceptions of the problems. This linkage results in knowledge with strong adherence on the part of actors and practices with a high probability of being adopted.
- Interculturality: It Involves the recognition and revaluation of the different cultures, population groups, multiculturalism and ethnic, religious and linguistic diversity present in our country. It also recognizes the value of local knowledge, ancestral knowledge and practices, values and cultural patterns, systems, habits and communities in climate actions, promoting the active participation of all actors. Interculturality fosters dialogue and equitable exchange within the framework of cultural and linguistic heterogeneity based on mutual respect and enrichment, the principle of intergenerationality and gender equality. It should be noted that this concept makes it possible to address the migratory component associated with current and future climate change.
- Science-policy linkage: Climate action emerges at the intersection of high-quality science that guides practice based on knowledge, and the transformative power of decision-making in governance. For instance, systems that provide information to monitor, evaluate, and generate integrated meteorological, hydrological, climatic, and environmental services within decision-making processes have a positive impact on better community preparedness in the face of increasing climate risks.

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- Monitoring: It refers to the collection of relevant information on the progress and results of goals, actions, measures, projects, and programs. The monitoring plan defines its limits, quantification and data collection methodologies and procedures to ensure the quality of the data collected.
- Report: It refers to the presentation of the results of the monitoring plan in an accessible, transparent and, in certain cases, standardized way, in order to disseminate the information. The report also includes a description of the methodology used and the assumptions considered.
- Evaluation: It refers to the assessment, at a specific moment in time, of the effectiveness of a public policy to achieve the established objectives. It is a process that is carried out continuously and, sometimes, is carried out by external actors.
- **Ecosystem-based adaptation:** It refers to the rational use of biodiversity and ecosystem services as part of a broader adaptation strategy, aiming to assist people in adapting to the adverse effects of climate change.
- Community-based adaptation: This is an approach aimed at increasing the adaptive capacity of communities in order to reduce their vulnerability to the effects of climate change. Thus, it is constituted by community-led processes where, based on their priorities, needs, knowledge and local capacities, plan adaptation strategies to address the impacts of climate change in the short, medium and long term.

The concepts mentioned above pose a significant challenge to climate action planning. In a formal sense, climate action planning under these premises required a framework of cross-cutting approaches, strategic lines, and instrumental lines for the NAP. From these, different lines of action with their respective measures were defined.

#### 1.3. Structuring axes of national climate policy

The NAP is structured around the same axes as the PNAyMCC: four cross-cutting approaches, four instrumental lines and six strategic lines. Each of them will be implemented through 196 measures to be carried out by the different portfolios of the National Executive Branch.

# Figure 2. Strategic and instrumental lines and cross-cutting approaches



The cross-cutting approaches of the NAP are addressed by specific working groups within the GNCC and include lines of action that ensure their integration across each of the strategic lines. The proposed approaches are essential elements that cut across and interrelate the processes of developing and implementing the NAP, proposing cross-cutting strategies. These approaches are gender and diversity; comprehensive risk management; health; and just transition of labor.

## Table 2. Cross-cutting approaches

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Cross-cutting approach	Description
Gender and diversity	The gender and diversity perspective is based on the axes of sovereignty, habitability and care, which seek to promote interventions that transform gender gaps in climate policy. The sovereignty axis emphasizes the possibilities for cis heterosexual women and LGBTI+ to access and participate in decision-making on the use and control of natural and productive assets in their territories. The habitability axis focuses on the living conditions and

Cross-cutting approach	Description
	quality of life of cis heterosexual women and LGBTI+ in order to build dignified spaces and ways of life, with gender equality and sustainability as a horizon. Finally, the axis of care refers to the indispensable activities to satisfy the basic reproductive needs of people, which have historically been assigned to women and cis heterosexualLGBTI+.
Comprehensive risk management	Comprehensive risk management is a continuous, multidimensional, interdepartmental, and systemic process for the formulation, adoption, and implementation of policies, strategies, planning, organization, direction, and execution aimed at reducing disaster risk and its effects. It encompasses actions related to risk understanding, prevention, mitigation, preparedness, alert, response, rehabilitation, and reconstruction. This approach involves the practice of avoiding and mitigating disaster risk through systematic efforts focused on analyzing and understanding pressures, such as underlying causes (like structural factors), dynamics (such as the social construction of risk), and conditions of insecurity, considering the fragility and weaknesses of systems and threats of any origin (natural, human-made, socio-natural, biological, among others). This way, it becomes possible to intervene in the overall vulnerability and degree of exposure of both populations and critical infrastructure, with a specific goal: reducing disaster risk.
Health	The inclusion of health in the context of climate change takes into account the social and environmental determinants of health, which include physical, chemical and biological factors, such as air quality, water quality and availability, and exposure to toxins, as well as socioeconomic living conditions. Health is and will be affected by changes in climate through direct impacts, such as heat waves and droughts, and indirect impacts, such as respiratory and vector-borne diseases, and food and water insecurity. Thus, it is assumed that a complex and cross-cutting health perspective will be incorporated in order to address the public health and environmental challenges brought about by climate change. The "One Health" approach is essential to prevent and control events caused by climate change, given that the health of ecosystems is closely linked to that of people and human health is dependent on the balance in ecosystems. In this sense, it recognizes that the health of people, animals (domestic and wild), plants and the environment in general are closely linked and interdependent. Thus, its also important to note that the "One Health" approach is applicable at the community, municipal, provincial and national levels.
Just labor transition	Just transition is a roadmap that guides the actions of States, social actors and international organizations in the transformation of societies and economies towards sustainable, low-emission and resilient development, centered on people and focused on the creation of supportive and inclusive policies that ensure social and environmental justice for all. Such an approach involves the adequacy of production systems and their impacts on the world of work, both formal and informal, as well as the changes in people's lives brought about by them. It includes the importance of social dialogue and tripartite work between government, business organizations, unions and social organizations, outlining common objectives. This axis also incorporates the relevance of decent work and sustainable jobs, the need for training and skills

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Cross-cutting approach	Description
	acquisition for new jobs, as well as the contributions of the circular, social and popular economy as tools available to achieve sustainable development. Implicit in this perspective is also a commitment to the protection of the most vulnerable groups and territories, and the health of working people. A just labor transition includes, among its foundations, both the importance of participatory social dialogue and the promotion of respect for and protection of fundamental labor rights. It also includes a coherent approach that guides the actions of the State and promotes sustainable macroeconomic, industrial and sectoral policies and the generation of conditions for the growth of green jobs.

For their part, the instrumental lines generate the enabling conditions for the effective implementation of the strategic lines and cross-cutting approaches. There are four lines: financing for transition; institutional strengthening; research, development and innovation; and action for climate empowerment.

### Table 3. Instrumental lines

Instrumental line	Description
Action for climate empowerment (ACE)	It consists of institutionalizing environmental education and culture as public policy. The ACE contributes to achieving the country's vision for the year 2030 and is composed of seven key components: education, training, awareness, citizen participation, public access to information on environmental and climate issues, international cooperation and cultural transformation for climate action. This instrumental line is based on a series of international, regional and national agreements and regulations.
Financing for transition	It consists of the design and implementation of a set of actions aimed at promoting the financing of the climate action presented in the PNAyMCC, considering the management of information to facilitate the traceability of public investments in climate action; the strengthening and development of economic, financial and non-financial instruments; the articulation with the private sector, and the proposals to promote and align international financing with the objectives of the PNAyMCC.
Institutional strengthening	It involves promoting a robust system of polycentric and multiscale governance for the design, management, and implementation of effective climate action, with cross-cutting perspectives and integrated, consolidated strategic visions in coordination with all actors and sectors
Research, development and innovation	It involves the promotion of active policies in the field of research, development, and innovation (R+D+I) related to climate change. The integration of innovation as a cross-cutting element in climate policy will

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Instrumental line	Description
	serve as the foundation to deepen and expedite the achievement of global climate action goals through projects, disruptive actions, and the development and transfer of technologies.

Finally, the strategic lines adopted by the NAP and defined within the framework of the PNAyMCC are aimed at promoting low-emission development that is resilient to the effects of climate change and represent the central axes for achieving national commitments. These strategic lines are: biodiversity conservation and common goods; sustainable management of food systems and forests; sustainable mobility; sustainable and resilient territories; energy transition; and productive transition.

Strategic line	Description
Conservation of biodiversity and common goods	The biodiversity of the national territory forms the foundation for most human activities. Furthermore, it serves as the basis for a wide array of ecosystem goods and services (climate regulation, CO <sub>2</sub> sequestration, soil fertility restoration, flood mitigation, and other adverse effects of climate change, even waste decomposition). This line aims to promote the conservation of biodiversity and other common goods at all levels in the face of climate change impacts and human actions. Additionally, it seeks to promote and strengthen the role of ecosystems in greenhouse gas mitigation and sequestration, alongside services provided for climate change adaptation, based on ecosystem-based approaches.
Sustainable management of food systems and forests	Safeguarding food sovereignty and security and reducing the vulnerability of agricultural, livestock, fishing, forestry, and agro-industrial production systems to the impacts of climate change is a fundamental priority. Climate actions related to these productive sectors are designed and implemented considering their significant contributions to the national GDP. Additionally, the country adopts policies for conservation, restoration, recovery, and sustainable management of native forests to promote inclusive development of local communities in harmony with natural resources and ensure the preservation of forest ecosystem goods and services
Sustainable mobility	The transportation sector is a fundamental pillar of climate policy, whose actors are committed to implementing measures to reduce the greenhouse gas emissions generated by the activity and to adapt their infrastructure and operations. Promoting sustainable mobility requires a systematic and detailed analysis that considers the specificities of managing and planning mobility and transportation subsystems (distinguishing demand types and flow scales) and encourages introspective review of each subsystem as well as dialogue between them. These criteria are based on the

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#### Table 4. Strategic lines

Strategic line	Description
	'avoid-shift-improve-adapt' approach. The implications of this approach go beyond the sector and aim to maximize positive impact on national and regional industrial development, reduce structural socioeconomic disparities, and improve quality of life.
Sustainable and resilient territories	The aim is to strengthen infrastructure and develop territories to enhance adaptation and minimize exposure to current and future climate risks. To achieve this, policies are needed that incorporate climate change criteria into the planning and execution of public works; contribute to the establishment of inclusive, compact, resilient, and biodiverse cities; promote access to water and sanitation services for both populations and productive systems; and encourage actions and instruments for territorial and environmental planning, considering improved habitability, energy efficiency, and potential climate change-related impacts in urban development.
Energy transition	The long-term horizon of decarbonizing the energy matrix implies a structural shift in energy supply and utilization systems. The energy transition, driven by the demand for climate action, must be fair, affordable, and sustainable. For the decarbonization path of Argentina's energy matrix to be virtuous and sustainable over time, it must be built on the country's technological and productive capabilities, considering its macroeconomic potential, energy resources, and social context. This approach promotes the active involvement of provinces and local actors in the process. In this way, mitigation and adaptation to climate change will be planned in harmony with energy security, a just transition, economic development, and technological industrialization.
Productive transition	This strategic line entails structural changes in consumption and production patterns within the context of national and global economic recovery. It aims to integrate macroeconomic, social, and environmental components by implementing policies and enhancements in the competitiveness of national productive development that focus on sustainable production. These efforts are accompanied by active financing policies and are geared towards Industry 4.0 (interconnectivity, automation, and real-time data availability). All of this is aimed at promoting production chains that are resilient to climate variations and changes in market conditions.

### 1.4. Methodology

The planning of the adaptation process, as per decision 5/CP.17 (UNFCCC, 2011a), is a continuous, progressive, and iterative process, with implementation based on nationally identified priorities. Furthermore, according to this decision, adaptation planning is considered an integral part of a development policy and, therefore, seeks coordination with the country's policies, plans, programs, and sustainable development objectives. For this reason, this plan is a living document that will be periodically reviewed to incorporate new information and changes in development strategies and priorities at national, subnational, and sectoral levels.

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In this regard, the development of the adaptation component of the PNAyMCC takes as reference the Initial Guidelines for the formulation of national adaptation plans for Parties that are least developed countries, contained in the annex of decision 5/CP.17 and outlined in the technical publication prepared by the Least Developed Countries Expert Group (LEG) in 2012. Within this context, the planning of the adaptation process is structured in four main work stages: 1) laying the groundwork and gap assessment; 2) preparatory elements; 3) implementation strategies, and 4) monitoring, evaluation, and reporting, as depicted in Figure 3.

#### Figure 3. Stages of adaptation policy design



Source: Adapted from LEG (2012).

In this context, the approach to the adaptation component was the result of a participatory methodology based on co-constructing content among representatives from the provinces and the Autonomous City of Buenos Aires (CABA), national ministries, Indigenous Peoples' representatives, and civil society actors. There were various in-person and virtual meetings, and throughout the process, participants were actively engaged, contributing proposals for future lines of work. For this purpose, it was crucial to communicate objectives, agendas, or guidelines on the topics to be discussed at each stage clearly and in advance.

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## Figure 4. Phases of the participatory process for the elaboration of the adaptation component



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### Cross-cutting, multi-sectoral governance

Following the approach adopted, that is, one that does not seek to understand adaptation only as a response to specific impacts but as a way to reduce vulnerabilities and build resilience, the participatory process was organized in two cycles with five phases. In total, six workshops were held with the technical teams of the jurisdictions, five meetings with civil society and four intercultural dialogues with representatives of Indigenous Peoples.

The successive development of the phases involved a combination of approaches that made it possible to prepare the assessment and identify and formulate the measures. On the one hand, a multi-scalar (national/regional) top-down approach, which began with officials and technical teams from the national government areas involved; and, from the bottom up, with provincial representatives, representatives of Indigenous Peoples and civil society. On the other hand, a cross-cutting, multi-sectoral approach with bilateral meetings between national areas, to review the contents that were being generated and to identify and formulate specific adaptation measures. Likewise, an intercultural approach that provides methodological elements and information to make specific groups visible, contemplating their cultural diversity and their realities in the different stages of the planning process, whether in the assessment, identification and implementation of specific actions or in their monitoring.

It is essential to carry out particular processes to guarantee the participation of these specific groups in the definition of the national climate policy. In the specific case of Indigenous Peoples, these processes must be carried out in compliance with current legislation regarding their right to free, prior and informed consultation established by ILO Convention 169, ratified by Argentina in 1992, and in accordance with the standards established in the United Nations Declaration on the Rights of Indigenous Peoples. In addition, the commitment of the States has been expressed at the international level to guarantee the participation of Indigenous Peoples in the relevant processes and to include indicators that reflect the commitment, to recognize and integrate the collective rights to territory, self-determination, autonomy, self-representation, the exercise of their traditional rights, non-discrimination and the principles of traditional land use in the normative framework of Argentina.

In particular, Indigenous Peoples play a unique role in climate change adaptation and mitigation, both in planning and implementing actions to respond to its effects on their territories. They are central to climate action as they have a high degree of engagement, both in their active role in biodiversity conservation and in the issues they face in their territories. In addition, they constitute political, linguistic, cultural and historical units, which is why they have specific collective rights, and a specific participatory process is carried out, different from the one developed with the rest of civil society.

In line with the above, this plan recognizes the ancestral knowledge and innovations of Indigenous Peoples, their important contributions to climate action, and respect for the traditional ways of life of Indigenous Peoples. It is important to contemplate indigenous cosmovisions, both for the elaboration of diagnoses and proposals for climate action from an early stage, considering the values of Good Living, Indigenous Biocultural Territory and Development with Identity, which includes complementarity and duality between genders. Along these lines, the National Government will develop adaptation actions in conjunction with Indigenous Peoples. For this, it is essential to institutionalize a joint work space between the

National Government and Indigenous Peoples' representatives, in coordination with subnational governments.

### 1.4.1. Laying the groundwork and addressing gaps: awareness-raising and preliminary threat and impact assessment

In order to lay the groundwork and establish a common understanding of climate change and adaptation that would allow for meaningful participation of a wide range of actors, the start of the participatory process (cycle 1) began with a training on the topic for civil society in general.

Subsequently, in this first cycle that took place between July and December 2021, a preliminary assessment of threats and impacts by region was prepared, according to the data indicated in the Third National Communication of the Argentine Republic (TCN) to the United Nations Framework Convention on Climate Change and other available sources of information (SAyDS, 2015a; SGAyDS, 2019b). This assessment identified gaps and needs for the plan development process and was submitted for consideration by the provincial technical teams at the Regional Adaptation Workshop No. 1. The First Regional Adaptation Roundtables were held to work in workshop format in order to strengthen and review the assessment of climate change threats with the rest of the actors involved. To this end, a round of tables was held based on the regional division of COFEMA, from August 30 to September 3, 2021, with a total of 220 attendees. In addition to making observations on the assessment presented, together with the jurisdictions, it was possible to identify gaps in necessary studies on topics to be studied in depth and the existence of ongoing or completed studies that could contribute to the assessment.

It is important to make a clarification regarding the regionalization used in this PNAyMCC, since a different regionalization is adopted from the one used in the TCN. In this plan, the regionalization agreed upon in the framework of COFEMA was used, which groups the provinces into six regions: Northeast (comprising the provinces of Entre Ríos, Santa Fe, Corrientes, Misiones, Chaco and Formosa); Northwest (comprising the provinces of Jujuy, Salta, Tucumán, Catamarca and Santiago del Estero); Cuyo (comprising the provinces of Mendoza, San Juan, La Rioja and San Luis); Central (comprising the provinces of Buenos Aires, Córdoba, and CABA); Northern Patagonia (La Pampa<sup>3</sup>, Neuquén, Río Negro), and Southern Patagonia (Chubut, Santa Cruz, Tierra del Fuego, Antarctica and South Atlantic Islands). However, the last two regions were unified into a single region called "Patagonia", giving a total of five for the present plan. This regionalization responds, mainly, to the need to bring the spatial resolution to a level that allows reflecting the territorial particularities -considering that the Argentine Republic is the seventh largest country in the world- and, at the same time, to take advantage of this political-administrative division to facilitate the coordination and implementation of adaptation measures.

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<sup>&</sup>lt;sup>3</sup> In the case of the provinces of La Pampa and San Luis, since they share many of the risks and problems of the provinces of the Central region, they are included in both regions.

Regarding the assessment, chains of threats were developed, focusing on the expected changes in climate variables that lead to consequences in ecosystems and can become threats to different units of analysis. The purpose of developing these chains is to provide an explanation of causal relationships, consistent with the most updated scientific knowledge, detailing the links between climate signals (changes in climate variables resulting from climate change) and potential impacts on ecosystems, urban, and rural populations. This helps achieve a deeper understanding of the processes that give rise to climate risks.

As for the methodology used, it is mainly based on the proposal presented in the GIZ Vulnerability Sourcebook (2014a), its risk supplement (GIZ and EURAC, 2017) and the methodology of impact chain trajectories from the UNEP summary notes on Ecosystem-based Adaptation (UNEP-WCMC, 2019), which were adapted in various workshops of the Climate Change Adaptation Coordination team to suit the needs of this planning process. Examples such as Peru's hazard chain, included in its NAP (MINAM, 2021), were also noted.

The hazard chains consist of a series of boxes corresponding to specific events or situations, linked together by arrows representing cause-consequence relationships. These chains start with changes in climatic variables attributable to climate change, which are considered as external signals that cannot be influenced by adaptation measures, and these changes are linked to their immediate repercussions on other climatic factors and on the functioning of ecosystems. The chains basically explore changes in climatic variables in the region analyzed and their direct consequences on the functioning of the ecosystems of this geographical unit. Alterations in these ecosystems resulting from global changes in the cryosphere, hydrosphere and biosphere attributable to climate change are included without developing the causal mechanisms of these alterations, since this would imply analyzing the effects of climate change outside the region.

Some of the climate signals or their immediate derivatives are clearly configured as hazards (i.e., as phenomena that give rise to a problem), especially in the case of extreme weather events. Others, on the contrary, express gradual changes in climatic variables that are not conceived as hazards in themselves, but whose consequences in the medium or long term give rise to threats.

To determine the relevant trends and their direction, we relied mainly on the climate change projections of the TCN (SAyDS, 2015a), including both the text of the TCN and the georeferenced data available in the Climate Change Risk Map Information System (SIMARCC, 2022, by its Spanish abbreviation) platform and in the database of the Center for Marine and Atmospheric Research (CIMA, 2022, by its Spanish acronym). Other sources were also consulted, such as IPCC projections, the Intergovernmental Coordinating Committee of the La Plata Basin Countries and other specific studies. The information on the present and past climate, which is indispensable for making scenarios on its future evolution, was obtained from observations carried out in different regions of the country by the National Meteorological Service (SMN, by its Spanish abbreviation) for more than a century.

It is necessary to state that the obtained chains of threats do not cover all potential impacts of changes in climate variables at the regional level on ecosystems. Beyond information and knowledge gaps that would hinder achieving this objective, pursuing such an exhaustive

approach would significantly increase the complexity and extent of the chains developed. In this regard, the inclusion of potential impacts on ecosystems was implicitly guided by the likelihood of affecting the satisfaction of human needs.

In fact, because climate change exacerbates and is exacerbated by other anthropogenic threats, and considering the need to account for non-climatic risks, the chains include other drivers of ecosystem degradation that exist in the region. The consequences of past degradation processes are not included in the chains of threats but will be reflected as an additional factor in the vulnerability component when conducting risk chains.

In particular, regarding the process with Indigenous Peoples, three meetings were held between representatives of the National Directorate of Climate Change (DNCC) and the Coordinator of National Organizations of Indigenous Peoples of Argentina (CONAPIA, by its Spanish acronym) since November 2021, to advance in the definition and design of the specific participation process for Indigenous Peoples. In this context, four regional workshops were planned with Indigenous Peoples representatives, called 'Intercultural Dialogues.' For this work, a different regionalization grouping provinces into four regions was used: NEA (Entre Ríos, Misiones, Corrientes, Chaco, Formosa, and Santa Fe); NOA (Jujuy, Salta, Tucumán, La Rioja, Catamarca, and Santiago del Estero); Central (Buenos Aires, CABA, Córdoba, Mendoza, San Juan, San Luis, and La Pampa); and South (Tierra del Fuego, Antarctica, South Atlantic islands, Santa Cruz, Chubut, Río Negro, and Neuquén). To develop the risk and impact assessment of climate change from the perspective of Indigenous Peoples, the process started with an exchange of knowledge about the characterization of different territories, Good Living<sup>4</sup>, and Indigenous cosmology.<sup>5</sup>

## 2.2.1. Preparatory elements: management priorities and risk analysis

In the second stage of the first cycle (see Figure 4), the jurisdictions reached a consensus on regional management priorities, based on the prior identification of provincial management priorities, not necessarily linked to climate change issues. Detecting the most active areas of management in the jurisdictions and regions is essential in order to align their actions with policies and initiatives at the national level, as well as to take advantage of the dynamics underway in the field and promote the effective adoption of the measures resulting from the PNAyMCC.

Thus, the second workshop presented the objective and working approach, which followed that proposed by McGray, Hammill and Bradley (2007), in order to identify management

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<sup>&</sup>lt;sup>4</sup> Good Living seeks the attainment of balance between human beings and nature. It is based on the principle that everything is part of a unity, a fabric of life, and that altering one element disrupts the stability of the vital flow. It thus calls for recreating a way of coexisting with nature that, instead of relying on the exploitation of resources in territories until they are depleted, promotes their optimization for collective well-being (MAyDS and CONAPIA, 2022).

<sup>&</sup>lt;sup>5</sup> In the worldview of indigenous peoples, there is an indissoluble connection between their environment and biodiversity, shaping how they understand and perceive the world. Each community, each culture, reflects the natural world—the territory in which they reside. Cultural diversity mirrors natural diversity. The Creation is the unity of diversity, where all forms of life coexist in a harmonious balance (MAyDS and CONAPIA, 2022).

priorities. This approach is based on placing adaptation and development policies on a continuum, rather than making an exhaustive distinction, as can be seen in Figure 5.1.

# Figure 5. Adaptation policy *continuum:* from development to climate change



Source: Adapted from McGray, Hammill and Bradley (2007).

This framework shows that many of the policies generated by the public sector in the name of sustainable development tend to address social vulnerability and thus contribute to adaptation. Such policies fall into the first sphere and aim to reduce poverty and address various deprivations, thus focusing on improving livelihoods, health, extending literacy, expanding women's rights, etc. The second sphere encompasses initiatives that seek to improve the social, productive and ecosystemic structure to respond to climate impacts. This range of activities lays the foundation for more specific actions, examples include "developing sound communication and planning systems, and improving mapping, climate monitoring and natural resource management practices" (McGray et al., 2007, p. 20). The third sphere refers to activities that incorporate climate information into the decision-making process to reduce impacts, considering that it is often difficult to distinguish climate variability from climate change. "Examples include disaster response planning activities, drought-resistant crops, and efforts to 'climate-proof' physical infrastructure" (McGray et al., 2007, p. 2). Finally, according to these authors, the last sphere contemplates actions focused on addressing climate risks outside of historical climate variability and responding directly to climate change.

Next, in the third workshop, each jurisdiction presented its priority management initiatives, and based on them, provincial teams selected some priorities with regional projection to then carry out a joint thematic prioritization. In this way, clarity was achieved regarding regional development objectives and assessing the impact of climate change on them. The progress and results obtained during the first cycle of workshops were presented in a fourth round of regional workshops. During these meetings, the agreed-upon management priorities and identified information gaps were presented.

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In accordance with the guidelines of decision 5/CP.17, the "preparatory elements" stage involves conducting a risk analysis -a key issue for the subsequent development of adaptation actions to reduce risks-, taking advantage of the opportunities that could arise under the new context and even seeking co-benefits for adaptation in mitigation measures and vice versa. In this regard, risks were identified in the second phase of the regional participatory process, which was carried out between February and July 2022. This analysis involved starting from the previously elaborated regional hazard chains, identifying regional climate risks, prioritizing them and, finally, elaborating the regional risk chains.

For the characterization of climate risk, an adapted version of the risk chain development methodology proposed in the Risk Supplement to the GIZ Vulnerability Sourcebook (GIZ and EURAC, 2017) was followed. This makes it possible to qualitatively detail the different risk components graphically (hazard, vulnerability and exposure), to specify cause-effect relationships to facilitate understanding of the different risks, and to identify the adaptation measures needed to address them. It should be clarified that the qualitative description of the risk was complemented and strengthened with data provided by the different areas of the national government, in order to gather quantitative aspects that would strengthen the assessment.



#### Figure 6. Risk chain structure

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In this NAP, the units of analysis or exposed elements are the rural and urban population and ecosystems, which are the target sectors of the adaptation measures defined according to Law No. 27520. In particular, for the identification of the different risks associated with the rural and urban population, the following dimensions were considered, adopting a human rights approach: health; education; access to food; access to safe water and sanitation; access to energy; access to connectivity (internet, telephony, etc. ); access to transportation; access to

housing and building infrastructure (hospitals, schools, universities, etc.); sources of monetary income/livelihood for urban populations (stores, trade workshops, industries, various tourist activities, etc.); sources of monetary income/livelihood for rural populations; access to recreational activities and sports, and cultural heritage.

Regarding risks associated with the urban or rural population, 39 risks were identified in the Central region; 45 in the Cuyo region; 50 in the NEA region; 40 in the NOA region; and 34 in the Patagonia region. These risks were subsequently prioritized for each region, using a multi-criteria analysis tool that made it possible to select approximately ten risks per region to be addressed in this first version of the PNA. The criteria used for prioritization were the following: linkage with regional priorities, availability of data and access to information and expert analysis, severity of the threat based on climate projections, magnitude and degree of impact of adverse events observed in the region, priority for the Coordination of Adaptation to Climate Change, and number/percentage of people affected.

The sixth workshop was held on June 24, 2022, in CABA with representatives from the following jurisdictions.<sup>6</sup> During the workshop, the prioritized risk chains were analyzed and the observations previously sent by each jurisdiction were shared. Specifically, the work focused on analyzing in depth the "vulnerability" component of each risk chain, taking into account that the representatives of the jurisdictions have first-hand knowledge of their own realities. In summary, this work involved analyzing the sensitivity and adaptive capacity to the hazards identified above, given that the degree of vulnerability increases or decreases the risk to these hazards.<sup>7</sup>

It should be clarified that, often, an unambiguous assignment of the factors that contribute to sensitivity or adaptability is not possible. However, this does not pose a problem, as these factors will be added later to the vulnerability component (GIZ and EURAC, 2017).

In this context, after reviewing, modifying, and supplementing the component, through this participatory process with the jurisdictions, a prioritization of three (and in some cases four) vulnerabilities was obtained for each risk chain. This exercise involved reaching consensus among the jurisdictions regarding the regional aspects to focus on, precisely, as a priority.

## 2.2.2. Implementation strategies: Identification of adaptation measures

In the third stage, adaptation was integrated into the various national planning bodies, identifying new measures or mainstreaming adaptation into existing measures. This process was carried out jointly with subnational representatives and various sectors at the national level. As mentioned above, the implementation of the measures falls on the different areas of government with sectoral and jurisdictional competence, but ensuring a coordinated work for

<sup>&</sup>lt;sup>6</sup> Given the extent of the work, some regions required additional meetings during the first half of July 2022, in virtual format, to conclude the analysis..

<sup>&</sup>lt;sup>7</sup> Therefore, it is essential to understand how vulnerability can be decreased by reducing sensitivity or increasing adaptive capacity. For example, "introducing water-saving irrigation techniques reduces sensitivity, while fostering knowledge on water management techniques increases capacity" (GIZ and EURAC, 2017, p. 19).

effective implementation. Methodologically, a total of 93 vulnerabilities prioritized in 50 risks were cross-referenced with the measures committed by different sectors at the national level.

It's important to note that, concerning the design and implementation of measures, the adaptation process in Argentina also follows a sectoral approach. This work is channeled through Sectoral Plans developed by various government departments at the national level. To date, seven sectoral plans have been published between 2017 and 2019. While five of these plans incorporate adaptation components, in most cases, they are mentioned as part of the plan's objectives or within the sector's vision for 2030, albeit without in-depth detail. Four of these plans outline general measures regarding the topic. It will be necessary to subsequently strengthen the diagnostic section of these plans, as they currently provide only brief mentions of some of the impacts of climate change.

As for the work with Indigenous Peoples, the intercultural dialogues identified possible proposals linked to the impacts observed and the climate risks identified, the results of which were systematized in a report with the main conclusions.

#### 2.2.3. Reporting, monitoring and evaluation

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Finally, the fourth stage involves monitoring and evaluation (M&E) of the NAP to analyze its progress, effectiveness and opportunities for improvement.

For the monitoring of adaptation, some specific aspects and challenges must be considered, namely: There is no single metric to measure the outcome or impact of adaptation plans, programs or projects; the uncertainty inherent to changes in the climate system in the future and their interaction with socioeconomic dynamics can modify the conditions in which planned adaptation measures interact, rendering them ineffective; this also adds the challenge of linear attribution of results to a particular measure, given their multicausal origin; and, finally, the challenge of making political cycles compatible with the adaptation results observed in the long term. In this framework, a seven-step methodological path is proposed for the development of the monitoring system (GIZ and IISD, 2017), with a co-construction dynamic, through a participatory, lively and flexible process, which is adjusted according to the needs of all the actors involved in the plan.

The first step is to review the context, where the background of the national plan is known; the existing policies, programs, and plans, as well as the systems and sources of information and data available in the country, to analyze how to harmoniously incorporate them into the monitoring system and avoid duplication of efforts. Secondly, the purpose is agreed upon to define the objective that the system should fulfill (whether it is created to improve plan management, to assess whether objectives, goals, products, or activities are being carried out efficiently and effectively, for accountability and expense justification to various organizations, for learning from implemented experiences and systematizing that knowledge, etc.). Thirdly, scales or levels of application need to be agreed upon, i.e., which geographical scales and sectors are to be integrated. The fourth step involves agreeing on the approach, that is, what the contents of the system should be and what aspects to focus on: the process of plan advancement or the results and changes achieved over time.

Regarding this step, and taking into account the national monitoring background, two types of indicators are included: outcome indicators and progress indicators. On one hand, outcome indicators are those that show whether the expected results are being achieved, understanding them as the final accomplishment of implemented actions. On the other hand, progress indicators complement the outcome indicators as they show the advancement of actions without exclusively focusing on the expected results. In this sense, progress can include intermediate steps, products, or activities carried out within the framework of the actions. Both types of indicators clearly serve for learning and management because they demonstrate whether what is being done is leading to the desired outcomes.

In line with what has been previously developed and in relation to the adaptation goals and measures proposed in the PNA, the indicators should be SMART.

#### Chart 1. Characteristics of a SMART indicator

**S** = specific: define what exactly you want to measure with each indicator, with whom and where.

**M** = measurable: assess whether it is possible to measure the indicator with existing resources, both human and financial, whether the data already exist and where they can be collected.

**A** = achievable: analyze whether the indicator's target can be reached within the expected timeframe.

**R** = relevant: consider whether the indicator is relevant to fulfill the purpose of the NIP monitoring plan, to measure progress, outputs or outcomes.

**T** = specific time horizon: establish a time reference so that progress can be measured during implementation, deadlines and milestones.

The above makes the following step easier, since if all indicators provide this information and precision, it's clear what is being sought. In this regard, the sixth step involves agreeing on operationalization, that is, how, with whom, and how often data and information will be collected and interpreted, and which institutions need to cooperate. This step is worked on by completing the sheets for each indicator with information about data sources, measurement frequency, institutional responsibilities for data collection, etc., and designing the institutional governance of the system. Finally, in the seventh step, the resulting products are agreed upon, and the use and dissemination of the products to be generated by the system are organized. To do this, the mapping of actors is revisited, and considering who the users of the information generated by the system are, the necessary reporting formats are defined.

### Section 2 Regulatory framework and climate governance

#### 2.1. International agreements and their governance

#### 2.1.1. The agreements of Rio de Janeiro, Brazil

The Earth Summit held in Rio de Janeiro, Brazil, in 1992 resulted in three binding international conventions: the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification. Each instrument represents a way to contribute to the sustainable development goals set at the summit. The three conventions are intrinsically linked, operate in the same ecosystems and address interdependent issues.

#### 2.1.1.1. United Nations Framework Convention on Climate Change (UNFCCC)

Adopted in Rio in June 1992 and ratified by Law No. 24295 in Argentina, the Convention establishes a general framework for intergovernmental efforts to address the challenge posed by climate change. Its objectives are to stabilize greenhouse gas concentrations in the atmosphere at a level that prevents anthropogenic interference with the climate system, with sufficient time frames to allow ecosystems to adapt, to ensure that there are no threats to food production and to enable economic development to proceed in a sustainable manner.

The supreme decision-making body of the UNFCCC is the Conference of the Parties (COP), in which all States Parties to the Convention are represented and which meets annually. It reviews the implementation of the Convention and any other legal instruments adopted by the COP. The Parties also take the necessary decisions to promote their effective implementation, including institutional and administrative arrangements.

#### Kyoto Protocol

Adopted in December 1997 and in force since 2005, the Protocol operationalizes the UNFCCC by committing Parties to limit and reduce greenhouse gas emissions. The Protocol recognizes that developed countries are primarily responsible for the current high levels of GHGs in the atmosphere, and therefore places a greater burden on them, by virtue of "common but differentiated responsibilities and respective capabilities" (UN, 1998). In its Annex B, it establishes binding emission reduction targets for 36 industrialized countries and the European Union.

#### Paris Agreement (PA)

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At COP 21, held in Paris, France, in December 2015, the Parties to the UNFCCC reached a historic agreement to combat climate change and to accelerate and intensify the actions and investments needed for a resilient, low-carbon future. The PA brings together 194 Parties behind the objective of strengthening the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, keeping the global temperature increase this century well below 2°C above pre-industrial levels and pursuing
efforts to limit that temperature increase to 1.5°C. It also makes explicit its aims to enhance the capacity of developing and most vulnerable countries to cope with the impacts of climate change and to ensure that financing flows are consistent with a low GHG emission level and a climate-resilient pathway (UN, 2015a).

At the heart of the PA and the achievement of its long-term objectives are the NDCs. These embody each country's efforts to reduce domestic emissions and adapt to the effects of climate change. Thus, the PA requires each Party to prepare, communicate and maintain successive NDCs that it intends to achieve. This includes the obligation for all Parties to report periodically on their emissions and implementation efforts.

The PA entered into force on November 4, 2016. As of October 13, 2022, 194 States are part of the Agreement (UN, 2022), including the Argentine Republic. As of this date, 192 have submitted their first NDC and 11 of them the second (UNFCCC, 2022), including our country.

### Argentina in the context of the UNFCCC

The Argentine Republic ratified the UNFCCC through Law No. 24295 enacted on December 7, 1993, the Kyoto Protocol through Law No. 25438 enacted on June 20, 2001, and the Paris Agreement through Law No. 27270 of September 1, 2016, whose instrument of ratification was deposited on September 21, 2016.

The set of rules mentioned, which endorse international treaties on climate change, create reporting responsibilities for information to the UNFCCC (United Nations Framework Convention on Climate Change). These responsibilities include reporting their national inventories of greenhouse gases and national programs containing measures to mitigate and facilitate proper adaptation to climate change, as well as any other relevant information to achieve the Convention's objectives. The reporting of all this information is summarized in the preparation and submission of what are called National Communications on Climate Change.

Argentina has submitted three National Communications on Climate Change. The First National Communication (PCN) was submitted on July 25, 1997 (SRNyDS, 1997), and its revision was submitted in October 1999. The Second National Communication (SCN) was submitted on March 7, 2008 (SAyDS, 2008) and the TCN, on December 9, 2015 (SAyDS, 2015a). In addition, together with the TCN, Argentina submitted its first BUR (Biennial Update Report) to the UNFCCC (SAyDS, 2015b). The BURs contain updated information on the country's national circumstances and institutional arrangements for the preparation of national GHG inventories, the needs and support received in terms of financing, technology and capacity building, and information on mitigation measures and their respective monitoring, reporting and verification methodology. The second BUR was submitted on August 22, 2017 (MAyDS, 2017) and the third BUR on November 26, 2019 (SGAyDS, 2019b).

Additionally, in January 2019, Argentina voluntarily published before the UNFCCC the Forest Emissions Reference Level (NREF) (SAyDS, 2019b). This document is part of the country's efforts to assess the reduction of GHGs from deforestation and forest degradation with the aim of mitigating climate change under the UNFCCC's REDD+ mechanism (Reducing emissions from deforestation and forest degradation in developing countries). The Fourth BUR

(BUR 4) was submitted in December 2021. It reports the results of the National Greenhouse Gas Inventory (INGEI, by its Spanish acronym) with data for 2018 (MAyDS, 2021).

Another of the responsibilities generated, in this case by the ratification of the PA, is the presentation and periodic updating of the NDCs. In October 2015, prior to COP 21 in Paris, Argentina submitted its Intended Nationally Determined Contribution (iNDC), which later became the first NDC when the country ratified the Agreement in September 2016. That same year, during COP 22, the country presented an update of its NDC, which made it one of the first countries to present a revision of the NDC with the aim of making it more ambitious, clear and transparent. The absolute target established in the first revised NDC commits the country not to exceed the net emission level of 483 million tons of carbon dioxide equivalent (MtCO<sub>2</sub>e) by the year 2030 (MAyDS, 2016).

On December 29, 2020, Argentina submitted the Second NDC to the Convention. In it, the country commits to an absolute and unconditional target, applicable to all sectors of the economy, not to exceed a net emission of 359 MtCO<sub>2</sub>e in 2030 (MAyDS, 2020). It also incorporates the Second Adaptation Communication and an adaptation target for the same year. Its update in 2021, more ambitious, limits emissions to 349 MtCO<sub>2</sub>e by 2030.

# 2.1.1.2. Convention on Biological Diversity (CBD)

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The CBD was adopted in Rio de Janeiro in June 1992 and ratified by Argentina through Law No. 24375. This convention aims at "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources" and covers all ecosystems, species and genetic resources (UN, 1992, p. 3).

Argentina, in compliance with the objectives of the CBD, adopts its National Biodiversity Strategy and Action Plan by Resolution 151-E/2017, whose validity is extended by Resolution 356/2022 for the period 2021-2024. Its revision and updating is entrusted to the National Advisory Commission for the Conservation and Sustainable Use of Biological Diversity (CONADIBIO, by its Spanish acronym), an advisory body to the CBD implementation authority, which is the MAyDS.

### The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization

The Nagoya Protocol, adopted in Nagoya, Japan, at the 10th Conference of the Parties to the Convention on Biological Diversity in 2010, aims to contribute to the conservation and sustainable use of biological diversity. This protocol applies to genetic resources that are covered by the CBD, to traditional knowledge associated with genetic resources and to the benefits derived from their use (UN, 2011).

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To comply with the obligations arising from this protocol, Argentina ratified it through Law No. 27246 and then implemented the ARG 16/G54 project "Promoting the implementation of the Nagoya Protocol on ABS in Argentina", with international funding. Its objective was to contribute to the implementation of the Protocol in our country by strengthening the national regulatory framework for access and benefit sharing (ABS). The Secretariat of Environmental Policy on Natural Resources (SPARN, by its Spanish acronym) of the MAyDS was the implementing partner.

# 2.1.1.3. United Nations Convention to Combat Desertification (UNCCD)

The UNCCD (United Nations Convention to Combat Desertification) was adopted in Paris, France, in July 1994, and ratified by Argentina through Law No. 24701. Its objective is to combat desertification and mitigate the effects of drought in countries severely affected by this phenomenon, particularly in Africa, through effective measures at all levels. Thus, the Convention aims to contribute to the achievements of sustainable development in affected regions, with the support of international cooperation and partnership agreements within an integrated approach (UN, 1994). The commitments of this Convention are carried out through the National Action Program to Combat Desertification, Land Degradation, and Mitigate the Effects of Drought, updated to the 2030 Target, approved by Resolution SAyDS 70/2018 under the National Ratification Law No. 24701, with the National Directorate of Environmental Planning and Territorial Management as the Technical Focal Point. In this context, Argentina has the first commitment to Voluntary Land Degradation Neutrality Targets.

# 2.1.2. Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean

Known as "the Escazú Agreement", it was adopted in Escazú, Costa Rica, in March 2018. Argentina ratified it through Law No. 27566. It aims to guarantee, in Latin America and the Caribbean, the full and effective implementation of the rights of access to environmental information, public participation in environmental decision-making processes and access to justice in environmental matters, as well as the creation and strengthening of capacities and cooperation, contributing to the protection of the right of every person, of present and future generations, to live in a healthy environment and to sustainable development (UN, 2018). It is the only binding agreement emanating from the United Nations Conference on Sustainable Development (Rio+20), the first regional environmental agreement in Latin America and the Caribbean and the first in the world to contain specific provisions on human rights defenders in environmental matters.

Among its articles, it proposes the creation of updated environmental information systems, such as those related to aspects of climate change and greenhouse gas emissions, vulnerable populations, and environmental risks. It also states that each party to the agreement shall establish the conducive conditions for public participation in environmental decision-making processes that are appropriate to the social, economic, cultural, geographical, and gender characteristics of the public. This ensures respect for both national legislation and international obligations related to the rights of Indigenous Peoples and local communities.

# 2.1.3. 2030 Agenda for Sustainable Development

The 2030 Agenda for Sustainable Development, adopted by United Nations member states in 2015, is the most ambitious global agreement on development. It guides efforts towards sustainable development worldwide until the year 2030, serving as an action plan for the well-being of people, the planet, and prosperity, with the goal of promoting global peace within a broad concept of freedom. The Agenda acknowledges that eradicating poverty in all its forms and dimensions is the world's greatest challenge and an essential requirement for sustainable development. In this context, it also emphasizes gender equality as a necessary condition for sustainable development (UN, 2015b).

With the commitment to leave no one behind, the 2030 Agenda establishes 17 goals, called Sustainable Development Goals (SDGs), and 169 targets, of an integrated and indivisible nature, which combine the three dimensions of sustainable development: economic, social and environmental.

# 2.1.4. Sendai Framework for Environmental Disaster Risk Reduction

Within the framework of other 2030 Agenda agreements, such as the Paris Agreement on Climate Change, the Addis Ababa Action Agenda on Financing for Development, the New Urban Agenda and the Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction 2015-2030 recognizes that the State has the primary role in reducing disaster risk, but that this is a responsibility to be shared with other actors, such as local governments, the private sector and other actors (UN, 2015c).

The agreement was adopted at the Third United Nations World Conference, held in Sendai, Japan, on March 18, 2015. During this conference, States reiterated their commitment to address disaster risk reduction and resilience building in the context of sustainable development and poverty eradication through policies, plans, programs and investments.

The main objective established for 2030 is to prevent the emergence of new disaster risks and reduce existing ones by implementing integrated and inclusive measures of an economic, structural, legal, social, health, cultural, educational, environmental, technological, political, and institutional nature. These measures aim to prevent and reduce the level of exposure to threats and vulnerability to disasters, enhance preparedness for response and recovery, and thereby strengthen resilience.

Climate change is considered one of the factors contributing to the increased risk of disasters, for example, through an increase in the frequency and intensity of extreme weather events. It also contributes to increased vulnerability of communities to natural threats due to ecosystem degradation, reduced availability of water and food, and changes in livelihoods, among other factors. According to the United Nations Office for Disaster Risk Reduction (UNDRR), in the past 20 years, 90% of major disasters have been caused by climate-related events such as heatwaves, storms, floods, and droughts (UNDRR and CRED, 2015).

Both the IPCC AR6 and the Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) provide clear evidence that climate change is increasing the frequency, intensity, and magnitude of disasters worldwide (IPCC, 2022; IPCC, 2011).

It is important to clarify that climate change does not impact all individuals in the same way. If we consider that climate change affects the most vulnerable populations and that 70% of the world's poor are women, it is evident that there is a discriminatory situation that places women and girls in conditions of greater vulnerability. In a sample of 141 countries between 1981 and 2002, it was found that natural disasters on average kill more women than men or kill women at an earlier age than men (IUCN, UNDP and GGCA, 2009).

In this context, the Sendai Framework adopts a broader gender perspective by including guiding principles on gender, age, disability and cultural perspectives in all policies and practices, and promotes women's and youth leadership. In addition, the framework emphasizes the role of women in gender policies and highlights the empowerment of women and persons with disabilities to lead and publicly promote gender-equitable and universally accessible responses, as well as recovery, rehabilitation and reconstruction approaches (UN, 2015c).

# 2.2. Regulatory framework and national governance

# 2.2.1. Law No. 27520 - Law on Minimum Standards for Adaptation and Mitigation of Global Climate Change

Law No. 27520 establishes the minimum standards<sup>8</sup> for environmental protection to ensure adequate actions, instruments and strategies for mitigation and adaptation to climate change throughout the national territory. This law, enacted on November 20, 2019, reaffirms the climate commitments assumed by the country at the international level and promotes the design and institutionalization of tools, instruments and actions to address the issue at the national and subnational levels. Thus, it provides a formal framework of institutional linkage for the elaboration of any national, regional or international document on climate change mitigation and adaptation, among which the PNAyMCC, of which the current NAP is part, and the jurisdictional Response Plans, to be designed and executed by the provinces and the Autonomous City of Buenos Aires, stand out (Law No. 27520, 2019).

The law establishes principles, objectives and bases that must be complied with throughout the national territory. The provinces and the Autonomous City of Buenos Aires may issue complementary regulations to ensure its correct and effective implementation and, in the event that climate regulations already exist, they must analyze them in the light of Law No. 27520 and adapt them accordingly. It should be noted that provincial regulations may never

<sup>&</sup>lt;sup>8</sup> The minimum standard, established in Article 41 of the National Constitution, is understood as any rule that grants a uniform or common environmental protection for the whole national territory, and its purpose is to impose the necessary conditions to ensure environmental protection.

contradict the provisions of a minimum standards law, since the latter always prevails in the event of a controversy between regulations.

The objectives of the law, as defined in its second article, are as follows:

a) Establish strategies, measures, policies and instruments related to the study of the impact, vulnerability and adaptation activities to climate change that can guarantee human and ecosystem development.

b) Assist and promote the development of greenhouse gas mitigation and reduction strategies in the country.

c) Reduce human vulnerability and that of natural systems to climate change, protecting them from its adverse effects, and harnessing its benefits (Law No. 27520, 2019).

In Article 7, the law institutionalizes the GNCC, whose function is to coordinate among the different government areas of the National Public Administration (APN, by its Spanish abbreviation), carry out the implementation of the National Plan for Climate Change (PNAyMCC), and all public policies related to the application of the provisions established in the law and other complementary regulations (Law No. 27520, 2019).

Regulatory Decree No. 1030/2020 implements the tools and work spaces created by Law No. 27520 in order to guarantee the development and implementation of appropriate actions and strategies for climate change adaptation and mitigation throughout the national territory. The decree formalizes the internal work structure of the GNCC, establishes the functions of the CTA, which is headed by the SCCDSel, and details the competences of the MAyDS in its capacity as the national enforcement authority of Law No. 27520. The decree also establishes the importance of ensuring gender balance in the work spaces of the GNCC and the External Advisory Council (Decree No. 1030/2020, 2020).

# 2.2.2. National Climate Change Cabinet

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The GNCC is a collegiate body chaired by the Chief of Cabinet of Ministers, whose purpose is to coordinate various government areas of the National Public Administration (APN), as well as interjurisdictional coordination, the Federal Council for the Environment (COFEMA), and various civil society actors. The objective of the GNCC is to design consensus-based public policies with a strategic focus on reducing greenhouse gas emissions, generating coordinated responses for the adaptation of sectors and actors vulnerable to the impacts of climate change, and especially developing and implementing the National Plan for Climate Change (PNAyMCC), of which the current plan is a part. Specifically, through the GNCC, the aim is to design national climate policy with technical expertise and through institutional and intersectoral agreements.

The GNCC is the main instance of coordination and articulation between the different areas of government for the debate and elaboration of public climate policies. Consequently, its structure responds to the need to guarantee an integral, technical-political, representative and participatory governance scheme, both for national ministerial portfolios and subnational

jurisdictions, as well as for civil society, universities and other academic entities, Indigenous Peoples and any person or association interested in getting involved in the subject.

The internal work structure of the GNCC, as provided by Law No. 27520, Regulatory Decree No. 1030/2020 and the Internal Regulations of the space, approved by Administrative Decision No. 1013/2022, is organized in the Meeting of Ministers and its three Working Roundtables: the Focal Points Roundtable, the Provincial Articulation Roundtable and the Expanded Roundtable (Law No. 27520, 2019; Decree No. 1030/2020, 2020). The CTA also has, by provision of the regulatory decree, the power to create working groups to attend the working instances. These may be sectoral or cross-cutting, permanent or temporary. This structure also includes the External Advisory Council (CAE, by its Spanish acronym), of a consultative and permanent nature, whose function is to assist and advise in the development of public climate policies.

# 2.2.2.1. Meeting of Ministers

The Meeting of Ministers, in which the highest national ministerial authorities from different areas of the APN are present, is the main working instance to coordinate this articulation. At the time this plan was developed, it was composed of the following governmental areas: Environment and Sustainable Development; Agriculture, Livestock and Fisheries; Science, Technology and Innovation; Culture; Defense; Productive Development; Social Development; Territorial Development and Habitation; Economy; Education; Interior; Justice and Human Rights; Women, Gender and Diversity; Public Works; Foreign Affairs, International Trade and Worship; Health; Security; Labor, Employment and Social Security; Transportation and Tourism and Sports. It should be noted that this list is not exhaustive and that the remaining areas may be involved when deemed necessary.

Likewise, this space is empowered to approve resolutions, declarations and recommendations with a view to operationalizing the various climate actions and measures that emerge from this working space.

### 2.2.2.2. Focal Points Roundtable

The purpose of the Focal Points Roundtable is to work at the technical level in the preparation and implementation of the PNAyMCC and in the production of any document to be submitted to the UNFCCC. This Roundtable is made up of one or one representative from each of the ministries, and operates through ad hoc working groups, for which representatives are designated for its formation.

Ad hoc working groups can be sector-specific or cross-cutting, either permanent or temporary, depending on their specific objectives. These groups have coordination, reporting, and secretarial support to ensure their effective operation, both in logistical and operational and technical aspects.

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At the time of the development of this plan, the following working groups are in operation:

- Energy transition
- Sustainable mobility
- Sustainable management of agroecosystems and forests

- Conservation of biodiversity and the common goods
- Productive transition
- Sustainable and resilient territories
- Action for climate empowerment
- Research, development and innovation
- Economics for transition
- Institutional strengthening
- Foreign Affairs
- Gender and diversity
- Comprehensive risk management
- Just labor transition
- Health

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## 2.2.2.3. Provincial Articulation Roundtable

The Provincial Articulation Roundtable is composed of the members of COFEMA or, in their absence, those instituted by the COFEMA Assembly. This Committee is chaired by the CTA and is permanent.

Its purpose is to coordinate actions between the Nation and the provinces and to provide feedback on the work carried out in terms of climate change adaptation and mitigation in each jurisdiction. In this way, the Climate Change Response Plans defined in Article 20 of Law No. 27520 are addressed jointly by the CTA and the Climate Change Commission of COFEMA. In reference to them, the law specifies that they must be developed through a participatory and transparent process in the different jurisdiction must promote participatory processes that lead to the definition of better adaptation and mitigation proposals (Law No. 27520, 2019).

# 2.2.2.4. Expanded Roundtable

The objective of this working group is to generate a dialogue on national public policy that guarantees, on the one hand, the public's right to information and, on the other, participation in the process of designing, improving, updating and implementing national climate policy.

The Roundtable is composed of representatives of the Meeting of Ministers, or their designees, and representatives of the Focal Points Roundtable and the Provincial Articulation Roundtable. In addition, all interested actors are invited to participate, including the academic sector, workers, civil society, representatives of political parties, trade unions, municipalities, Indigenous Peoples and the private sector, among others.

# 2.2.2.5. External Advisory Council

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To complete the national climate governance framework, the law establishes the External Advisory Council (CAE). This council, of an advisory and permanent nature, primarily assists the GNCC in the development of national climate policies related to the implementation of Law No. 27520 and, in particular, in the creation of the National Plan for Climate Change (PNAyMCC). Through Resolution SCCDSel No. 1/2022, the internal regulations for the

selection of members and the functioning of the CAE were approved. Consequently, this space has been operational since March 2022 (Resolution No. 1/2022, 2022).

The CAE is composed of twenty councilors representing a plurality of sectors, such as scientists, experts and researchers; representatives of environmental organizations, trade unions, Indigenous Peoples, universities, academic and business entities, and public and private research centers with academic and scientific background or with a track record in the field, and representatives of political parties with parliamentary representation. Their selection is made taking into consideration the principles of transparency, gender balance, multidisciplinarity, regional representation and suitability in the field.

As a result of the work of the CAE, recommendations and proposals are formulated to the GNCC, which must be mandatorily considered by the latter. The GNCC must specify how these recommendations were taken into account or, if not, the reasons for dismissing them. In this regard, for the development of the current NAP council members have worked and made substantial contributions that were considered by different GNCC bodies.

# **Section 3 Diagnosis**

# 3.1. Analysis of threats associated with climate change

# 3.1.1. Observed changes in the climate system at the global level

The scientific results regarding anthropogenic changes in the climate system are compelling. As indicated in section 1.1, global surface temperature has increased by 1.09 [0.95 to 1.20] °C from the period 1850-1900 to the period 2010-2019, due to human activities. This warming has been 1.59 [1.34 to 1.83] °C over land, substantially higher than over the ocean, where it increased 0.88 [0.68 to 1.01] °C. Even so, the ocean has warmed faster during the last century than since the end of the last glacial transition (about 11,000 years ago) and marine heat waves have doubled in frequency since 1980 (IPCC, 2021).

In fact, the last five years have been the warmest ever recorded. The year 2016, influenced by El Niño, was the warmest year on record (1.2°C above pre-industrial levels), followed by 2019 (1.1°C above pre-industrial levels). Moreover, since the 1980s, each decade has been warmer than the previous one (WMO, 2019). In this regard, if the current emissions trajectory continues, the global average temperature could increase by 3.3 to 5.7°C by the end of the century (IPCC, 2021). The global surface temperature of the planet will continue to rise, at least until mid-century, under all possible emissions scenarios considered by the IPCC AR6. Faced with this scenario, the IPCC reports that global mitigation efforts need to be increased fivefold to keep the temperature below the 1.5°C global average temperature target, as agreed upon in the Paris Agreement (UNEP, 2019).

The same report indicates that additional global warming, even at 1.5°C, will lead to an increase in some unprecedented extreme events compared to observed records (IPCC, 2021). In fact, AR6 reaffirms the AR5's conclusion regarding the almost linear relationship between cumulative anthropogenic  $CO_2$  emissions and the resulting global warming. It is considered that every 1,000 gigatonnes of accumulated  $CO_2$  can increase global surface temperature by between 0.27°C and 0.63°C (IPCC, 2021).

Warming has affected the Himalayas, the Swiss Alps, and the Central Andes, especially in higher-altitude areas. The total mass loss of all glaciers globally, excluding those on the periphery of the polar ice caps, for the period 2005-2009 is estimated at 301  $\pm$  135 gigatonnes per year, which is equivalent to a sea level rise of 0.83  $\pm$  0.37 mm per year (IPCC, 2013). The rate of ice sheet loss multiplied by four between 1992-1999 and 2010-2019. The loss of mass from ice sheets and glaciers was the primary cause of the average sea level rise during 2006-2018, although not the only one. As indicated in AR6, the sea level rise during 1971-2018 is explained by a 50% increase in ocean temperatures, a 22% loss of glacier ice, a 20% loss of ice sheets, and an 8% change in land water storage (IPCC, 2021).

Regarding changes in precipitation values, the global land precipitation average has increased since 1950, with a greater increase since 1980. Additionally, AR6 concludes that extreme daily rainfall globally is projected to intensify by 7% for every 1°C of global warming (IPCC, 2021).

These changes have contributed to the increase in climate-related disasters recorded, which increased by 74% between 2000 and 2019 compared to the period from 1980-1999, totaling 7,348 in the most recent period (resulting in the death of 1.23 million people and affecting another 4.2 billion, with a global economic loss of around USD 2.97 trillion). In the last 20 years, the number of floods has also doubled compared to the previous period (UNDRR, 2020). Additionally, in the last 70 years, there has been an increased probability of compound or combined extreme events, such as heatwaves and droughts occurring simultaneously, the simultaneous occurrence of conducive conditions (heat, drought, and wind) for fires, or flooding caused by a combination of storm surges and extreme precipitation (IPCC, 2021). The observed changes in climate variables globally have had widespread impacts on ecosystems, groups of people, settlements, and infrastructure. According to IPCC's AR6, some of the risks arising from these impacts are inevitable in the short term, regardless of the greenhouse gas emission trajectory adopted. However, many can still be reduced or addressed through adaptation actions (IPCC, 2022).

Focusing on South America in particular, AR6 (IPCC, 2021) reports that mean temperatures have increased in all its subregions, and it is expected that these will continue to rise at a faster rate than the global average. Regarding precipitation, the southeastern sector of South America (SES, corresponding to the eastern part of Argentina, from latitude 40°S northward) has shown increased mean and extreme precipitation since the 1960s, which will continue to increase in the 21st century along with associated flooding as long as global warming continues. In contrast, a decrease in precipitation is expected in the southwestern part of South America (SWS, corresponding to the western strip of Argentina), which will be affected by more frequent and severe droughts, increased aridity, and climatic conditions favorable for wildfire spread. It is likely that glacier volume loss and permafrost thaw will continue in the Andes, causing significant reductions in the flow of rivers originating in the mountain range. For Patagonia (subregion SSA), an increase in the intensity and frequency of extreme precipitation and pluvial flooding is projected, along with increased agricultural and ecological drought by the mid-21st century. Regarding sea level, observations from the last three decades show that the relative sea level of the South Atlantic has been rising at a faster rate than the global mean sea level rise, and this process is expected to continue, contributing to increased flooding in low-lying coastal areas and coastal erosion in most sandy coasts. It is also expected that marine heatwaves will increase in the region during the 21st century.

# 3.1.2. Observed changes in the climate system at the national level

In Argentina, climate changes have been observed since the second half of the last century. According to climate model projections, these changes are expected to either persist or intensify in this century. The observed climate changes have had impacts on natural and human systems that, without adequate adaptation measures, would worsen in the future, increasing climate risks in our country. The TCN (SAyDS, 2015a) outlines the observed changes in climate variables in Argentina during the period 1960-2010, which are briefly summarized below.

Regarding the precipitation variable, during the period 1960-2010, there were increases in the average annual precipitation for most of the Argentine territory, with year-to-year and interdecadal variations. The greatest increases were recorded in the eastern part of the country, with increases of over 200 mm per year in some areas, but the percentage increases were more significant in some semi-arid areas. This change, along with land use transformations, had significant consequences on the water balance and hydrology of the region: in the east and center of the province of Buenos Aires, the south of Santa Fe, and the south of Corrientes, many fields transformed into permanent lagoons, and several bodies of water—such as Mar Chiquita in Córdoba and La Picasa in Santa Fe—significantly increased their surface area. Conversely, a negative variation in average annual precipitation was observed over the Patagonian Andes during the 1960-2010 period. In the case of Cuyo, the trends in river flows in the northern part of Mendoza and San Juan throughout the 20th century seem to indicate lower precipitation in their upper basins along the Andes. If this trend continues, it could affect the availability of irrigation water for viticulture and horticulture production and increase conflicts over various water uses.

In addition, between 1960 and 2010 there was an increase in the frequency and intensity of extreme precipitation in much of the country. The largest increases in the number of days with intense precipitation can be seen in dark blue in the map presented by the TCN (Figure 7).

Figure 7. Change in total annual precipitation for days with precipitation greater than the 95th percentile of local rainfall in mm, 1960-2010



Source: SAyDS (2015a).

Particularly in the provinces of Buenos Aires, Santa Fe, Entre Ríos, and Corrientes, there is enough information to determine that the number of extreme precipitation events doubled during this period. Additionally, an increase in maximum daily precipitation was observed in much of the Argentine territory. This resulted in more frequent urban floods, also influenced by inappropriate land use and occupation, which resulted in areas with high exposure and vulnerability, and hydraulic works exposed to climatic conditions different from those for which they were planned. It's worth noting that from 1958 to 2021, the most impactful urban floods claimed around 800 human lives and affected approximately 14.5 million people. Out of these 61 years, the first 30 witnessed 17 floods, while the subsequent 30 saw 48 floods (CRED, 2020). Additionally, during the period from 1985 to 2003, Argentina was one of the countries with the highest exposure to floods in the world, ranking among the top 36 (Christenson et al.,

2014). In this context, when considering warming thresholds of 1.5°C, 2°C, and 4°C, Argentina is among the top 20 countries in the world with the highest potential population affected by river floods (Alfieri et al., 2017). Furthermore, it's important to mention the Sudestada events, which are usually associated with flooding in the city of Buenos Aires. These events doubled from 50 to 100 from the 1960s to the beginning of this century (SAyDS, 2015a).

On the other hand, the maximum duration of almost precipitation-free days (dry spells) in the year has decreased in the provinces of Buenos Aires, La Pampa, Entre Ríos, Río Negro, Chubut, and southern Santa Fe. Conversely, in the western part of the country, in the Cuyo region, and more notably in the north, in the NOA region, dry periods during winter have become longer. In these regions, winter precipitation is scarce or nonexistent, and the increase in the maximum duration of dry days indicates a shift towards a longer dry winter period. This has created challenges in terms of water availability for some communities and livestock, and it creates more favorable conditions for grassland and forest fires.

It should also be noted that the strong year-to-year and interdecadal variability of precipitation is largely explained by the El Niño-Southern Oscillation (ENSO) phenomena, which causes above-average precipitation, and La Niña, which produces the opposite effect.

As for the temperature variable, during the period 1960-2010, in most of non-Patagonian Argentina, there was an increase in average temperature of about 0.5 °C, which exceeded 1 °C in some areas of Patagonia. In the center of the country, the temperature increase has been smaller and even decreases have been observed in some areas. The minimum temperature had greater increases than the maximum temperature, which had generalized decreases in the center of the country. In addition, contrary to what happened in the rest of the country, the maximum temperature in Patagonia had a greater or similar increase to the minimum. The reduction in cold extremes has been relevant in the entire mountain range region between 1950 and 2010, and has been registered as more intense in the central Andes of Mendoza and San Juan, according to the TCN. During this period, an average increase of 0.6 °C was observed in the mean annual temperature and an increase of 3 °C in the regional average daily minimum temperature.

Changes in the east and north of the country in indices related to extreme temperatures, such as fewer frosts and more frequent heat waves, are consistent with the observed warming in temperature. Heat waves have increased notably in the northwest of the country and have been very important in Entre Ríos, Buenos Aires, Santa Fe, Chaco and Formosa between 1960 and 2010 (SAyDS, 2015a). In regions close to CABA, the number of days of the year with heat waves doubled between 1960 and 2010.



Figure 8. Changes in the number of days with heat waves according to the WSDI in the period 1960-2010



Fuente: SAyDS (2015a).

Regarding glacier retreat due to temperature rise and, in some cases, decreased precipitation, almost all glaciers in the Patagonian Andes between 37° and 55° S have been retreating in recent decades. In this context, the TCN mentions that in recent decades, 48 out of the 50 largest glaciers in the Southern Patagonian Ice Field have shown an increasing reduction in ice surface. Additionally, it was observed that during the period 2000-2012, the reduction of the Southern Patagonian Ice Field (the largest ice mass in the southern hemisphere, excluding Antarctica) is equivalent to a sea level rise of about 0.3 mm (IANIGLA, 2019).

# 3.1.3. Future climate scenarios

The TCN (SAyDS, 2015a) also presents climate projections for the country for two scenarios of future greenhouse gas concentrations (RCP 4.5: moderate emissions and RCP 8.5: high emissions) and for two time horizons (the period 2015-2039 and the period 2075-2099). These

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climate projections were incorporated into the Climate Change Risk Map System (SIMARCC), an interactive tool that allows the identification of risks associated with climate change and presents them in a georeferenced manner. This tool, along with other information, can be used by decision-makers in the development of public policies and climate change adaptation actions.

Future adjustments for temperature, precipitation, glacier retreat and sea changes are described below.



# Figure 9. Climate change impacts and risks in Argentina

Source: SAyDS (2015a).

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#### Temperature

With regard to projected temperature changes, an increase in annual average temperature is expected throughout the country during this century, both in a scenario of moderate increase in greenhouse gas concentration (RCP 4.5) and in a high one (RCP 8.5). In the medium term, up to 2039, the rate of warming would be faster than that observed in recent decades, with projected increases of between 0.5 and 1°C compared to the present (1986-2010). By contrast, by the end of the century, projections indicate a temperature increase that would be greater in the north than in the south.

According to the TCN, the maximum projected temperature increase would occur in the northwest. This extends southward in the scenarios of higher warming, reaching up to central Patagonia with more than 3°C. This is because the northwest region is not only far from the sea but also its continental characteristics are intensified by being enclosed between the Sierras Pampeanas, from Salta to San Luis in the east, by the Andes in the west, and by the Puna in the north, increasing its isolation from air masses coming from the sea, which would make the warming less.

As for the Cuyo region, increases of 3.7 °C to 4.8 °C in minimum temperature can be observed throughout the region for a long-term high emissions scenario (2050-2100). However, for a short-term scenario (2015-2039) of medium emissions, significant changes can also be observed, with an increase in the minimum temperature reaching 0.9 °C. In Cuyo, there is also an increase in the dry spell, which exceeds the 10-day difference between the projections for the near future (2015-2039) and the present values for the southwest of the region.

Furthermore, according to the TCN, the two CMIP5 global climate models that best represent the regional climate in Patagonia are projected to warm moderately by +0.5°C to +1°C over the entire region in the 21st century. In the long-term RCP 8.5 scenario, the increase would be substantially higher.

Regarding extreme temperatures, projections are consistent with observed trends, i.e., fewer frosts and more days with heat waves. Frosts would be reduced by up to 10 fewer days per year in the south of Buenos Aires and would disappear in the north of the humid region<sup>9</sup> (Barros et al., 2018).

### Precipitation

According to the TCN, in relation to the projections of average annual precipitation, large variations are not expected for the near future, since the projected changes are between -10% and 10%, percentages that are within the margin of error of the evaluations carried out. These relative variations would remain within these thresholds until the end of the century for a large part of the national territory. However, in the distant future, annual precipitation would decrease by 10-20% in most of Patagonia and, under an RCP 8.5 emissions scenario, relative decreases of similar magnitude could also be observed in the southwestern portion of San Juan. These relative decreases do not entail large reductions in absolute terms in places with scarce precipitation, such as the Patagonian plateau, but could represent relevant values in the

<sup>&</sup>lt;sup>9</sup> Buenos Aires, Santa Fe, Corrientes, Entre Ríos y Misiones.

mountain range region. In this sense, the conjunction of trends towards higher temperatures and lower precipitation sets up a scenario of a tendency towards greater aridity in these areas. Likewise, the regions that, without projections of reduced annual precipitation, do not show significant increases in precipitation, could be affected by situations of greater water stress in the face of increased atmospheric demand for water due to higher temperatures.

As for extreme precipitation events, increases in their frequency and intensity are projected in virtually the entire country, although the quantification of this projected change exhibits considerable levels of uncertainty (SAyDS, 2015a).

#### Glacier retreat

Regarding glacier retreat, the TCN mentions that the trend of decreasing ice surface is expected to continue throughout this century, in line with projections of temperature increase under all greenhouse gas concentration scenarios. In fact, it is expected that many ice bodies will shrink or disappear over the coming decades, even if emissions are reduced and temperatures stabilize, as they take a considerable amount of time to adjust to climate changes. With higher emissions, these losses will be much more pronounced. The latest IPCC report projects a decrease in the mass of these ice bodies for the end of the century, compared to the year 2015, of  $33 \pm 26\%$  and  $47 \pm 26\%$  under RCP 4.5 and RCP 8.5 scenarios, respectively. Additionally, these changes are expected to be accompanied by a reduction in the extent and duration of the snow cover (IPCC, 2021).

The reduction in glacier volume, snow cover, and the degradation of frozen soils reduce the capacity to regulate the flow and quality of rivers originating in the Andes, endangering the integrity of ecosystems and communities in western Argentina. This affects the ability to mitigate excessive water flows in the short term and, in the medium to long term, results in decreased water resources with reductions in river flows.

Additionally, the loss of glacier and periglacial environments also leads to increased landscape instability. On one hand, the projected decrease in debris-covered glaciers and permafrost results in a thickening of the active layer, leading to more frequent landslides. On the other hand, the instability of glaciers could have consequences such as potential large-scale flooding due to the collapse of glacial lakes, for example.

### Changes in the sea

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With regard to sea level rise, the TCN points out that some tidal plains on the coast south of Bahía Blanca, such as Bahía Anegada and Bahía San Blas, and the southern area of Bahía Samborombón could be affected by permanent flooding. Beyond these areas, sea level rise would impact the entire Argentine maritime coast and the Río de la Plata, since they affect storm surges and erosive processes.

Meanwhile, NASA's projections indicate sea level rise compared to the period 1995-2014 of more than 10 cm in the near future (2040) in most of the national territory, including the Malvinas Islands, and lower only in the southernmost part of the American continent and the Antarctic Peninsula, under both RCP 4.5 and 8.5 scenarios. This increase in sea level, which would affect the La Plata River, would be much greater by the end of the century, with

noticeable differences between moderate and high emissions and stronger impacts in lower latitudes than higher ones. Specifically, for the year 2100, sea level rise of about half a meter could be expected from Puerto Madryn to the city of Buenos Aires under an RCP 4.5 scenario, and very close to or exceeding 70 cm under a conservative RCP 8.5 scenario. For Tierra del Fuego, Antarctica, and the South Atlantic Islands, increases of around 25 cm could be expected under an RCP 4.5 scenario and over 40 cm under an RCP 8.5 scenario.

The sea level rise would have consequences for the coastline (INA, 2020). Studies by the National Water Institute (INA, by its Spanish acronym) predict coastal erosion setbacks for the Buenos Aires maritime coast by the year 2045, under both scenarios, ranging from 6.7 m to 34.6 m, depending strongly on the geographical location. For the year 2100, the setbacks projected by these studies are from 18.6 m to 83.2 m under an RCP 4.5 scenario and from 26.9 m to 124.8 m under an RCP 8.5 scenario. The Patagonian coasts, although more characterized by cliffs, could also experience setbacks.

Beaches bounded by cliffs or by urban settlements and forestation could gradually lose their extension and even disappear. In some cases, the integrity of coastal ecosystems and with them, their functions, could be affected by sea level rise. These include the Patagonia region, the northern coast of the San Matías Gulf, Río Negro province, and, in the central region, the area south of Samborombón Bay, which is important for its biodiversity. In most of the coast of the La Plata River, the effect of sea level rise would be different and would be manifested by the aggravation of recurrent flooding due to the effect of meteorological situations with strong southeasterly winds, especially when superimposed with large astronomical tides.

On the other hand, changes in other variables of the Argentine Sea are expected. Specifically, it is projected that the pH of the Argentine Continental Shelf, which is estimated to have decreased by an average of 0.1 units since the preindustrial period, will continue to decrease. This would have consequences for the development of various marine organisms, especially those with calcareous structures, and at the base of multiple food chains, as the decrease in pH negatively affects calcification processes, particularly in phytoplankton and zooplankton organisms, as well as in corals and mollusks.

Likewise, it is projected that the southward penetration of the Brazil and Malvinas currents convergence will continue to increase, which could affect the distribution patterns of marine biodiversity and the life cycle of multiple species, potentially leading some to extinction. In addition, an increase in sea surface temperature is also expected in the next century, along with a higher frequency of marine heatwaves, which impact numerous species. According to studies by the National Institute for Fisheries Research and Development (INIDEP), marine heatwaves occurred on more than 50% of days between 2014 and 2017. Temperature increases also lead to substantial rises in chlorophyll concentration, bacterial abundance, jellyfish, and the advancement of spring algal blooms.

# 3.1.4. Characterization of hazards associated with climate change

A risk analysis that takes into account the particularities of the territories is essential to be able to take adaptation measures. In this sense, a regional approach was chosen for the risk analysis, based on the large territorial extension, biogeographic and climatic diversity, and the

heterogeneity in the changes in the climatic variables shown by the projections that consider the different emission scenarios.

As a starting point for these regional diagnoses, hazard chains were developed. The purpose of these chains is to synthesize the most relevant hazards for each region and serve as inputs for carrying out specific risk analyses. The hazard chains for the five regions into which the national territory was divided (as discussed in section 1.4.1.1) are presented below, with a brief explanation of each one.

Central region

The variations associated with climate change considered for the Central region are related to temperature, precipitation, winds,<sup>10</sup> changes in sea level and sea surface temperature and pH.

Similar to other regions, there will be a generalized increase in average, minimum and maximum temperatures. Consistent with this, the number of tropical nights and days with heatwaves is expected to rise, while the days with frost will decrease. The risks associated with these changes will be aggravated by processes such as deforestation and the deterioration of wetlands, which reduce the capacity of ecosystems to mitigate thermal extremes.

These temperature increases will result in higher atmospheric water demand and associated higher evapotranspiration. These conditions favor the accumulation of dry biomass and, combined with situations of receding flows, reduce the surface area of bodies of water that act as natural firebreaks, which generates more favorable scenarios for the occurrence and spread of fires caused by various human activities. This, in turn, can be aggravated by the growing presence of exotic species, particularly certain forest species.

In relation to precipitation, threats associated with both excess and deficit can be expected. Although no major changes in average annual precipitation are projected for the entire region, and even the models used in the TCN show a tendency towards a slight increase, in some areas, particularly in the north and west of Córdoba, an increase in the maximum length of consecutive dry days is projected. It could also be expected, for the entire region and with greater uncertainty, a greater frequency of dry years associated with a higher frequency of La Niña events (Cai et al., 2015) and, according to the IPCC Atlas (Iturbide et al., 2021), a change in the seasonality of rainfall with drier winter periods. These conditions would generate an increase in the intensity of droughts (the latter closely linked to the increase in evapotranspiration, associated with the rise in temperature), which could, in turn, have an impact on land degradation, which would be exacerbated in sites with low vegetation cover or with pre-existing processes, such as the deterioration of wetlands, overgrazing or deforestation.

The change in the seasonality of precipitation could also alter water balances and hydroperiods, thus modifying ecosystem dynamics associated with water availability. This can generate changes in the structure and functioning of these ecosystems and, therefore, also in the provision of associated ecosystem services.

<sup>&</sup>lt;sup>10</sup> Although there are no wind projections in the TCN, there are observations on the shift of the South Atlantic anticyclone and studies on the increased incidence of southeast winds, which are relevant for the Central region.

Excess precipitation, on the other hand, refers mainly to the increase in the frequency and intensity of heavy rainfall linked to higher atmospheric temperatures, which, especially in the absence of adequate environmental management of the territory, would cause an increase in the frequency and intensity of floods, increased runoff, water erosion and landslides.

In the east of the province of Buenos Aires, flooding could also be aggravated by the expected rise in sea level and the level of the La Plata River, the increase in the intensity of storm waves and the frequency and intensity of southeast storms. These phenomena would affect the coasts: They would cause greater erosion and the retreat of coastlines, as well as more frequent coastal flooding. The rise in sea surface temperature, together with an increase in the number and duration of marine heat waves and the acidification of marine waters, will affect the development of biodiversity, particularly calcareous-bodied animals and associated food chains. In addition, the increase in wave energy, as a result of the increase in the frequency of occurrence of waves and the average heights of waves coming from the east and southeast of the La Plata River, will affect benthic species and phytoplankton in coastal areas because the amount of sediments will be altered (MAGyP and INIDEP, 2019).

Climate hazards are exacerbated by anthropogenic threats which, in the Central region, are mainly related to deforestation or changes in native vegetation, the deterioration of wetlands, the introduction of invasive exotic species, urban expansion and associated activities, and the inappropriate use of agrochemicals.

In the Central region, some of the effects of hazards on the functioning of ecosystems include air pollution from fires, contamination of aquifers and surface water bodies, and the impact on food chains and fish biodiversity, among others.

#### Cuyo region

The climatic variables considered for the Cuyo region were temperature and precipitation. Likewise, the interdecadal variation due to the El Niño-La Niña (ENSO) southern oscillation was taken into account in its capacity to influence the snowfall regimes that have a significant impact on the hydrological cycle in these drylands.

For the Cuyo region, an increase in the average temperature is expected, as well as in indicators of temperature extremes, such as the number of tropical nights, the frequency of heat waves and a decrease in the number of days with frost. Environmental degradation processes of anthropic origin, such as deforestation or other alterations of native vegetation and the deterioration of wetlands, in this region, in addition to higher temperatures, will increase the possible impacts of such threats, contributing to soil degradation and increasing desertification. The increase in average temperatures implies an increase in atmospheric demand. This, without a significant change in average precipitation or even with a decrease in the mountainous area, could lead to increased water stress for vegetation. Additionally, heatwaves, along with this increased atmospheric demand, could promote the presence of dry biomass, which facilitates the occurrence of fires. This is exacerbated by the increasing presence of exotic species and becomes critical in locations where human activity leads to uncontrolled fire outbreaks.

The increase in heavy rainfall and runoff during these events can lead to mudslides that erode and contribute to soil degradation, especially in lands that have already undergone prior degradation processes (e.g., overgrazed lands). Particularly, in contexts of poor waste disposal, effluent discharge, or inadequate mining, agricultural, and hydrocarbon extraction practices, these processes increase the transport of pollutants and waste, contributing to the contamination of surface water and aquifers.

Droughts are the most characteristic threat in most of the Cuyo region. Droughts are expected to increase in frequency, length and intensity (with greater water deficit). The flows of the Cuyo rivers, which have a snow-glacial regime, will be affected by lower snow precipitation, the elevation of the 0 °C isotherm and its effect on the retreat of glacial and periglacial environments. In the provinces of San Juan, La Rioja and Mendoza, these rivers are almost the only water source for the irrigated oases that concentrate the vast majority of the population and economic activity in the Cuyo region. In these scenarios, hydrographs will continue to alter and become increasingly out of step with crop demands, and water balances —already compromised— will become increasingly tight, especially in the context of growing demands and urbanization processes. In this context, the satisfaction of water deficits with groundwater puts greater pressure on aquifers.

In Cuyo, the effects on the functioning of ecosystems are linked to processes such as: the shifting of altitudinal floors, the degradation of wetlands—in places especially associated with mining activities in high altitude areas and urban and agricultural water consumption in wetlands in distal areas of the basin—, the loss of native forest, atmospheric pollution associated with fires, the increase and distribution of disease-transmitting vectors, and changes in the distribution of insect populations (beneficial insects), the increase and distribution of the population of vectors that transmit diseases and changes in the distribution of insect populations, which are accentuated in the context of deforestation processes, wetland deterioration, the introduction of invasive exotic species and also with the inadequate disposal of waste and the dumping of effluents.

# Chart 2. Impacts of climate change in the Central Region<sup>11</sup> from the perspective of Indigenous Peoples

In the Intercultural Dialogue with Indigenous Peoples carried out for the Central region, several impacts were identified, including the following:

- With the decrease in rainfall, there is a lack of water availability, linked to longer dry periods (indicated in general and for certain specific points, such as Caucete, Bermejo and Vallecito, in San Juan, and in the Huarpe territory of the provinces of Mendoza, San Luis and San Juan), and a decrease in water from the rivers and lower water tables (in the east of Córdoba).
- With decreasing rainfall, changes in snowfall and rising temperatures, glacier

<sup>&</sup>lt;sup>11</sup> As described in section 1.4.1, the regionalization of the Intercultural Dialogues covers seven provinces (Buenos Aires, CABA, Córdoba, Mendoza, San Juan, San Luis, and La Pampa).

retreat is observed, leading to changes in river flow. This is aggravated by the change in river direction caused by dams and aqueducts.

- The situation described above leads to a decrease in access to safe water, which affects integral health.
- As temperatures rise, there is a greater proliferation of vectors that transmit diseases and pests (e.g., invasion of locust swarms) that are detrimental to production.
- There is an increase in the number of days with extreme temperatures (frost and heat waves), which causes loss of animals and health problems.
- Prolonged periods of drought have increased the desertification process, have affected the sowing period and have caused livestock losses (especially goats and cattle) due to the decrease in forage and pasture.
- Due to the increase in temperature and interaction with other human activities, the spread of fires (mainly in La Pampa and Córdoba) is increasing, affecting biodiversity.
- There is evidence of dust or earth storms, salt clouds and soil erosion (mainly in Córdoba, associated with land clearing and the extension of dry periods), and stronger winds in La Pampa. This is related to extractive activities that affect the mountain ranges that used to stop these winds.
- Likewise, there are changes in animal behavior associated with higher temperatures: changes in the basking hours of lizards or changes in the behavior of birds such as calandra larks (linked to higher mortality).

On the other hand, the extractive activities that generate the greatest impact (anthropic drivers) were identified, including: the increase in the real estate business and indiscriminate logging of forests (specifically carob trees), which generates the invasion of exotic species (for example, the displacement of predators such as the puma or the gray fox), the increase in diseases associated with the use of agrochemicals and pollution (cancer), and the destruction and alteration of ecosystems.

Source: based on the results of the Intercultural Dialogue of the Central Region (2022).

#### Argentine Northeast region (NEA)

The climatic variables considered for the NEA region were precipitation and temperatures. In addition, the interdecadal variation due to the El Niño-La Niña Southern Oscillation (ENSO) was considered as an additional factor affecting the entire hazard scheme.

The increase in temperature is evident in both average, minimum, and maximum temperatures, as well as in a higher number of tropical nights, a decrease in the number of frost days, and an increase in the frequency of heatwaves. These temperature increases lead to an increase in atmospheric water demand, which raises potential evapotranspiration. As mentioned in the Central region, human-induced environmental degradation processes, such as deforestation or other alterations of native vegetation and wetland deterioration, reduce the capacity of these ecosystems to mitigate temperature extremes, enhancing associated risks.

The increase in evapotranspiration, combined with a shift in the annual distribution of precipitation (resulting in drier winter periods), and, in the northwest of the region, an extension of the maximum dry spell, would also favor the accumulation of dry biomass. These factors would also contribute to the shrinking of the surface area of water bodies that could act as natural firebreaks, especially those dependent on the Paraná and Paraguay rivers, as projections indicate a decrease in precipitation that feeds these rivers in the upper part of the Plata basin, outside of Argentine territory. This combination would not generate fire outbreaks but would create scenarios that increase the magnitude and extent of fires when they occur due to human activities and make extinguishing them more challenging. The situation would be particularly aggravated in La Niña years, whose frequency would increase according to studies by Cai et al. (2015), and in the presence of plantations of exotic species, improper use of burning as a farming practice, or waste burning. The mentioned changes in climatic variables would also lead to the intensification of droughts.

As implied in the previous paragraph, even though annual precipitation in the NEA region has projections of slight increases, the hydroperiods and the dynamics of the extensive wetland landscapes in the region could be strongly affected by changes in precipitation in other parts of the basin, in addition to the change in local seasonal rainfall patterns. On one hand, water bodies dependent on the water levels of the Paraná and Paraguay rivers could be reduced or even disappear in some cases due to pronounced drops in these river levels, with negative repercussions for the ichthyofauna and biodiversity associated with these ecosystems in general. On the other hand, to the east of the region, the Uruguay River could increase its flow and lead to floods.

On the other hand, higher temperatures increase the intensity of hailstorms and torrential rainfall. This, added to the seasonal concentration of precipitation, leads to a higher frequency of extreme rainfall events. The latter can give rise to a greater volume of runoff that favors the overflowing of watercourses, the silting of water tables, and flooding and inundation. This can also be associated with anthropogenic processes, such as deforestation and other alterations of native vegetation, the deterioration of wetlands and the expansion of urbanization. Especially in a context of poor waste disposal and effluent dumping or inadequate use of agrochemicals, these processes increase the transport of pollutants and waste, which contributes to the contamination of surface water and aquifers. Floods, together with the fires mentioned above, also contribute to land degradation. The aforementioned heavy rainfall can lead to erosion, especially on land with little vegetation cover, whether due to overgrazing, inadequate agricultural practices, deforestation or other factors.

In the NEA region, the impacts on ecosystem functioning are the result of multiple anthropogenic degradation drivers. Wetland degradation, for instance, is linked to the expansion of agricultural and livestock frontiers and the use of inappropriate livestock grazing practices. More specifically, it is associated with overfishing or urban expansion. Forest loss is primarily linked to the expansion of agricultural and livestock frontiers. The functioning of ecosystems in general is also affected by various pressures, including the presence of invasive exotic species, air pollution caused by fires, the increase and distribution of disease vector populations (such as mosquitoes that transmit diseases like dengue, yellow fever, Chagas disease, West Nile fever, among others), changes in insect populations (whether they are pests

or beneficial insects), waste disposal and effluent discharge, and the inappropriate use of agrochemicals.

# Chart 3. Impacts of climate change in the NEA region from the perspective of Indigenous Peoples

In the Intercultural Dialogue with Indigenous Peoples carried out for the NEA region, several impacts were identified, including the following:

- It is mentioned that there is an increase in the number of days with extreme temperature conditions, which means that the difference between seasons (summer and winter) is no longer as pronounced. This creates uncertainty when it comes to planting and harvesting crops, such as cassava, for example. It is observed that these climate changes can no longer be predicted based on the signals provided by other species.
- Increase in the amount and spatial concentration of rainfall affecting crops and access to water.
- It is mentioned that there is an increase in the occurrence of large hailstorms, sometimes without accompanying rainfall, which were not common in the area (for example, the case near Las Chuñas).
- Increase in strong tornado-like winds, especially in the provinces of Santa Fe, Chaco, and Entre Ríos.
- It is observed that each year there is a further decrease in the water level of lakes and lagoons, as well as a reduction in river flow due to the increasing intensity of droughts.
- Reference is made to the water crisis due to the increase in the length of dry days, which leads to a lack of water for human consumption, animals, and irrigation.
- Due to the rise in temperature and its interaction with other human activities, the spread of fires affecting biodiversity has increased. In particular, pine trees (an invasive species) are more susceptible to fire, impacting native species such as carob trees.
- Changes in vegetation distribution have been observed, with plants like yerba lucero and medicinal plants no longer growing as they used to. This affects the transmission of ancestral knowledge associated with these plants.
- Fish are affected by agrochemicals and the decreased water levels in streams, which is compounded by higher temperatures and salinity.
- There is an increase in land degradation and desertification.

On the other hand, activities were identified that exacerbate some of the previously mentioned impacts (anthropic drivers), including: paper companies, dams (which affect water availability), the problem of waste collection and treatment, tourism, deforestation (such as carob trees) and forestation with exotic species, excessive use of agrochemicals (by

the criollo production model, which affects health) and monoculture, and soil degradation due to fires. In addition, mention was made of the precariousness of land ownership, ongoing conflicts throughout the region (such as the privatization of territories) and uprooting.

Source: based on the results of the Intercultural Dialogue of the NEA region (2022).

#### Argentine Northwest region (NOA)

In order to identify threats to the NOA region, climate variables related to temperature and precipitation were considered. Interdecadal variation due to the El Niño-La Niña Southern Oscillation (ENSO) was also considered. For the east of this region, processes relatively similar to those of the NEA were identified, but on different socio-ecosystems, which have lower water availability.

In this region, the greatest increases in temperatures are expected in the entire national territory, much more pronounced in the west due to the orographic barriers that would prevent the entry of air masses from the sea (the Andes to the west, the Pampean mountain ranges to the east and the Puna to the north). Associated with this warming and the consequent increase in atmospheric demand for water, the threats of drought stand out here: more frequent, longer and also more intense (greater water deficit), with risks intensified by anthropic processes that undermine the capacity of ecosystems to reduce thermal extremes or regulate the water balance, such as deforestation and the deterioration of wetlands, as well as by human activities that involve high water consumption, such as mining or the irrigation of large areas for agriculture. Similarly to the NEA region, the increased frequency of La Niña years would exacerbate the risks associated with water stress, including the development of more favorable scenarios for fires. Additionally, in the Andean part of the NOA, as a consequence of these temperature increases, there is a reduction and fragmentation of high-Andean wetlands and the retreat of glaciers and periglacial environments, which could be exacerbated by activities affecting glacial systems, such as mining. This has an impact on the flow of rivers with a nival-glacial regime in the region, altering their hydrographs throughout the seasons and modifying water balances.

Observed and projected changes in precipitation could also have an impact on the latter. On the one hand, although slight changes in average precipitation are expected in the east of the region, depending on the emissions scenario and the time frame, in the mountain range, under all scenarios, average precipitation that feeds glaciers and rivers is projected to decrease. On the other hand, water deficits would be aggravated by alterations in the seasonal distribution of precipitation, with a prolongation of the maximum dry spell and, particularly, of the dry winter period.

This is consistent with a concentration of precipitation in the summer and autumn months, with an increase in the frequency of heavy rainfall events, which can result, on one hand, in river overflow and groundwater recharge leading to floods, especially when combined with urbanization without proper environmental planning or changes in land use to expand agriculture. Particularly in contexts of improper waste disposal and effluent discharge, or

inadequate mining, agricultural, and hydrocarbon extraction practices, these processes increase the transport of pollutants and waste, contributing to the contamination of surface water and aquifers. On the other hand, torrential rainfall can trigger alluvium and water erosion processes, especially in mountainous areas with steep slopes. Landslides and mudslides can also be influenced by the retreat of frozen soils -where they exist- and by anthropic activities that alter vegetation cover (such as deforestation) and landscape stability. These also have an impact on land degradation and the intensification of desertification processes. At the same time, changes in the seasonal rainfall regime alter water balances and hydroperiods.

In addition to the processes mentioned above, expected changes in the distribution patterns of biodiversity are anticipated, including shifts in the distribution of vector populations. Specifically, in this region, it would be expected that temperature increases would lead to an upward shift in vegetation zones in mountain ecosystems. These alterations would be exacerbated by the aforementioned anthropogenic degradation drivers, such as land-use changes through deforestation for agricultural expansion, and also by the introduction of invasive exotic species.

# Chart 4. Impacts of climate change in the NOA region from the perspective of Indigenous Peoples

In the Intercultural Dialogue with Indigenous Peoples carried out for the NOA region, several impacts were identified, including the following:

- With the increase in temperature, heavy rains and lack of water, there is a greater proliferation of vectors of Chagas disease, malaria and dengue fever. With respect to the latter, when it rains, communities accumulate water which, at the mean time, is a reservoir for the reproduction of the vector.
- Extreme heatwaves affecting children and the elderly were mentioned. This situation, along with heavy rainfall, creates a common issue of access to water for general consumption throughout the region.
- Extension of periods with prolonged droughts and an increase in the number of days with intense rains that alter the annual calendar. This has increased the desertification processes, which are detrimental to the sowing period, and livestock losses (especially goats and cattle).
- The salinization of land and water was mentioned.
- The presence of hurricane winds (especially in the mountain range area) not only generates infrastructure losses, but also, together with increasingly prolonged droughts, results in a lack of pastures for the animals.

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- Increased occurrence of pests, locusts and grasshopper that cause damage to production.
- Due to the increase in temperature, society is moving from cities to higher-altitude areas (territory of Indigenous Peoples in some provinces of the region) and occupying land that is not suitable for living, which increases the risk of landslides or avalanches. This also represents an invasion of cities into the community's territories.
- Due to the increase in temperature and interaction with other human activities, the spread of fires that affect biodiversity is increasing.
- Debido a las fuertes lluvias, durante la temporada de verano aumenta el caudal de los ríos Santa Cruz, Redonda y San Andrés, lo que aísla a las comunidades.

On the other hand, the extractive actions that have the greatest impact (anthropic drivers) were identified, including oil exploration and drilling and indiscriminate logging for the timber trade. The latter generates the invasion of exotic species (that move from other regions of Argentina), among which several cases were mentioned, such as toucans, monkeys and other birds that have affected the papaya plantation and other types of production; the invasion of the wild walnut tree; and the retreat of the puma population that affects the regulation of the ecosystem (natural control of rats and other animals).

Source: based on the results of the Intercultural Dialogue of the NOA region (2022).

### Patagonia region

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For the Patagonia region, the main climatic variables considered were temperature, precipitation, sea level, pH and sea surface ice concentration.

In the Patagonia region, the rise in temperature is also manifested in an increase in the number of tropical nights and frequency of heat waves, a decrease in the number of days with frost, and an increase in evapotranspiration. Similar to other regions, the increase in the accumulation of dry biomass will result in a higher occurrence and extent of fires, especially where exotic species have been introduced and in areas where human activities can generate ignition sources. In the Andean zone, the 0 °C isotherm will continue to rise, which, together with the decrease in precipitation, will cause glaciers to retreat.

Variations in precipitation patterns and seasonality threaten to modify river flows and hydrographs, which, in turn, would modify seasonal water balances, to which the retreat of glacial and periglacial environments also contributes. A greater frequency of extreme precipitation events would produce an increase in the frequency of channel overflows and the resulting floods, as well as greater risks of alluvium and avalanches. The latter is also conditioned by the loss of frozen soils, which implies greater instability of the landscape.

The expected rise in sea level, together with an increase in the intensity of storm waves, would affect the coasts, causing more erosion and the retreat of the coastline, as well as more frequent coastal flooding, especially in places without cliffs. The rise in sea surface temperature, together with an increase in the number and duration of marine heat waves, and the acidification of waters would affect the development of marine biodiversity, particularly affecting animals with calcareous structures, such as certain arthropods, mollusks and cold water corals. In the Patagonian Sea, a decrease in the concentration of ice on the sea surface is also expected.

Threats to the functioning of ecosystems in the Patagonia region are related to the shifting of altitudinal levels of vegetation in the mountain range, the degradation of wetlands associated with urban expansion, overgrazing and mining, atmospheric pollution caused by fires, the increase and distribution of the population of disease-transmitting vectors, and changes in the distribution of insect populations (both pests and beneficial), which are accentuated in the context of deforestation, wetland deterioration, the presence of exotic species and the disposal of waste and effluents, and the impact on food chains caused by changes in sea conditions.

# Chart 5. Impacts of climate change in the Southern region from the perspective of Indigenous Peoples

In the Intercultural Dialogue with Indigenous Peoples carried out for the Southern region, several impacts were identified, including the following:

- EIn the mountain range area, changes in snowfall and precipitation have caused a lack of water for human consumption and production.
- The Lanín National Park (sacred site) is drier every year due to a decrease in snowfall. On the other hand, the snow is melting faster and heavy rains also affect its persistence. The latter also affects the native flora and fauna.
- There has been an increase in the number of days with extreme temperatures (snowfall and heat), so that the difference between the seasons (summer and winter) is no longer so pronounced.
- It is observed that every year, in summer, the level of lakes and lagoons decreases more and more due to the increase in the intensity of droughts (for example, Musters Lake, Colhué Lake and those near the Lanín volcano).
- Reference is made to the water crisis due to the increase in the length of dry days, which leads to a lack of water for human consumption, animals and irrigation.

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  - With the increase in temperature and changes in winds, there is a greater proliferation of pests (e.g., invasion of toad suckers) that damage agricultural production and animal feed.
  - Due to the rise in temperature and the interaction with other human activities, the spread of fires that affect biodiversity is increasing. In particular, ponderosa pines (an invasive species), which are more prone to fire, are set on fire, affecting native species such as araucarias (for example, those located in the Pulmarí territory).
  - The Lanín volcano increased its temperature recently due to the decrease in snowfall.
  - Increased red tides and toxins (which can cause severe damage to mammals after consumption of contaminated bivalves) due to warmer sea surface temperature.
  - Land degradation and desertification are increasing.

On the other hand, extractive activities that exacerbate some of the previously mentioned impacts (anthropic drivers) were identified, including: lithium mining and oil activities and the increase in the real estate business (which generate waste that contaminates surface water and groundwater), and indiscriminate logging of forests, which generates the invasion of exotic species (e.g., grasshoppers) and leads to the planting of ponderosa pines and the destruction and alteration of ecosystems.

Source: based on the results of the Intercultural Dialogue of the Southern region (2022).

# 3.2. Analysis of risks associated with climate change

In order to define the scope of the adaptation component of this plan, the priority risks associated with regional development priorities were jointly selected with the provinces and CABA. These are listed in Table 5. It is expected that the adaptation measures included in this plan will contribute to the reduction of these risks.

# Table 5. Priority risks<sup>12</sup>

Risk	Region	Sectors involved
Risk of health impacts due to reduced access to safe drinking water for the urban population as a result of droughts.	All regions	water; health

<sup>&</sup>lt;sup>12</sup> For further details of the risk identification and prioritization process, see section 1.4.1. It should be clarified that the risks prioritized by region are included here, which does not imply that there are risks in certain regions that were not prioritized and, therefore, are not indicated in Table 5.

Risk	Region	Sectors involved
Risk of damage to ecosystems due to an increase in the extent, occurrence and spread of fires.	All regions	ecosystem services
Risk of reduced access to safe drinking water for the dispersed rural population.	All regions	water; health
Risk of limitations in hydroelectric generation due to a decrease in water availability.	All regions	water; energy
Risk of impact on the livelihoods of small, medium, family, peasant and indigenous producers due to fires, desertification, floods, and other threats.	All regions	agriculture, livestock and fishery; mobility; water
Risk of loss of access to housing and adequate habitation due to flooding.	Central, Cuyo, NEA and NOA	habitation and housing
Risk of health effects on people due to flooding (physical damage, infections and mental health effects).	Central and NEA	health
Risk of health problems in rural populations and low-income neighborhoods due to an increase in dengue cases.	Centro and NOA	health
Risk of loss of sources of monetary income due to the impact on the quality and flow of water available for (non-agricultural) production.	Cuyo and Patagonia	water; productive development
Risk of loss of sources of monetary income due to the impact on productive activities as a result of power outages following damage to transmission and distribution networks caused by extreme weather events.	NOA and Patagonia	energy; productive development
Risk of affecting the health and comfort of the urban population due to power outages caused by harmful effects on the transmission and distribution network infrastructure associated with heat waves.	Central	health; energy
Risk of increased hospitalizations and deaths in the elderly, young children and people with chronic diseases (cardiovascular, renal, respiratory, hypertension, diabetes and obesity), Indigenous Peoples, people with disabilities and those in vulnerable situations, such as homeless people, living in poor environments, due to heat waves.	Central	health; energy
Risk of loss of sources of monetary income due to damage to port infrastructure and coastal protection, associated with rising sea levels, storm waves and south storms.	Central	tourism and sports
Risk of loss of sources of monetary income due to damage to productive activities caused by damage to infrastructure or damage to the transfer of supplies caused by heavy rains and flooding.	Central	mobility; productive development

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Risk	Region	Sectors involved
Risk of affecting trafficability and physical connectivity for access to health institutions, both for the transport of supplies and for people, due to flooding of roads and highways in floods and avalanches.	Сиуо	mobility; health
Risk of reduced access to food for the urban population due to disruption of food distribution caused by avalanches or flooding of roads and access routes due to landscape instability following the loss of glacial and periglacial environments.	Сиуо	mobility; productive development; agriculture, livestock and fishery;
Risk of affecting the trafficability and physical connectivity of people and the transfer of supplies and services due to flooding or damage to roads and highways as a result of flooding.	NEA	mobility; productive development
Risk of loss or reduction of livelihoods due to the effects on the riverbanks caused by extraordinary low water levels in the Paraná River and flooding in the Uruguay River.	NEA	agriculture, livestock and fishery; habitation and housing; cultural heritage; productive development; mobility; tourism and sports
Risk of loss of sources of monetary income due to the impact on tourism activities caused by extreme events (heat waves, heavy rains, avalanches, and fires).	NOA	movilidad; energía; patrimonio cultural; turismo y deportes
Risk of loss of sources of monetary income due to a decrease in production as a result of the health of workers during transportation or in outdoor work areas due to exposure to extreme weather events or endemic diseases.	NOA	health; productive development
Risk of loss of access to housing and suitable habitation due to interface fires.	Patagonia	habitation and housing
Risk of affecting the health and comfort of the urban and rural population due to lack of access to energy due to heavy rainfall and other hazards.	Patagonia	health; energy
Risk of affecting the trafficability and physical connectivity of people and the movement of supplies and services due to flooding or damage to roads and highways caused by extreme events (heavy rainfall, snowfall and avalanches).	Patagonia	mobility; productive development
Risk of loss of sources of monetary income due to the impact on tourism activities due to the reduced availability of snow and water, and other threats.	Patagonia	tourism and sports; cultural heritage; water; mobility; mobility

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#### Risks present in all regions

In all regions, the increase in the extent, occurrence and spread of fires constitutes a risk to the integrity of ecosystems. The probability of an increase in fires, as mentioned in the description of hazard chains, is related to the increase in the frequency and intensity of droughts and higher temperatures, but also to the probability of the occurrence of ignition sources of anthropogenic origin. This risk is associated with different types of vulnerabilities. For example, in the agricultural sector, uncontrolled or inadequate burning as an agroecosystem management practice, together with insufficient knowledge of alternative practices (such as pruning and thinning in the case of environments with a predominance of woody species or adequate management of the livestock load in pastures), are factors that increase the susceptibility to fire risk. Woody communities such as abandoned plantations or those that arise after disturbances in native vegetation, such as degraded forests, also favor the spread of fire. Fire risk is also associated with institutional vulnerabilities, such as insufficient coordination between civil defense, environmental and production areas of the provinces and private actors to prevent, control and report fires; the lack or scarce implementation of fire management plans that are updated and have climate projections; and insufficient early warning systems and capacity to respond to events. Finally, on an economic and financial level, fire risk requires a better distribution of resources among subnational jurisdictions for fire prevention, control and management.

The general decrease in water availability is a climate impact that is highly associated with the risk of reduced access to drinking water, which was identified in all regions. This affects both the rural and urban population and can lead to health problems. Restrictions in access to drinking water are related to vulnerabilities derived from the poor state or non-existence of water catchment and transport infrastructure; contamination of surface and groundwater or the existence of salinized or unsuitable water for consumption; insufficient resources and knowledge for the construction and maintenance of water catchment, storage and treatment systems, as well as scarce regulations or institutional framework for the integrated management of water resources. The vulnerability associated with competition for water use within the same watershed and insufficient instruments to regulate urban expansion into areas with little feasibility of providing basic services also increases the risk of drinking water scarcity for dispersed rural and peri-urban populations.

In all regions, the risk of limiting hydroelectric generation due to a decrease in water availability is also identified, which is also related to previous existing vulnerabilities. These include insufficient diversification of power generation sources and lack of provincial participation in national energy policies. Competition among water uses (agricultural, industrial, energy, and human) also affects the risk of hydroelectric power in hydroelectricity generating regions.

The risk of affecting the livelihoods of small, medium, family, peasant and indigenous producers was also identified throughout the country, although the climatic variables associated with the probability of this risk vary by region. For example, in the Cuyo, Patagonia and NOA regions, the type of climatic hazards that affect the livelihoods of producers are especially related to problems in dry areas, while in the Central and NEA regions others, such as floods, are involved.

Furthermore, in all regions, the risk of affecting the livelihoods of producers is associated with the existence of various vulnerabilities. These include: inadequate technological development for small-scale agriculture and failures in the transfer of and access to existing technologies to producers; insufficient network organization and community participation; insufficient support for the transition to agroecology; degradation of productive land with the consequent loss of agroecological conditions; insufficient regulation and equitable access to land; and poor infrastructure for the transfer of supplies or products. Asimismo, resultan relevantes al riesgo para productoras y productores las vulnerabilidades derivadas de la insuficiente consideración de buenas prácticas ancestrales, tradicionales o locales; el insuficiente desarrollo o transferencia tecnológica; la incapacidad para competir con empresas de gran escala (con el consecuente debilitamiento de cadenas productivas regionales), y la escasa disponibilidad de herramientas financieras con enfoque de adaptación.

# 3.2.1. Risk characterization by region

The risks mentioned above are present throughout the national territory; a synthesis of the different risk components specific to each region is presented below. The different prioritized affectations and climatic hazards, exposed elements (general analysis units and sub-units within the above) and associated priority vulnerabilities are indicated. As mentioned in the first section, the latter were identified for each region in the First National Adaptation Workshop held with provinces and CABA.

### Central region

The Central region presents the risks already mentioned for the whole country and others detailed below.

More frequent heavy rainfall events, rising sea levels, and repeated storm surges and southeast winds are causes of flooding that translate into a risk of loss of access to housing and adequate habitation. Susceptibility to this risk is increased by the construction of housing and infrastructure, as well as their spontaneous location, in areas at risk of flooding and along the shores of fluvial-marine environments. These situations usually occur in contexts where access to urban land is difficult or in the context of institutions with opportunities for improvement, both at the municipal and provincial levels, with deficiencies in territorial environmental planning and in urban and habitation planning and management (particularly low-income habitation), as well as in the management of the basic housing demands themselves. There is also insufficient knowledge, application and regulations that take climate change into account in the design variables of infrastructure and housing.

Floods are also a cause of health risks for people, both because of the higher incidence of infections, the physical damage caused by these events, and their impact on the mental health of those affected.

In rural populations and in low-income urban and peri-urban neighborhoods, the temperature, humidity, and precipitation conditions that favor the reproduction of the Aedes aegypti mosquito also pose a health risk due to an increase in dengue cases. This risk is particularly

evident in areas of unplanned urban expansion, which occur in contexts with insufficient regulation and inequities in land access. It is exacerbated by deficiencies in flood contingency and recovery plans and, in general, in institutional situations with opportunities for improvement at both the municipal and provincial levels. These improvements should focus on environmental land use planning, overall planning, management, and especially integrated water resource management. In addition, poor waste management and some water storage practices are favorable for vector reproduction. Another factor that increases susceptibility to damage is the insufficient internalization of the link between vectors and climate change in the health area. Similarly, insufficient prevention programs during inter-epidemic periods and control programs during epidemics constitute weaknesses in the response and adaptation capacity that increase vulnerability to this health risk.

Another health and comfort risk for people occurs in urban centers of the region due to power outages during heatwaves. Energy consumption increases during these periods, overloading the infrastructure of transmission and distribution networks, which are already strained due to urbanization and rising energy demands. These heatwaves lead to an increase in hospitalizations and deaths, particularly among the elderly, young children, individuals with chronic illnesses (such as cardiovascular, renal, respiratory, hypertension, diabetes, and obesity), people with disabilities, and others in vulnerable situations, including those experiencing homelessness, indigenous groups, or individuals living in precarious habitation. The low coverage and accessibility of healthcare services represent an underlying vulnerability for this and other identified health risks.

The rise in sea level, storm surges, and southeast winds impact the port infrastructure and coastal protection structures in the Central region, posing risks of income loss for various economic activities in the region that depend on port operations. Insufficient knowledge of specific climate projections for coastal areas (e.g., coastline retreat, coastal erosion, sea level rise, storm surges, and southeast winds) and coastal defenses and port infrastructure designed without consideration of these climate projections are factors that increase the vulnerability of some ports to negative impacts. Productive activities that rely on infrastructure for the transport of supplies and products are also exposed to losses when they are affected by the increasingly frequent rains and floods.

The predisposition for the aforementioned risks to have a negative impact is increased by the insufficient knowledge of local governments on comprehensive risk management and the adaptation approach in policies, initiatives and public works.

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# Figure 10. Characterization of climate risk in the Central region



Units of analysis > Rural and urban population

Intentional fires

- > Extractive activities (mining, etc.)
- › Wetland drainage
- › Overgrazing
- > Introduction of exotic species
- > Urban sprawl
- › Waste disposal and effluent discharge
- Inadequate use of agrochemicals

- Infrastructure and habitat: > Insufficient electric power distribution infrastructure in the face of the growth of urbanizations > Irregular extensions and connections of electric power grids > Insufficient implementation of preventive maintenance measures on the distribution and transmission infrastructure > Insufficient access to basic drinking water, sanitation, transportation and electricity services > Insufficient maintenance of drains, sewers, rural roads and streets > Construction of housing infrastructure and development of economic activities in flood-prone > areae

- - Insufficient water catchment and transportation infrastructure.
     Lack of or insufficient effluent treatment systems.
     Existing coastal defenses and port infrastructure designed without consideration of climate
  - Housing, recreational and tourist infrastructure located in coastal flood risk areas and along the shores of the fluvial-marine environment

#### Institutional:

- Weak coordination among entities responsible for fire management (park rangers, civil defense, environmental, production, among others) for fire prevention, control, and reporting.
   Inadequate and inequitable land regulation and access.
   Insufficient local management of pesticide spraying.
   Lack of or inadequate policies for the conservation and sustainable use of wetlands, forests, and

- Lack of or inadequate poincies for the conservation and social activity and social activity of the so

Agriculture and livestock: > Existence of disturbances that favor the spread of fires (degraded forests, abandoned plantations) > Insufficient support for the transition to agroecology

Knowledge: > Insufficient knowledge, application and regulations with climate change considerations in infrastructure and housing design variables and in urban planning and low-income neighbor-

- storage and treatment systems
  Insufficient knowledge or resources for the construction/conditioning of homes adapted to

- Insufficient knowledge of local governments in comprehensive risk management > Insufficient knowledge of local governments in comprehensive risk management > Insufficient consideration of good ancestral/traditional/local practices > Insufficient knowledge of specific climate projections for coastal areas (coastline retreat, coastal erosion, sea level rise, storm waves, southeast storms, winds)

Biophysical:

- Low level of health care coverage and accessibility
   Weak integration of information within health information systems with climate data to provide information for early health interventions
   Insufficient internalization in the health area of the link between vectors and climate change
   Insufficient intervention programs in inter-epidemic periods and control programs during

- > Health impacts on rural populations and residents of marginalized urban neighborhoods in cases of dengue
- Health impacts on india populations and residents on marginalized unball neighborhous in cases of dengue
   Health and comfort impact on urban populations due to power outages during heatwaves
   Increased hospitalizations and fatalities among the elderly, young children, individuals with chronic illnesses, people with disabilities, and vulnerable populations, such as those experiencing homelessness or living in inadequate conditions, as well as indigenous communities, due to heatwaves
   Health impacts on individuals due to floods, including physical injuries, infections, and mental health issues.

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- > Disruptions to economic activities due to damage to infrastructure or disruptions in the transportation of supplies and products
   > Livelihood impacts on small-scale family, peasant, and indigenous agricultural producers
   > Loss of access to housing and habitation
   > Impact on port and coastal protection infrastructure.
### Cuyo region

The risk of damage to ecosystems due to an increase in the extent, occurrence and spread of fires; the risk of reduced access to safe drinking water due to droughts; the risk of limited hydroelectric generation due to reduced water availability; and the risk of damage to the livelihoods of small, medium, family, peasant and indigenous producers due to various threats, which were described for all regions, are also present in Cuyo.

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As previously mentioned, in the Patagonia, NOA, and Cuyo regions-and especially in the western areas of the Cuyo region-the risk of affecting the livelihoods of small, medium, family, peasant, and indigenous producers is linked to the inherent risks of dry lands, particularly more frequent, prolonged, and intense droughts. Especially in the foothills, agriculture and human settlements are only possible through systematic water management. Therefore, the expected decrease in snowfall in the high Andes and the retreat of glaciers, which affect the flow of snow-glacial rivers, pose a threat to water resources that feed urban and rural oases where the population and agricultural and industrial production are concentrated. In Cuyo, water scarcity not only jeopardizes the livelihoods of peasant and family producers but also affects the production of small, medium, and large-scale producers, industrialists, and merchants, as well as the supply of drinking water and even non-consumptive uses of water such as hydroelectric power generation. Water scarcity situations are exacerbated by water guality deterioration associated with improper waste disposal practices and effluent discharge. Outside of irrigated oases, access to water for human consumption and production is hindered by insufficient infrastructure for water collection and transportation and by the poor quality of groundwater, which is not suitable for consumption.

Vulnerability to all these situations increases in the context of the continuous population growth (and the subsequent sustained increase in demands for water and electrical energy) in general and, particularly, in areas where industries and businesses with water-intensive production processes and services (such as mining and water-based recreational activities) exist. This occurs within the context of disparities in access to water among various uses and users, including households, agriculture, industries, hydroelectric power generation, etc.

In this region, as well as in the Central, NOA, and NEA regions, there is a risk of losing access to housing and suitable habitation associated with flooding caused by intense rainfall events. In the Cuyo region, particularly in the foothills and hillsides, the slope of the land means that intense precipitation events can lead to runoff that, especially on deforested slopes, can become massive water and sediment transport events. In the high Andes central zone, snowfall can trigger snow avalanches. Both alluvium and avalanches affect housing and habitation (especially when there is occupation of flood-prone areas and exposure to alluvium), but they also pose a risk to mobility and physical connectivity necessary for the transportation of supplies to mountain villages, which is especially critical in situations where access to healthcare services is required. The risk of disruption to physical connectivity and transportation of people and supplies is associated with vulnerabilities related to infrastructure. These vulnerabilities include inadequate road network coverage, inadequate road drainage systems, insufficient transportation logistics and public communication services, as well as insufficient maintenance and control of access points, roads, and routes.

As in other regions, Cuyo is also affected by institutional situations that constitute vulnerabilities to the risks described above: insufficient early warning systems and capacity to respond to events; insufficient policies for the design and planning of urban drainage systems that consider climate change projections; difficulties in accessing urban land and weak institutional structures, both at the municipal and provincial levels, with deficiencies in territorial environmental planning and urban and habitation planning and management (in particular, low-income habitation), as well as in the management of basic housing demands; insufficient knowledge of local governments in integral risk management and insufficient focus on adaptation in policies, initiatives and public works in general. In addition, there are other particularly critical vulnerabilities in Cuyo: insufficient institutional framework for the control and monitoring of the use of water resources and insufficient incorporation of future climate scenarios in hydrological and hydrodynamic studies.

## Figure 11. Characterization of climate risk in the Cuyo region

Units of analysis: > Rural and urban population > Ecosystems

- Dispersed rural population
   Productive units of family, peasant and indigenous

- > Population in urban centers in mountain valleys
   > Small and medium-sized enterprises
   > Large industries



- › Overgrazing Introduction of exotic species
- > Urban sprawl
- › Waste disposal and effluent dumping
- Increased water demand

- > Waste burning
   > Inadequate use of agrochemicals

- Insufficient water catchment and transport infrastructure.
   Insufficient implementation of preventive and maintenance measures for energy distribution and transmission infrastructure.
- and transmission intrastructure.
  Land occupation in flood-prone areas and areas exposed to alluvium
  Insufficient transportation logistics and public communication services
  Insufficient road network coverage
  Inadequate road drainage system
  Insufficient maintenance and control of access routes and roads

### Health:

## Weak integration of information within health information systems with data about climate in order to facilitate information for early health interventions Insufficient medical specialties and high complexity care

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Institutional: > Insufficient policies for access to housing and habitation, and of land-use planning instruments in areas of urban expansion towards zones with feasibility of drinking water supply > Inequality in access to water in the same basin between households, agricultural and livestock production, and energy production > Insufficient land regularization but the destination with exportunities for improvement, both at the municipal and provincial

Insufficient land regularization
 Institutional situation with opportunities for improvement, both at the municipal and provincial levels for environmental land use planning and management (in addition, insufficient incorporation in these instances of the adaptation approach in general and integrated water resources management with a basin perspective in particular)
 Insufficient early warning systems and capacity to respond to events
 Insufficient institutional framework for oversight and control of the use and status of water

Contracts for temporary activities
 Informal contractual relationships
 Insufficient policies for the design and planning of urban drainage systems that consider climate

Energy > Insufficient diversification of sources of electric power generation

Agriculture and livestock: > Insufficient technological development for small-scale agriculture and failure to transfer existing technologies to producers > Use of indiscriminate or inappropriate burning as an agroecosystem management practice

**Biophysical:** > Decrease in coverage and degradation of native vegetation

Economic-financial: > Insufficient resources for the purchase and installation of technology for energy generation in

Unemployment and poverty
 Inability of small and medium-sized companies to compete with large-scale companies and consequent weakening of regional production chains

- > Industries and businesses with production processes and services with large water requirements (especially mining and aquatic recreational activities)
   > Insufficient incorporation of future climate scenarios in hydrological and hydrodynamic studies

### Knowledge:

- Scarce awareness of the population on water care
   Insufficient knowledge, application and regulations with climate change considerations in the design variables of infrastructure and housing in urban planning
   Insufficient resources and knowledge for construction and maintenance of distributed water collection, storage and treatment systems
   Insufficient local government knowledge of comprehensive risk management

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- Impact on the livelihoods of family, peasant, and indigenous agricultural producers
- Impact on the investibutes of raminy, peasant, and induced us agricultural producers
   Impact on health due to reduced access to drinking water
   Impact on ecosystems due to an increase in the extent, occurrence, and propagation of fires
   Disruptions in food supply
   Impact on the quality and flow of water available for production
   Impact on mobility and physical connectivity for accessing healthcare institutions

### Argentine Northeast region (NEA)

The NEA region is affected by the risks already identified as general for the entire territory of Argentina: the risk of affecting ecosystems due to an increase in the extension, occurrence and spread of fires; the risk of reduced access to drinking or safe water due to droughts; the risk of limiting hydroelectric generation due to reduced water availability (especially in the NEA due to extreme low water levels in the Paraná River), and the risk of affecting the livelihoods of small, medium, family, peasant and indigenous producers due to fires, desertification, floods and other threats. In the case of the NEA, artisanal fishermen are included among the groups exposed to this risk. The vulnerabilities associated with these risks are also similar, and refer to biophysical aspects, widespread agricultural practices, situations related to infrastructure and habitation, transportation and infrastructure, particular situations in the health system, socioeconomic and financial aspects, knowledge and technological problems, and deficiencies in the institutional sphere.

The NEA also records a risk of losing access to housing and suitable habitation associated with flooding. In this region, floods caused by the rising waters of the Uruguay River are particularly notable. In addition to the projected risk to the habitation, these floods jeopardize the health of the riverside population and the island population due to physical damage, the spread of infections, and mental health consequences. The vulnerabilities associated with these health risks do not differ from those identified in other regions: insufficient capacity of primary healthcare centers (lack of supplies, inadequate infrastructure, lack of capabilities, and lack of knowledge regarding the subject) and a low level of healthcare coverage and accessibility.

Floods also pose a risk to the mobility and physical connectivity of individuals, as well as the transportation of supplies and services, due to waterlogging or damage to roads and routes caused by flooding. In the NEA, this vulnerability is compounded by insufficient development of river transport, which negatively impacts local and regional economies.

In this region, extreme low and high water events affect riverbanks and the livelihoods of populations dependent on these ecosystems.

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## Figure 12. Characterization of climate risk in the NEA region



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### Argentine Northeast region (NEA)

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In addition to the risks already identified, which are shared with the other regions of the country, there are other specific risks in the NOA region. One of them is the risk of loss of sources of monetary income due to impacts on tourism, which is an important component of regional economic activity. In the NOA region, the increase in temperature and heat waves could increase stress conditions, lack of comfort and the risk of heart disease, especially in individuals who are exposed to high temperatures and changes in altitude or who practice outdoor activities. In addition to high temperatures, the increased frequency of other extreme events such as heavy rains, avalanches and fires could redirect tourism flows, particularly in the critical season, with impacts on the sector's profitability, investment and employment.

For the same reasons, this region also includes the risk of loss of sources of monetary income due to a decrease in production that affects the health of workers during transportation or in outdoor work areas due to exposure to extreme weather events or endemic diseases. In this case, the population mainly affected is that of rural areas. The insufficient prevention and control of epidemics is a type of health vulnerability that affects the population in general, but for which the effect on workers in particular is analyzed.

These two risks are conditioned by vulnerabilities related to infrastructure, characteristics of the health system, and institutional aspects that hinder the adequate prevention and management of climate events.

## Figure 13. Characterization of climate risk in the NOA region



- › Urban sprawl
- Waste disposal and effluent discharge

### Infrastructure and habitat:

# Insufficient energy transportation infrastructure Insufficient water catchment and transport infrastructure. Insufficient maintenance of electric power distribution and transmission

Insufficient diversification of power generation sources
 Insufficient access to basic drinking water, sanitation, transportation, and

### Institutional:

Institutional: > Lack of coordination between the public and private sectors in the tourism sector to deal with emergencies and accidents > Insufficient institutional capacity for an intercultural approach to the problems of indigenous and rural communities > Lack of labor legislation that considers climate risks > Institutional situation with opportunities for improvement, both at the municipal and provincial levels for planning, management and environmental management of the territory with a focus on integrated management of water resources, risks and adaptation to climate change > Insufficient regulations and institutional framework for adequate water governance to facilitate multiscale management and control of water resources

Insufficient land regularization
 Insufficient interjurisdictional coordination for fire management
 Insufficient formalization, professionalization and stability of fire prevention and firefighting personnel and insufficient equipment
 Lack of or insufficient implementation of contingency and recovery (restoration) plans for floods and fires
 Insufficient network organization and community participation for prevention and response to extreme events

Agriculture and livestock: > Insufficient technological development for small-scale agriculture and failure to transfer existing technologies to producers

Economic-financial: > Insufficient resources for the purchase and installation of technology for power generation in businesses and individual users (decentralized generation)

approach > Insufficient risk transfer instruments for family farming

knowledge:
Insufficient knowledge, application and regulations with climate change considerations in the design variables of infrastructure and housing and climate information for urban planning and land use
Insufficient incorporation of future climate scenarios in hydrological and hydrodynamic studies
Insufficient public awareness of risks associated with extreme events
Insufficient knowledge of energy distribution companies about climate risks

Insufficient resources and knowledge for the construction and maintenance of water catchment, storage, transport and/or treatment

Insufficient knowledge on fire management as a practice in agroecosystems and on the adoption of alternative practices to burning
 Insufficient awareness and training for tourism operators and tourists on safety and risk prevention in the face of extreme events

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### Health:

Insufficient prevention in inter-epidemic periods and control during epidemics

Impact on hydroelectric generation
 Impact on the livelihoods of family, peasant, and indigenous agricultural producers
 Loss of access to housing and suitable habitation

> Disruptions to productive activities due to impacts on energy transmission and distribution networks

- Impacts on the tourism industry
   Decrease in production due to the health impacts on workers



### Patagonia region

Patagonia is affected by the risks already mentioned for the rest of the Argentine regions and has some risks specific to the region. Among these is the risk of loss of access to housing and adequate habitation due to interface fires, which would especially affect the population living in these areas. The climatic hazards that affect this risk are similar to those that put ecosystems at risk due to fires: droughts, heat waves, etc.

Vulnerabilities are also shared with the risk of ecosystems being affected by the occurrence of fires, to which in this case is added the lack of awareness about the use of fire in areas bordering forests.

Two other risks identified in this region are: the risk of affecting the health and comfort of the urban and rural population due to lack of access to energy and the risk of disruption to the mobility and physical connectivity of individuals and the transportation of supplies and services due to flooding or damage to roads and routes. These two risks are highly influenced by the occurrence of extreme events specific to the region, such as intense rainfall, snowfall, and avalanches.

On the other hand, the Patagonia region is at risk of loss of sources of monetary income due to impacts on tourism activities. In this case, the magnitude of this risk is associated with the climatic threats of reduced availability of snow and water.

These last three risks are associated with the existence of vulnerabilities related to habitat and infrastructure, such as insufficient maintenance and control of accesses, routes and roads or the existence of households with precarious housing conditions. As for institutional aspects, vulnerabilities related to the non-existence or insufficient implementation of contingency and recovery actions in the event of avalanches or avalanches can also be mentioned.

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## Figure 14. Characterization of climate risk in the Patagonia region

- Dispersed rural population
   Workers in urban and rural contexts
- Small and medium-sized producers
   Small and medium-sized industries, large



- > Urban sprawl
- › Waste disposal and effluent dumping
- Increased water demand

- > Waste burning
   > Inadequate use of agrochemicals

### Infrastructure and habitat:

# Insufficient maintenance (and control) of access points, routes and roads Dependence on specific technical resources to carry out certain types of infrastructure (e.g., deep wells) Overhead electric power distribution networks and overhead transformer

- Insufficient land infrastructure for water extraction
   Insufficient implementation of preventive and maintenance measures on power distribution and transmission infrastructure
   Existence of homes with precarious housing conditions
   Proximity of water intake points to industrial and/or sewage dumps, and to

### Health:

Agriculture and livestock: • Existence of disturbances that favor the spread of fire (degraded forests, abandoned plantations). > Highly degraded ecosystems

Insufficient resources for water efficiency measures
 Scarce availability of financial tools/instruments for family farming, SMEs, agriculture, small-scale producers, etc

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Institutional situation with opportunities for improvement, both at the municipal and provincial levels for environmental territorial planning, overall planning, and management (In addition, insufficient incorporation of the adaptation approach in general and integrated water resources management

adaptation approach in general and integrated water resources management with a basin perspective in particular) > Lack of water consumption control in households > Insufficient regulations and institutional framework for the control and management of water resources > Lack or scarce implementation of local, provincial and regional fire management plans, with a focus on the regularization of tourism and forestry practices

### Knowledge:

Knowledge: > Insufficient knowledge, application and regulations with climate change considerations in the design variables of energy distribution networks, road infrastructure and in urban planning > Insufficient awareness of forest and domestic waste management and the use of fire in areas bordering forests > Insufficient consideration of good ancestral/traditional/local practices > Insufficient resources and knowledge for the construction and maintenance of water catchment, storage and/or treatment systems

> Impact on the livelihoods of small and medium-sized producers

- > Impact on health due to reduced access to drinking water and energy
- > Disruptions to productive activities due to reduced access to energy and changes in the quality
- and flow of water for production

Impacts on the tourism industry
 Impacts on the mobility and physical connectivity of individuals, as well as the transportation of

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## Section 4 Strategic vision and goals

## 4.1. Climate vision of Argentina to 2030

The climate vision of a sustainable, inclusive and innovative Argentina to 2030, defined by consensus during the preparation of the Second NDC—which contains the Second Adaptation Communication—is internalized in this plan and is here transformed into an action plan with concrete measures.

The vision was developed taking into account national circumstances as a starting point and based on the best available science and information. It also considers the principle of equity in the overall effort, in line with the principle of common but differentiated responsibilities and respective capabilities.

Intra and interinstitutional coordination, together with public participation, were the main pillars in the construction of this vision, providing transparency both to the work process and to the content of the plan and its constituent measures.

Conscious of its Latin American identity and reaffirming that no one is saved alone, the Argentine Republic will promote the construction of a coordinated and solidarity-based climate agenda with all countries, fostering regional development to traverse, in fraternal unity, the era of social, financial, and environmental justice.

Nevertheless, given the federal nature and the diversity of territories and communities that characterize Argentina, this vision contemplates and seeks to address the country's specific needs, idiosyncrasies, and characteristics. In this context, joint and coordinated work among different levels of government becomes a fundamental element for addressing climate change. This is primarily due to the role played by local institutions in identifying sectors in particularly vulnerable situations and measures with greater potential impact, as well as in promoting citizen participation.

Taking this into consideration, national and provincial authorities will continue to work together to strengthen the specific capacities and competencies of local governments in sustainable urban and territorial development planning, through tools such as technical advice, capacity building and support for innovation.

The Argentine Republic proposes a comprehensive climate action that contemplates the effective exercise of human rights. Considering that the enjoyment of a healthy environment—enshrined in our National Constitution—is a right, with individual and collective connotations, closely linked to other fundamental rights, including health, and understanding that the sustenance of the general welfare of the population is linked to the quality of life of citizens, the State promotes health as a guiding principle of the national climate policy.

and productive processes that result in a sustained deterioration of environmental conditions. For this reason, the approach chosen for the realization of this vision is centered on people. In this sense, and considering that the impacts of climate change do not affect all people equally,

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special attention will be given to the most vulnerable communities in order to guarantee equity and equal opportunities for all people living in the national territory.

Therefore, the national climate policy will be oriented to contribute to the protection and promotion of human rights, including the environmental, economic, social and cultural rights of the entire population. To this end, adaptation and mitigation strategies will prioritize the needs of social groups in conditions of greater vulnerability to climate change, from an intercultural perspective, with a gender and diversity perspective.

Specifically, climate change has differential impacts on the life projects of women and LGBTI+ people, generating political, economic, social, and productive processes that sustain inequalities based on gender. In this sense, the gender and diversity perspective will govern national climate policy based on gender and environmental justice.

Interculturality implies the recognition and revaluation of different cultures, populations, and groups, as well as the acknowledgment of plurinationality and ethnic, religious, and linguistic diversity present in our country. It also involves integrating local knowledge, ancestral practices, values, cultural norms, systems, habits, and communities into climate actions, promoting the active participation of all actors. In this context, there is a proposal to enhance awareness and promote the development of skills and the implementation of measures to strengthen resilience and reduce vulnerability in communities, regions of the country, infrastructure, and productive systems.

In this way, we will promote a just transition toward comprehensive and sustainable development that addresses the challenges of the necessary productive transformations, through capacity building, workforce retraining and the creation of new decent jobs. This transition will be carried out while ensuring fundamental principles such as food and energy security and sovereignty. In this way, just transition will contribute to the reduction of poverty, hunger and the vulnerability of food production systems to the adverse impacts of climate change, while respecting and revaluing cultural identity and local consumption strategies. Simultaneously, an inclusive, dynamic, stable, federal, sovereign and sustainable energy matrix will be developed to ensure energy availability and system reliability.

The transition proposed by the climate policy must be harmonized with the necessary macroeconomic stabilization for sustainable development, following a path compatible with the availability and generation of foreign exchange, leading to the emergence of new markets, new national technological capacities, and higher added value. It is crucial to align this development coherently with land use and the utilization of natural common goods that allow for the maintenance of ecosystem services upon which human communities depend.

The magnitude of the challenges undertaken requires the commitment of various sectors and actors in society, within a framework of participatory and transparent planning and management. Therefore, it is essential to ensure, in compliance with the national obligations and international commitments made by the country, access to public information and the participation of all sectors of the population in order to transparently and collaboratively construct a representative national climate policy.

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In this regard, in order for the right to public participation within a framework of action for citizen empowerment to be exercised responsibly, it is essential to have clear, timely, and understandable information and promote comprehensive environmental education for the population, both formally and informally, and through the media. This education will be based on promoting mutual exchange and enrichment among different cultural groups, farmers, Afro-descendants, immigrants, and Indigenous Peoples, based on mutual respect, the principle of intergenerationality, and gender equality.

This climate vision for 2030, along with the measures and actions outlined in this plan, is part of a long-term strategy that will guide our models towards a low-emission, resilient, fair, and solidarity-based development that leaves no one behind.

In the face of the evident need for a paradigm shift, there is only room for renewed political action and active commitment from all the Argentine people to stand up and rebuild ourselves better.

## 4.2. Adaptation goals by 2030

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The Argentine Republic presented its Second Adaptation Communication through the Second NDC in December 2020. In this context, the country developed its National Adaptation Goal, which articulates key elements of climate policy in this area and contributes to achieving the Global Goal on Adaptation (GGA):

By 2030, the people of Argentina will be aware of the adverse effects of climate change, the corresponding adaptation measures, and will have built capacities that enable them to respond collectively to the urgent challenge of protecting the planet

The climate policy of the Argentine Republic will have successfully increased the adaptation capacity, strengthened resilience, and reduced vulnerability in various local governments, social, economic, and environmental sectors. These efforts will prioritize vulnerable communities and social groups, incorporating a gender perspective and intergenerational equity. This process will be based on the best available scientific knowledge and may generate co-benefits of mitigation where applicable.

All of these efforts are aimed at contributing to sustainable development, building a more equitable, just, and solidarity-based society, and achieving an adequate response to climate change that is compatible with the goals of the Paris Agreement (MAyDS, 2020, p. 48)

In order to operationalize the National Adaptation Goal and facilitate monitoring of its progress, a series of key dimensions, sub-dimensions, goals, and indicators are identified to address its first two paragraphs, and these must be understood within the framework established in the third paragraph. In this regard, the identified dimensions are: 1) perception of the impacts of climate change and adaptation measures; 2) social involvement; 3) reduction of vulnerability; 4) inclusion of communities and social groups in vulnerable situations, gender perspective, and intergenerational approach; and 5) generation of co-benefits. Regarding the third dimension, it

incorporates a series of cross-cutting goals associated with institutional capacity and sectoral goals by region (as established in 1.4.4.), in line with their development priorities and climate risks prioritized by jurisdictions (see section 3.2. Risk analysis associated with climate change).

It is worth mentioning the linkage between the National Goal on Adaptation and the GGA, defined in Article 7.1 of the Paris Agreement, whose elements are: enhancing adaptive capacity, reducing vulnerability, and strengthening resilience to climate change. Considering that both regional and sectoral goals are anchored in risk analysis, and vulnerability (which encompasses adaptive capacity according to IPCC's definition) being one of its components, Argentina will contribute to global efforts related to at least the first two dimensions of the GGA.

In this way, the proposed methodology for addressing the goal and evaluating its progress combines a variety of approaches, including both quantitative and qualitative ones, which will be further explored in section 6. It is understood that a comprehensive overview of adaptation progress in the country can be obtained, striking a balance between the strengths and weaknesses posed by different approaches. The following table presents the goals developed so far, which does not exclude the possibility of incorporating additional goals in the future:

Dimension	Subdimension	Goal by 2030
1. Society's perception of climate change	1.1 Interest in climate change	M 1.1.1 Increasing the level of high interest in climate change as a challenge that involves society as a whole.
impacts and adaptation measures. 1.2 Clin chang inform	1.2 Climate change information and	M 1.2.1 Increasing information and knowledge about climate change, especially among the population with lower educational and socioeconomic levels.
	knowledge	M 1.2.2 Increasing knowledge and use of institutional resources on climate change (websites, risk maps, platforms, etc.).
		M 1.2.3 Increasing the proportion of the population interested in and informed about climate change.
		M 1.2.4 Informing society about existing adaptation measures at the national, provincial or local levels.
	1.3 Perception and Attitude	M 1.3.1 Visibilizing specific negative impacts of climate change according to the different sectors and regions of the country.
		M 1.3.2 Improving the perception of the importance of climate change adaptation measures.
		M 1.3.3 Generating greater awareness of the vulnerability of cis heterosexual women and LGBTI+ to climate change.

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### Table 6. Adaptation goals by 2030

Dimension	Subdimension	Goal by 2030
		M 1.3.4 Reducing the weight of the technocratic vision of political participation, increasing the perception of the importance of citizen participation.
		M 1.3.5 Improving the positioning of government sources as credible social actors on climate change.
2. Social involvement	2.1 Cultural change	M 2.1.1 Increasing the proportion of the population that changes its cultural habits, increasing its resilience and promoting responsible citizenship.
	2.2 Citizen participation	M 2.2.1 Increasing the number of people who are actively involved in climate change issues and in defense of an intergenerationally equitable, fair and supportive development that is compatible with the sustainable development goals.
3. Decreased vulnerability	3.1 Institutional capacity	M 3.1.1 (Knowledge application) Increasing the number of government areas at the national, provincial and local levels that apply knowledge on climate risks, incorporate adaptation as a cross-cutting issue and know how to plan and accompany adaptation measures.
		M 3.1.2 (Response and sectoral plans) Increasing the number of response and sectoral plans that have a climate risk analysis, adaptation measures and a monitoring system.
		M 3.1.3 (National Information System) Strengthening the implementation and operation of the aggregated monitoring and evaluation system for adaptation.
	3.2 Energy	M 3.2.1 Improving the maintenance of transmission networks, electric power distribution and diversification of energy generation to withstand and face extreme climate events in the NOA, Cuyo and Patagonia regions.
	3.3 Water	M 3.3.1 Increasing the availability of water in quantity and quality in urban contexts, especially in low-income neighborhoods throughout the country.
		M 3.3.2 Improving sustainable water management and access in rural areas throughout the country (quantity and quality).
	3.4 Health	M 3.4.1 Reducing physical damage to people, infections and mental health effects caused by floods in the Central, NEA and NOA regions.
		M 3.4.2 Reducing diseases and discomfort among the urban population, especially in low-income neighborhoods, related to heatwaves in the Central region.
		M 3.4.3 Reducing endemic diseases caused by climate changes in the Central and NOA regions.

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Dimension	Subdimension	Goal by 2030
	3.5 Agriculture, livestock and fisheries	M 3.5.1 Improving the resilience and adaptive capacity of family, peasant and indigenous farming production systems for self-consumption and sale in the face of floods, droughts, changes in river flows, increased temperatures, among other threats, throughout the country.
	3.6 Housing and habitat	M 3.6.1 Reducing damage or loss of homes due to flooding in the Central, Cuyo, NEA and NOA regions.
		M 3.6.2 Reducing damage or loss of homes due to interface fires in the Patagonia region.
	3.7 Industrial production	M 3.7.1 Improving the resilience and adaptive capacity of industrial production systems to floods, droughts, increased temperatures, among other threats, throughout the country.
	3.8 Tourism, sports and cultural heritage	M 3.8.1 Reducing the loss of income from tourism activities, the impact on recreational activities, sports and cultural heritage due to extreme weather events in the NOA, extraordinary low water levels in the NEA, fires and reduced availability of water and snow in the Patagonia region.
		M 3.8.2 Reducing losses in tourism revenues due to rising sea levels, increased storm surges and southeast winds in the Central region.
	3.9 Mobility	M 3.9.1 Improving the trafficability and physical connectivity of people, supplies and services (e.g. health) in the event of extreme events (floods, avalanches, snowfall, etc.) throughout the country.
		M 3.9.2 Improving the fluvial transit of supplies in case of extraordinary low water levels of the Paraná River.
	3.10 Ecosystem services	M 3.10.1 Reducing damage to ecosystems due to fires in all regions.
4.Integration of communities and social groups in situations of vulnerability, gender and intergenerationa	4.1 Communities and social groups in vulnerable situations	M 4.1.1 Improving the adaptive capacity of communities and social groups in vulnerable situations throughout the country.
	4.2 Gender approach	M 4.2.1 Increasing adaptation measures and actions to transform gender gaps throughout the country
Tapproacn.	4.3 Intergeneration al approach	M 4.3.1 Increasing adaptation measures and actions that have an intergenerational approach throughout the country
5. Co-benefit generation	5.1 Mitigation	M 5.1.1 Increasing adaptation measures that demonstrate co-benefits with GHG mitigation.

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### Section 5 Measures to address climate change

Each strategic line, cross-cutting approach and instrumental line is made up of lines of action, which group measures by particular themes. The measures, within the framework of this plan, represent the policies designed by the different ministries of the national government, which will be implemented from now until the year 2030.

In the following sections, the NAP measures are presented, indicating code, name, description and implementing authorities. To facilitate reading and to make visible the link between this plan and the PNAyMCC, for each approach or line, all the lines of action included in the PNAyMCC will be listed, but only those containing measures categorized as "adaptation" and "adaptation and mitigation" will be detailed. Likewise, only those measures that contribute to adaptation will be indicated. In any case, considering that the NAP is the adaptation component of the PNAyMCC, the latter will include all the lines of action and measures that are not included here, since they include measures categorized as "mitigation" and "loss and damage".

The measures define a roadmap to achieve the reduction of at least one of the previously identified risks, the treatment of possible effects (economic or non-economic) derived from climate change, the generation of instruments that have a broad impact on national climate policy or to ensure the implementation of cross-cutting approaches.

Annex 1 included in the spanish version of this document, details for each NAP measure: its scope, goals, monitoring indicators, budget, funding sources, execution period, application instruments, barriers and needs for implementation, application areas, the link with Law No. 27520 and, in the case of measures that respond to a strategic line, the analysis by cross-cutting approach.

### 5.1. Cross-cutting approaches

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As previously defined in section 1.3, cross-cutting approaches are issues of the public agenda and social reality that cut across each of the climate policies, thus becoming the foundations for the implementation of climate change adaptation measures.

## 5.1.1. Gender and diversity

The implementation of this approach requires action guidelines that must be present throughout the design, implementation and evaluation of climate policies, with the objective of reducing the broad spectrum of gender inequalities, discrimination and violence. Five lines of action are presented below, which will be taken up and will serve as the basis for the design of the National Strategy on Gender, Diversity and Climate Change. This strategy, which will contain specific measures, is currently being developed.

The lines of action of this cross-cutting approach are detailed in Table 7.

# Table 7. Lines of action of the cross-cutting approach Gender anddiversity

Line of action	Description	
Institutionalization of policies and training in gender and diversity perspective	In order to guarantee the implementation of concrete measures and actions that incorporate the gender and diversity perspective, it is necessary to have specific spaces and specialists focused on this objective, building concrete, measurable and achievable goals. At the same time, training in gender and diversity perspective is indispensable for all areas that aim to reduce gaps, inequalities and violence. This includes from state actors to civil society sectors, NGOs, companies, social and political organizations, cooperatives and others. It is also necessary to continue strengthening the baseline on gender, diversity and climate change at the national level and to develop gender indicators to monitor and evaluate the progress and results of adaptation and mitigation policies in the reduction of previously identified gender gaps.	
Planning and budgeting with a gender and diversity perspective	The gender and diversity perspective budget is a planning tool that allows identifying how much of the investment in policies to be developed can impact existing gender disparities.	
Mechanisms for the participation and decision making of cis heterosexual women and diversities in strategy formulation	It is essential that any climate policy incorporates the perspective and historical experience of women and LGBTI+ people. Holding forums or open consultations with civil society to gather their knowledge and experiences, as well as establishing working groups involving women and diverse communities, are some of the proposals.	
Technical-professional training and labor inclusion of cis heterosexual women and LGBTI+ in strategic sectors	Labor inclusion in itself is a measure that provides the necessary conditions for cis heterosexual women and LGBTI+ to improve their situation and tools to face the problems associated with climate change. In addition, the construction and strengthening of programs and projects that contribute to the labor inclusion of cis heterosexual women and diversities in strategic sectors	

	should be considered.
Financing of projects with a gender perspective	It is essential to develop public policies oriented towards improving the conditions of cis heteroesexual women and LGBTI+ who carry out actions in the territory to address climate change, facilitating access to financing programs or the transfer of specific resources, with a redistribution logic.

## 5.1.2. Comprehensive risk management

Law No. 27287 creates the National System for Comprehensive Risk Management and Civil Protection (SINAGIR) and its Regulatory Decree No. 383/17. Through the National Plan for Disaster Risk Reduction (PNRRD), climate change is incorporated as one of the priority axes, whose strategic objective is to incorporate the real or expected effects of climate change into comprehensive disaster risk management.

Currently, the Executive Secretariat of SINAGIR is housed in the Ministry of Security, in charge of the Secretariat of Federal Articulation of Security (and whoever replaces it in the future). On the other hand, the national alert platform available to all SINAGIR members is the National Alert and Emergency Monitoring System (SINAME, by its Spanish acronym). Physically, SINAME consists of a room where different types of threats are monitored 24 hours a day, 365 days a year.

SINAGIR aims to integrate actions and coordinate the operation of national government agencies, provincial governments, CABA and local governments, non-governmental organizations and civil society to strengthen and optimize actions aimed at risk reduction, crisis management and recovery. The main purpose is the comprehensive protection of people, communities and the environment in the face of risks.

In this sense, the following lines of action have been established for the implementation of the approach:

- Line of action 1. Analysis of climate impacts and risks in the different geographic environments of the national territory.
- Line of action 2. Strengthening of SINAGIR actors.

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 Line of action 3. Mainstreaming integrated risk management into national climate policy.

In line with what was indicated at the beginning of this section, Table 8 only describes the PNAyMCC measures included in the previous lines of action that contribute to adaptation. In any case, considering that the NAP is the adaptation component of the PNAyMCC, all the measures not included here can be found in the latter, since they include measures categorized as "mitigation" and "loss and damage".

# Table 8. Lines of action and measures of the cross-cutting approachComprehensive risk management.

Line of action 1. Analysis of climate impacts and risks in the different geographic environments of the national territory.

For the design of risk management measures and adaptation to climate change, it is crucial to have robust diagnostics that allow the identification of different risk components and quantify the impacts. This way, there is information available that facilitates the identification of adaptation options serving social, environmental, and economic needs. This line of action includes measures to strengthen the generation of diagnostics associated with GIR and adaptation to climate change.

No.	Measure	Description
GR-01	Strengthening a coordinated approach to cross-border climate-related risks for various sectors and regions of the country (Ministry of Security and Ministry for the Environment and Sustainable Development).	Identification of initiatives that address cross-border risks, systematization of information, strengthening of diagnostics and preparation of a strategy for an integrated and coordinated approach to these risks.
GR-04	Strengthening the assessment of impacts and risks on the country's different ecosystems (Ministry for the Environment and Sustainable Development).	Identification of vulnerabilities in the country's different ecosystems to climate change and land use. Additionally, it is planned to conduct hydrological modeling to estimate changes in water balances at the basin scale for different land uses and various climate projections.

### Line of action 2. Strengthening the actors involved in SINAGIR

As established by Law No. 27287, spaces for collaboration will be maintained among the National Council, the Federal Council, the scientific, technological, and academic sector (GIRCYT Network), NGOs and social organizations grouped in the Civil Society Advisory Council, and the private sector, framed within Resolution 1049/19 of the Business Advisory Council on Disaster Risk Reduction and Emergency Management (CCEGIRE) (Law No. 27287, 2016). Comprehensive risk management is understood as a social construct where all actors and sectors are involved and participate in the development and definition of public policies and programs related to reducing risk for communities. The measures indicated below will

contribute to strengthening early warning systems and emergency response, as well as the rehabilitation and reconstruction of communities and their infrastructures to ensure the continuity of essential activities in the event of a threat.

No.	Measure	Description
GR-05	Promoting the incorporation of the climate change approach into local-level Comprehensive Risk Management Plans (Ministry of Security and Ministry for the Environment and Sustainable Development)	Development of training and technical advice to incorporate the climate change perspective in the Comprehensive Risk Management Plans at the local level.
GR-06	Promoting the use of geographic information systems (GIS) in the technical teams of provinces, CABA and municipalities (Ministry of Security and Ministry for the Environment and Sustainable Development)	Development of training and technical advice for the implementation of GIS in provinces, CABA and municipalities.

# Line of action 3. Mainstreaming integrated risk management into national climate policy

The measures proposed by the different implementing agencies will be weighted for a better knowledge and understanding of the risk. This will consider whether the measure increases or may increase climate risk, whether it does not affect climate risk management, or whether it reduces or could favor climate risk reduction by identifying opportunities for improvement and changes in the formulation.

In this way, the specific objectives of the PNRRD and those of the PNA are worked simultaneously, avoiding the duplication or absence of relevant measures for public policies on disaster risk reduction with a focus on adaptation to climate change.

No.	Measure	Description
GR-07	Building a consensual vision regarding Comprehensive Risk Management and adaptation	Mainstreaming of the adaptation approach in the PNRRD through the work of the SINAGIR Technical Commission No. 8 and incorporation of

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## Line of action 3. Mainstreaming integrated risk management into national climate policy

in the Argentine Republic and incorporate it into the PNRRD (2018-2023) (Ministry of Security and Ministry for the Environment and Sustainable Development) the CRM approach in the programming and implementation process of the measures of this plan.

## 5.1.3. Health

The inclusion of health in the context of climate change is carried out without losing sight of the multiplicity of factors that affect the health-disease-care process. In this way, the incorporation of a complex and cross-cutting health perspective is assumed in order to address the health challenges brought about by climate change.

Following this idea, the main objectives of the National Health and Climate Change Strategy—currently being developed within the framework of the GNCC—are to reduce morbidity and mortality associated with climate variability and climate change through health promotion and protection measures, and to develop a climate-resilient, evidence-based, low-emission health system.

Health is a significant sector of the economy in Argentina. In 2017, healthcare spending accounted for 9.4% of GDP.

In order to mainstream this approach into climate policy, the following lines of action have been defined:

- Line of action 1. Strengthening the governance of the health sector to face the challenges of climate change.
- Line of action 2. Strengthening the health system in the face of climate change
- Line of action 3. Mainstreaming health into national climate policy

In line with what was indicated at the beginning of this section, Table 9 only describes those lines of action of the PNAyMCC that contain "adaptation" or "adaptation and mitigation" measures. Therefore, only the first two lines of action will be detailed. In any case, considering that the NAP is the adaptation component of the PNAyMCC, the latter will include all the measures that are not included here, since they include measures categorized as "mitigation" and "loss and damage".

# Table 9. Lines of action and measures of the cross-cutting approachHealth

## Line of action 1. Strengthening the governance of the Health sector to face the challenges of climate change

In order to reduce morbidity and mortality associated with climate variability and climate change, especially among the most vulnerable population, environmental health structures will be strengthened within the Ministries of Health (national and subnational), measures will be implemented to raise awareness and train health personnel, and health promotion and protection measures will be implemented to reduce the vulnerability of communities. Strengthening the capacities of the sector, from planning to management, is essential to respond to the new climatic conditions and their respective threats to people's health.

No.	Measure	Description
SA-01	Supporting and strengthening the National Program for the Reduction of Health Risks Associated with Climate Change and the climate change working roundtable within the Ministry of Health (Ministry of Health)	Strengthening of the National Program for the Reduction of Health Risks Associated with Climate Change and the roundtable within the Ministry of Health.
SA-02	Promoting the creation of roundtables on climate change and health in the Ministries of Health of the provinces and CABA (Ministry of Health)	Supporting to the jurisdictions for the creation of roundtable on climate change and health within the Ministries of Health.
SA-03	Strengthening the capacities of health teams on the effects of climate variability and climate change on health (Ministry of Health)	Development of training for health teams on the links between climate change and health (including prevention, assessment, surveillance and treatment actions), taking into consideration the cross-cutting approaches of gender and diversity, life courses, integrated risk management, just transition and One Health.
SA-04	Raising community awareness about the impacts of climate	Development of training for healthcare teams on the links between climate change and health (including prevention, assessment, monitoring,

# Line of action 1. Strengthening the governance of the Health sector to face the challenges of climate change

ariability and climate change on health (Ministry of Health) and treatment), considering cross-cutting approaches such as gender and diversity, the life course, comprehensive risk management, just transition, and One Health.

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# Line of action 2. Strengthening the health system in the face of climate change

The adequate functioning and operation of health services during emergencies and climate disasters will be ensured. This will contribute to the adaptation and resilience of communities to extreme temperature events, floods, droughts and climate-sensitive diseases, such as those transmitted by water and vectors, zoonotic diseases and other emergencies not directly related to climate variables.

No.	Measure	Description
SA-05	Strengthen the response capacity of the Health sector by obtaining timely information on extreme temperature events (heat and cold). (National Meteorological Service)	Strengthening and updating of the Early Warning System for Extreme Temperatures (heat and cold).
SA-06	Strengthening the capacity of the health sector to reduce risks related to extreme temperature events (heat and cold) (Ministry of Health)	Implementation, updating and maintenance of plans to prevent health risks associated with extreme temperature events (heat and cold), with emphasis on the most vulnerable populations ( cis heterosexual women and LGBTI+, children, the elderly, those with chronic diseases and those exposed to occupational hazards).
SA-07	Strengthening the response capacity of the Health sector	Guidelines for the development of Early Warning Systems for Pluvial Floods at local or

# Line of action 2. Strengthening the health system in the face of climate change

	by obtaining timely information related to floods (National Meteorological Service; National Water Institute; Ministry of Health)	basin level, based on the systematization of experiences.
SA-08	Contributing to the reduction of flood-related health risks through the implementation of health promotion and protection measures (Ministry of Health)	Development of guidelines and recommendations for health intervention before, during and after the floods, through a contingency plan for the provision of safe water and sanitation, waste management and vector and zoonosis control; health recommendations for evacuee shelters; immunizations and a comprehensive approach to community health, with emphasis on the most vulnerable populations.
SA-09	Strengthening the capacity of the health sector to reduce drought-related risks (Ministry of Health)	Development of health recommendations for action and preventive measures for the population in the event of droughts that affect water supply, food production, and forest, pasture and wetland fires, with emphasis on the most vulnerable populations, such as: cis heterosexual women and LGBTI+, children, the elderly and those with chronic diseases.
SA-10	Strengthening the capacity of the Health sector to ensure the adequate functioning of health services during emergencies and climatic disasters (Ministry of Health)	<ul> <li>Development of guidelines for the adaptation of hospitals to ensure their adequate operation in the face of extreme weather events. This requires:</li> <li>Conducting a situation analysis of health care facilities in relation to different extreme weather events,</li> <li>Development of a tool to assess the vulnerability of health care facilities in the context of climate change and climate change and</li> <li>Assessment of water, sanitation and hygiene,</li> </ul>

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Line of action 2. Strengthening the health system in the face of climate change		
		energy, supply of critical supplies, feasibility of receiving supplies and evacuation in health facilities.
SA-11	Contributing to the reduction of health risks related to vector-borne diseases through the implementation of health promotion and protection measures (Ministry of Health, ANLIS "Malbrán")	Strengthening actions for the prevention of vector-borne diseases (chagas disease, dengue, yellow fever, malaria, leishmaniasis), including environmental health, epidemiological surveillance, communication and training, and assessment and treatment, taking into account the cross-cutting approaches of gender and diversity, life courses, comprehensive risk management, just transition and One Health.
SA-12	Strengthening the capacity of the Health sector to face the challenges of climate change related to zoonotic diseases through health promotion and protection actions (Ministry of Health)	Strengthening actions to prevent diseases transmitted by rodents (hantavirus, leptospirosis, Argentine hemorrhagic fever, trichinosis) and poisoning by poisonous animals (ophidism, scorpionism, araneism), including environmental health activities, epidemiological surveillance, communication and training, assessment and treatment, taking into account gender and diversity, life course, comprehensive risk management, just transition and One Health approaches.
SA-13	Strengthening the capacity of the health sector to face the challenges of climate change related to climate-sensitive seasonal diseases (Ministry of Health)	Studies on the incidence of changes in weather patterns on seasonal diseases (respiratory and water and food borne), in order to improve prevention actions and adapt the response of the health system. This will include analysis by gender and by life course.
SA-14	Strengthening the capacity of the Health sector to face the challenges of climate change through the integration of information in a climate and health observatory (Ministry of Health, ANLIS "Malbrán")	Development of a National Climate and Health Observatory for the integration and analysis of climate, social, economic and health data, and the generation of climate and health monitoring indicators. To this end, gender and diversity and life course approaches will be considered.

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Line of action 2. Strengthening the health system in the face of climate change		
SA-15	Developing predictive models of the behavior of climate-sensitive diseases (Ministry of Health, ANLIS "Malbrán")	Modeling the risk of vector-borne diseases, rodents, venomous animals, among others, incorporating climate projections.
SA-16	Strengthening the capacity of the health sector by obtaining timely information related to vector-borne diseases (Ministry of Health, ANLIS "Malbrán").	Strengthening of entomological and vector-borne disease surveillance systems (chagas disease, dengue, yellow fever, malaria, leishmaniasis).

## 5.1.4. Just labor transition

In order to promote tools and policies to improve the world of work and employment so that they are addressed with inclusion and justice in the process of transforming production systems, this approach includes the following guidelines, which are aimed at protecting workers in the economic sectors most likely to be affected by the effects of climate change:

- Line of action 1. Policy coherence and strengthening of social dialogue to achieve just transition
- Line of action 2. Development of labor competencies and workforce retraining for new jobs.
- Line of action 3. Occupational health and safety and social protection
- Line of action 4. Equal opportunities for access to new jobs that may be generated in the transition and respect for labor rights.

The lines of action of this cross-cutting approach are detailed in Table 10.

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# Table 10. Lines of action of the cross-cutting approach Just labortransition

Line of action 1. Policy coherence and strengthening of social dialogue to achieve a just transition

A just transition requires being aware of the impact of climate change effects on the labor market and its interrelation between changing production systems, economy, trade, and the

# Line of action 1. Policy coherence and strengthening of social dialogue to achieve a just transition

environment. These impacts will also be exacerbated by people's vulnerability and their development opportunities. This situation highlights work as a social organizer and the need for political and social coherence and actions to ensure that this transition is genuinely fair. Changes in production systems will lead to technological modernization of manufacturing processes related to the green economy. In this regard, a just transition will involve managing external debt related to these processes. Additionally, social dialogue is essential for achieving a just transition. Establishing and strengthening spaces for engagement with labor market actors becomes a key line of action for collaborative efforts to promote appropriate policies regarding changes in the labor market driving this transition towards a green economy.

No.	Measure	Description
TJ-01	Strengthening of inter and intrastate coordination forums (Ministry of Labor, Employment and Social Security).	Coordination of economic, productive, environmental and educational policies that will have an impact on the labor market. Actions on health and social development will also have an impact on workers and their vulnerabilities. This measure is intended to seek a just transition in a comprehensive manner.
TJ-02	Identification of consequences and priorities of action in the face of the effects of climate change and measures of mitigation and adaptation in the labor market (Ministry of Labor, Employment, and Social Security).	Development of analysis documents and sectoral studies identifying the impact on various productive sectors. Having a quantification of affected jobs allows defining inclusive policies so that "no one is left behind," thus defining a just transition in the broadest sense of the concept.
TJ-03	Creation of tripartite dialogue roundtables for a just transition (Ministry of Labor, Employment and Social Security)	Creation of a tripartite and representative space between the State and representatives of workers and employers to promote mechanisms to coordinate efforts towards achieving a just transition.
TJ-04	Promotion of the inclusion of clauses and content related to ecology and green employment in collective bargaining (Ministry of	Awareness-raising and training on the impact of climate change on the world of work in a tripartite manner, to include measures related to just transition and green jobs.

Line of action 1. Policy coherence and strengthening of social dialogue to achieve a just transition

Labor, Employment and Social Security).

## Line of action 2. Development of labor competencies and workforce retraining for new jobs.

Labor relations cannot be separated from education and training policies, so there must be a symbiotic link that allows workers to adapt to new forms of sustainable, low-emission production. In this sense, policies aimed at the development of labor competencies and the education, technical and vocational training systems must go hand in hand, within the framework of lifelong learning processes, so that they respond adequately to the competencies that are needed now and will be required in the future, as well as to the acquisition by workers of transferable competencies that will enable them to access and remain in the labor market.

Furthermore, environmental externalities that impact society, especially socioeconomic inequalities intertwined with gender gaps and territorial disparities, make opportunities to access employment that provides fair income, in a safe environment, with social protection for families essential. In this regard, it is crucial for companies, workplaces, and communities to adapt to climate change, both to prevent the loss of resources and livelihoods and to create a conducive environment that drives the transition towards inclusive and environmentally sustainable economies and societies. In this sense, the government will address, through public policies and tripartite and participatory social dialogue, the production and sectoral processes requiring workforce retraining, as well as instruments that facilitate the consolidation of new jobs with decent work.

N.º	Measure	Description
TJ-05	Tripartite coordination of education and employment policies towards a just transition (Ministry of Labor, Employment and Social Security)	Achieving coherent and collaborative policies in harmonizing the development of labor skills, technical and professional training, and education, with an ecological and green economy perspective, involving the state and social actors, who are promoters and facilitators of training. Additionally, it will strengthen existing social dialogue platforms to promote the integration of these perspectives.
TJ-06	Promoting the inclusion of just transition in vocational training policies	This measure will serve as a cross-cutting axis in itself in the professional training initiatives promoted by the State. In this sense, all areas related to training must be equipped to promote the integration of new tools

## Line of action 2. Development of labor competencies and workforce retraining for new jobs.

	(Ministry of Labor, Employment and Social Security).	for green employment and jobs associated with new sustainable technologies in the design of training policies and curricula.
TJ-07	Promoting the inclusion of new forms of sustainable work in the relationship with companies (Ministry of Labor, Employment and Social Security).	Supporting companies in planning their training needs, including access to training on sustainability and new forms of green employment.
TJ-08	Promoting training for employment in the productive sectors of the green and circular economy (Ministry of Labor, Employment and Social Security).	This measure aims to enhance the acquisition of new skills and retraining of workers, especially in vulnerable sectors and those requiring labor conversion.

### Line of action 3. Occupational health and safety and social protection

Access to an adequate level of social protection and health and safety at work are important aspects of a just transition; the challenge lies in providing long-term social protection that is responsive to the current socio-health situation. This involves diversifying and expanding instruments and ensuring resources for the sustainability of policies and programs. It requires a differential and participatory approach to health and safety at work, job protection, and social security. This line of action will include specific measures tailored for populations in situations of greater vulnerability, such as Indigenous Peoples, children and adolescents, young people, LGBTI+, women, migrants, refugees, people with disabilities, the elderly, and Afro-descendant populations.

N.º	Measure	Description
TJ-09	Strengthening of Social Protection Mechanisms (Ministry of Labor, Employment and Social Security)	Strengthening crisis response capacity and expanding coverage capacity will help mitigate the effects of climate change, especially on vulnerable groups.
TJ-10	Health and Safety Promotion in Green Jobs (Ministry of Labor, Employment and Social	Through awareness-raising and training, both within the inspection agency and among workers, via agreements and state plans.

Line of action 3. Occupational health and safety and social protection		
	Security)	
TJ-11	Strengthening interagency coordination in the health and safety systems (Ministry of Labor, Employment and Social Security).	Collaboration between institutions with competencies in healthy work environments, as well as with those in charge of environmental issues, will allow the strengthening of actions in this area.
TJ-12	Promoting labor formalization processes in the area of new green jobs arising from mitigation and adaptation processes (Ministry of Labor, Employment and Social Security).	Mainstreaming just transition and notions of new green jobs into employment and social security policies that promote and accompany the transition processes from informality to formality with a strong focus on workers' labor rights.

# Line of action 4. Equal opportunities for access to new job positions that may arise during the transition, and respect for labor rights.

The economic restructuring related to the energy transition can pose a significant challenge to the predominant geography of the labor market. The development of new energy sources (wind, solar, tidal), as well as the necessary infrastructure for their transportation and the new utilization methods they imply (hydrogen, lithium batteries), often involves spatial economic restructuring and creates job opportunities in remote areas away from major urban centers.

This development is generating productive transformations of scale outside the most important geographical axes of the country in terms of GDP, which entails the creation of new registered jobs that require the displacement of workers and their families. In this context, it is relevant for public policy to make decisions to support workers who choose to relocate in response to the emerging demand, while ensuring respect for their labor rights and promoting access to infrastructure and public services for their families.

N.º	Measure	Description
TJ-13	Identify the territorial distribution of jobs that will be demanded by emerging industries, as well as the professional profiles required (Ministry	Continuation of the development, in conjunction with other competent state agencies, of analytical documents and sectoral studies identifying the opportunities generated by the transition, so that this information can be used to assist local workers in

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# Line of action 4. Equal opportunities for access to new job positions that may arise during the transition, and respect for labor rights.

	of Labor, Employment and Social Security).	planning their occupational training path and applying for the new jobs created.
TJ-14	Promoting assistance and support mechanisms for workers and their families who decide to relocate in response to emerging opportunities (Ministry of Labor, Employment and Social Security).	Analysis of the various contingencies and social needs that workers and their families may face as a result of their relocation/move, and, if necessary, taking measures to adapt employment policies (and social security policies) to these new challenges.
TJ-15	Working in coordination with provincial and municipal jurisdictions to ensure that mobile workers have access to adequate working conditions and social services for themselves and their families (Ministry of Labor, Employment and Social Security).	Studying the quality of employment in the sectors where job creation is expected, as well as access to infrastructure in the geographic locations where new workers are expected to be added. Promoting social dialogue and collective bargaining to agree on fair conditions.

## 5.2. Instrumental lines

As explained previously, the instrumental lines of this plan create the enabling conditions for the effective implementation of the strategic lines.

### 5.2.1. Action for climate empowerment

The implementation, monitoring and evaluation of the NAP measures are linked to instances of articulation, debate and reflection around various thematic and territorial actors, both public and private. Therefore, in order to achieve the country's vision for the year 2030, there is a need to promote public policies that foster Action for Climate Empowerment (ACE).

The ACE is promoted through Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC, 1992) and Article 12 of the Paris Agreement (UN, 2015a). It consists of six key components: education, training, awareness raising, public participation, public access to information, and international cooperation. Argentina adds a seventh component, which is culture. Additionally, this instrumental line of action will be supported based on the provisions of the Escazú Agreement and the 2030 Agenda for Sustainable Development.

At the national level, the National Action Strategy for Climate Empowerment (ENACE) is being developed, which will have specific measures for each component. In addition, the ENACE will contribute to compliance with various regulations, such as Law No. 27520 on Minimum Standards for Adaptation and Mitigation of Global Climate Change and its Regulatory Decree No. 1030/2020; Law No. 27592 on mandatory training in sustainable development and the environment for all public servants, with special emphasis on climate change ("Yolanda Law"), and Law No. 27621 for the Implementation of Comprehensive Environmental Education, and Law No. 27621 for the Implementation of Comprehensive Environmental Education, which also establishes the National Strategy for Comprehensive Environmental Education as the main instrument of environmental education policy throughout the national territory. The seven components of the ENACE are briefly described in Table 11.

Component	Description
Access to public information	Public access to quality, understandable and updated environmental and climate information seeks to make it available and accessible in different formats and languages, free of charge for a diversity of social actors. In this way, informed decision making is encouraged through the promotion of initiatives and tools to involve citizens and civil society organizations in addressing and acting on climate change.
Education	Education seeks to develop capacities, question conceptions, expand and build knowledge in the long term, particularly among children

## Table 11. Components of the ENACE

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Component	Description
	and young people, and also in adults. In the context of ACE, we propose to educate in order to generate deep changes that allow us to understand the importance and urgency of climate action and to assume ourselves as part of the environment. To achieve this, it is necessary to develop adequate tools, pedagogies and methodologies, as well as plans, programs and educational proposals —informal, formal and non-formal—and the education of teachers, educators, guides and counselors in general.Education must be integrative of environmental aspects along with other forms of learning, with the aim of achieving sustainable, resilient, and low greenhouse gas emission development. This implies promoting instances of engagement, citizen participation, critical thinking, and strengthening governance, from a human rights perspective, respecting diversity, and including intergenerational and intercultural knowledge dialogue, based on a comprehensive and Latin American perspective.
Training	The training aims to generate practical skills and specific capabilities with effective and immediate application. It also encourages the development of new trades, professions and ways of working, in order to collaborate in the process of adaptation and mitigation of climate change, both in the immediate and global environment. It is expected that the new training proposals and professions will include a comprehensive approach and promote the exchange of knowledge in the search for solutions required by environmental and climate action. Training will be promoted with a clear focus on just labor transition and planned adaptation to the new processes and models tending towards sustainable, low-emission and resilient development, centered on people and with a focus on the creation of solidarity and inclusive policies that ensure social and environmental justice.
Awareness-raisin g	Raising awareness involves, on one hand, capturing people's attention and making them value and give meaning to climate action, and on the other hand, enabling them to understand the magnitude of the challenge and comprehend the available response options. In this way, awareness-raising aims to promote and implement climate actions that are tailored, localized, and participatory. It also seeks to be connected to the awareness of civil society, based on access to information in an accessible language and context. Additionally, it aims to reconnect people with the environmental context they inhabit, ensuring that social transformations are compatible with comprehensive and sustainable human development.
Public participation	Citizen participation seeks the involvement of a diverse range of actors in matters related to climate action, through outreach that ensures their attendance and significant contribution, both in

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Component	Description
	institutionalized spaces and informal instances. This is expected to integrate their perspectives and mobilize civil society, ensuring their right to contribute effectively in decision-making processes, including the stages of designing, implementing, and monitoring measures for adaptation and mitigation of climate change.
International cooperation	International cooperation and exchange can play an important role in boosting Climate Empowerment Action efforts. This component allows for mutual benefit and institutional capacity building among various actors, resulting from the exchange of best practices and the assistance of professional experts.
Culture	Culture is the symbolic organization of societies based on interrelationships between material and immaterial dimensions. It consists of a system of values, beliefs, meanings, languages, dialects, arts, knowledge, and practices through which individuals or communities express themselves or make sense of their life experience, in a historical continuity of exchanges and appropriations. Culture aims to create spaces of creativity for the construction of ideas, practices, perspectives, and awareness for climate empowerment and action. Cultural practices enable possibilities of thought for the development of sustainable production alternatives and contribute to awareness, giving meaning to actions against climate change. They build legitimacy and allow for rethinking the ways in which connections are established with nature, not only as a material basis for life and intercultural relationships but also by considering ourselves as part of the natural and sociocultural environment.

## 5.2.2. Financing for transition

The climate risks faced by Argentina will require a significant financial effort for the country in the coming years. An investment of the magnitude needed to address them will require various sources of financing from a multiplicity of actors, including the national government, multilateral banks, international climate funds and the private sector.

To this end, specific and innovative financing mechanisms must be developed or adapted.

On the one hand, since the NAP has been conceived to be implemented in a cross-cutting manner at the various levels of the State, some adaptation actions can be financed by redirecting currently available resources. However, a proportion of climate action requires specific and additional funding, especially when it involves significant and widespread negative impacts—both observed and projected—on ecosystems that threaten water and food security.

On the other hand, the private sector also has a significant role to play in supporting the implementation of the NAP. At the same time, companies and other private institutions will need to incorporate climate variables into their business and investment decisions, which will

make them more resilient and bring their processes increasingly closer to sustainability objectives.

Finally, the mobilization of the necessary resources to implement the measures designed for the NAP—in line with the Second Adaptation Communication—, considering the national circumstances, capacities and development needs prioritized by the country, makes it imperative to have additional international financing. Consequently, the Argentine Republic needs access to the financial, technology development and transfer and capacity building mechanisms that were or will be created within the framework of the UNFCCC and the Paris Agreement to face the challenges posed by climate change.

In this sense, the instrumental line of Financing for Transition consists of promoting financial instruments that facilitate and make viable the flow of resources for the implementation of the lines of action established in the NAP. These instruments seek to ensure access to sustainable and affordable financing mechanisms and sources, in order to mobilize, in a scalable manner, the necessary resources to encourage public and private investments that contribute to achieving economic and social objectives within the framework of the SDGs and the country's climate change adaptation goals, in line with the Paris Agreement.

It also includes a series of measures for capacity building and the promotion of public policies, rules and regulations to promote and strengthen sustainable finance in Argentina. In this way, it aims to generate the necessary conditions for the financial sector, in order to respond to climate change, to attract public and private investments for the financing of adaptation strategies.

## 5.2.2.1. International financing strategy

International financing for climate action has been and continues to be an issue of great relevance. In fact, with the adoption of the Cancun Agreement at COP16 in 2010, a long-term finance goal was established. This implies the commitment of the most developed countries to jointly mobilize USD 100 billion per year by 2020 to meet the needs of developing countries (UN, 2010a). This commitment has played a central role in international climate negotiations and has formed the basis for climate finance<sup>13</sup> and cooperation on climate action at the global level.

Although there has been an upward trajectory of climate finance at the global level, efforts have not been sufficient to reach the target of USD 100 billion per year. This situation reflects a delay in the application of the principle of novelty and additionality established in Article 4.3 of the UNFCCC and reiterated in multiple decisions, such as the Copenhagen Accord (UN, 2009) and the Cancun Accord (UN, 2010). These decisions indicate that developing countries will have access to "new and additional" funding to facilitate and support enhanced action on mitigation and adaptation, technology development and transfer, and capacity building to enhance the implementation of the UNFCCC.

In addition, the Paris Agreement, in its Article 9.4, establishes that the provision of financial resources should aim to achieve a balance between adaptation and mitigation. According to

<sup>&</sup>lt;sup>13</sup> It should be clarified that there is no mutually agreed-upon definition of climate finance, nor is there an agreement between developed and developing countries on what should be considered as such.

measurements by the Organization for Economic Cooperation and Development (OECD), by 2019, almost two-thirds of the total climate finance provided and mobilized by developed countries was directed to climate change mitigation (OECD, 2021).

Current climate finance mechanisms—both within and outside the UNFCCC—are insufficient, and the flow of funds has also proven to be neither adequate nor predictable to meet the resource needs that are growing as the global climate crisis deepens. The urgency of responding effectively to the challenges posed by climate change requires an expanded global commitment for the next decade.

For a country like Argentina, access to new sources of financing for climate action is of the utmost importance. Likewise, the new financing must be obtained at the most beneficial terms and rates possible, which will contribute to long-term sustainable development. To this end, in line with the commitments expressed by various multilateral lending agencies, a commitment of at least 50% of the portfolio of development finance agencies in loans earmarked for climate action is projected between 2025 and 2030, depending on each agency.

It is expected that international financial development agencies not only grant loans, but also act by mobilizing concessional and non-reimbursable resources with agile and transparent processes. Regarding financing for adaptation and resilience, Argentina promotes at the international level the search for an even greater mobilization of funds oriented towards the implementation of national public policies. Financing for adaptation is key to achieving climate justice, understood within the framework of the principle of common but differentiated responsibilities established by the UNFCCC. Beyond this, Argentina believes that the international financial architecture should be comprehensively reformed in order to channel resources more efficiently to the countries that need them most. This reform could make it possible to increase international financing capacity, which would free up resources for the long-term challenges faced by countries (see Chart 6).

# Chart 6. National considerations on the international financial architecture

Currently, many developing countries are currently facing a scenario of growing debt vulnerabilities coupled with limited fiscal space as a result of the recent global crises affecting world trade, energy and commodity prices. Such circumstances undermine the ability of these countries to meet the challenges of adaptation and mitigation, posing a problem not only for them but for the global economy as a whole, given the global nature of climate issues This is why it is important to promote on the international agenda the necessary changes in the international financial architecture in order to guarantee adequate liquidity for developing countries, especially middle-income countries -such as Argentina-, which often do not meet the eligibility criteria for the initiatives and mechanisms created for this purpose.

**Redistribution of Special Drawing Rights (SDR).** Within the framework of the International Monetary Fund's general allocation of Special Drawing Rights, in August 2021,

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the Republic of Argentina advocates, in various international forums, the need to create mechanisms to redistribute SDR from countries with strong external positions to those that need them most. An example of this is the recently established Resilience and Sustainability Fund, which is expected to begin operating in October 2022. This fund within the IMF is funded with SDR donations and will provide loans on favorable terms for developing countries to address the macroeconomic challenges of climate change. However, Argentina's view is that this initiative—while extremely necessary and useful—does not sufficiently cover the needs of middle-income countries due to its limited access (the lower of one billion SDR or 150% of the country's quota).

Strengthening the Global Financial Safety Net.

# 5.2.2.2. Internal financing strategy: realignment of resources, innovative mechanisms and private sector

With the aim of promoting financial innovation and channeling resources towards the sustainable development agenda, in 2020 the National Ministry of Economy created the Sustainable Finance Technical Roundtable (MTFS, by its Spanish abbreviation) as a permanent body for the design, discussion, evaluation and coordination of public policies to promote and strengthen sustainable finance in Argentina, within the framework of permanent coordination among the main public sector entities involved in the financial system.

In this context, the aim is to ensure sustainable, affordable, and scalable financing to facilitate a just transition towards a low-carbon and climate-resilient development model, aligning with the SDG and the country's development strategy.

One of the main milestones of the MTSF was the signing, in 2021, of a Joint Declaration to promote the development of sustainable finance in the country by the highest authorities of the National Ministry of Economy, the Central Bank of Argentina, the National Securities Commission and the National Superintendence of Insurance. The declaration signed by the regulatory entities of the banking, insurance and capital market sectors aims at expressing the commitment of the national State to generate the necessary conditions for the financial sector to attract public and private investments that contribute to achieve economic, environmental and social goals, within the framework of the SDG and, at the same time, to respond to climate change through the financing of mitigation and adaptation strategies.

In accordance with these national initiatives, the following measures are contemplated, integrated into three lines of action:

 Line of action 1. Mainstreaming climate change criteria in decision-making for resource management.

- Line of action 2. Mobilization and management of resources for climate action
- Line of action 3. Innovative mechanisms

The measures included in each line of action are detailed in Table 12.

# Table 12. Lines of action and measures of the instrumental lineFinancing for Transition

Line of action 1. Mainstreaming of climate change criteria in decision-making for resource management

This line of action involves the development and updating of tools to facilitate an adequate flow of information and data regarding climate financing, supporting the decision-making process for public investment in low-emission and climate-resilient development initiatives.

No.	Measure	Description
FT-01	Incorporation of climate action labeling in the national budget (Ministry of Finance)	Identification and labeling in the national budget of programmatic categories linked to climate change adaptation and mitigation policies, with the objective of increasing the transparency and traceability of the national government's climate investment. It will also seek to incorporate the sustainability perspective in the definition of the budget of public entities.
FT-02	Development of a taxonomy of sustainable finance (Ministry of Economy)	Assessment of the convenience of having a taxonomy of eligible assets, study of existing taxonomies, and the process of adopting and adapting valid elements for Argentina.
FT-03	Analyzing a readjustment of the existing carbon tax in the country or other mechanisms and instruments for carbon pricing (Ministry of Economy)	Completion of the following activities: (i) evaluation of the opportunity, merit, and convenience of readjusting the existing carbon tax in the country; (ii) evaluation of other mechanisms and instruments for carbon pricing, and (iii) assessment of the feasibility of labeling and tracking the economic resources collected from the carbon tax.
FT-04	Conducting an assessment of the main physical and transitional risks at the national, regional and sectoral levels, as well as their degree of exposure to climate change (Ministry of Economy).	Identification of the main physical and transition risks at the national, regional and sectoral levels according to the degree of exposure to climate change. The focus will be on the risks faced by the financial system and in different value chains of the country's economy.

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# Line of action 1. Mainstreaming of climate change criteria in decision-making for resource management

FT-05	Promoting the non-financial private sector to approach disclosure and reporting standards on climate impact (Ministry of Economy).	Carrying out activities that encourage the disclosure and reporting of financial risks and opportunities related to climate change (for example, within the framework of the Task Force on Climate-related Financial Disclosure).
FT-06	Developing financial education programs on environmental, social and governance criteria (Ministry of Economy).	Development of workshops, courses and financial education programs for the incorporation of environmental, social and governance criteria, including climate change, in investment decision-making in the financial sector and private sector companies.

#### Line of action 2. Mobilization and management of resources for climate action

This line of action seeks to identify available national and international sources of financing and create an enabling environment for their access. Thus, measures are contemplated to design and manage the mechanisms and instruments that will make it possible to effectively and efficiently mobilize public and private climate finance resources. It is also proposed to develop synergies and increase the capacity of the private sector to support the fulfillment of national goals framed in the NAP and other international commitments assumed by the country. To this end, it is necessary to clearly understand their potential and needs—in line with future climate scenarios—and, at the same time, incorporate climate change issues into the investment decision-making processes of companies and other private institutions to promote a sustainable and resilient productive system.

N.º	Measure	Description
FT-07	Institutionalizing a space for public-private articulation and implement a work plan on climate action with the private sector (National Directorate of Climate Change, Ministry for the Environment and Sustainable Development)	Establishment of a working group within the GNCC for the private sector. Design, validation and implementation of joint work plans between the public and private sectors to advance in the development of initiatives linked both to increasing the resilience of value chains to the effects of climate change and to inventory and mitigation of GHG emissions in companies. This measure will include the promotion of disclosure and reporting standards on climate impact in the non-financial private sector.



## Line of action 2. Mobilization and management of resources for climate action

FT-08	Formulating and implementing a National Strategy for Sustainable Finances (Ministry of Economy)	Development of a National Strategy for Sustainable Finance (in process, under the responsibility of the Sustainable Finance Technical Roundtable). Among its objectives is to identify alternatives to mobilize in a scalable way the necessary resources to encourage public and private investments that contribute to achieving economic and social objectives within the framework of the Sustainable Development Goals (SDG), including the country's climate change adaptation and mitigation goals. This will make it possible to begin the process of identifying the risks related to climate change to which the different participants in the financial sector are exposed and to strengthen the capacities to manage them across the board, both in the public and private sectors.
		The measure involves: (i) establishing a regular dialogue channel with local financial entities, including risk rating agencies and providers of digital financial solutions, among others; (ii) initiating contact with the signatory entities of the Sustainable Finance Protocol of the Argentine Banking Industry; (iii) evaluating and generating the regulatory changes necessary to generate market instruments for a greater involvement of the private sector in the financing of sustainable development; (iv) evaluating and proposing incentives (fiscal, financial and non-financial) that promote sustainable financing; (v) analyzing the specific regulatory framework necessary to establish sustainable investment pools; (vi) preparing a assessment of needs, technical challenges and barriers to financing faced by the various productive sectors to incorporate climate change criteria, with emphasis on MSMEs, and incorporating a gender perspective; (vii) analyzing alternatives for evaluating financial risks related to climate change from an aggregate macroeconomic and financial stability perspective; and (viii) generating and adapting, as appropriate, good practice guidelines for responsible investments, the development of sustainability-linked loans, and the

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Line of action 2. Mobilization and management of resources for climate action		
		identification and management of environmental and social risks.
FT-09	Formulating and implementing a National Strategy for International Climate Finance (Ministry of Economy)	Establishment of a clear framework to accelerate, expand, and enhance the quality of international climate financing in line with the Sustainable Development Goals (SDGs) and the goals of the Paris Agreement. Development of national-level objectives and vision regarding the mobilization of resources from international sources and their application to mitigation and adaptation projects related to climate change at the national and subnational levels. The measure includes key activities such as: i) periodic mapping of international credit organizations and cooperation agencies offering financing for sustainable finance and climate financing development in particular; ii) consolidation of a portfolio of strategic climate change projects for Argentina; iii) assistance in formulating projects and proposals to access international climate financing; iv) preparation of a assessment of barriers to accessing international financing for the private sector in climate change mitigation and adaptation initiatives; v) incorporation of climate indicators into the prioritization processes of internationally financed projects; vi) development of Monitoring, Reporting, and Verification (MRV) mechanisms for the impact of climate financing, and vii) creation of procedures to facilitate accountability and transparency in the use of received climate financing.

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### Line of action 3. Innovative mechanisms

This line of action focuses on the design and implementation of innovative financial and economic instruments that facilitate and make viable the flow of capital to sectors that contribute to the fight against climate change and sustainable development.

No. Measure

Description

#### Line of action 3. Innovative mechanisms

FT-10	Evaluation of the opportunity, merit and convenience of entering into transactions associated with emissions trading, whether in the framework of the implementation of Article 6 of the Paris Agreement or in other market schemes (National Directorate of Climate Change, Ministry for the Environment and Sustainable Development)	Carrying out the following activities: i) institutionalizing the structure of the National Authority; ii) developing a National Strategy, encouraging private sector involvement; iii) analyzing the existing regulatory framework and proposing modifications to promote the development of activities and implementation of the National Strategy and transactions associated with emissions trading, and iv) identifying and developing instruments that can be framed as implementation measures according to opportunities outlined in Article 6.8 of the Paris Agreement.
FT-11	Development of a Sustainable Sovereign Bond Framework that defines the general and specific principles for green, social or sustainable thematic bond issues (Ministry of Economy).	Development of a framework defining general and specific principles for the sovereign issuance of green, social or sustainable thematic bonds, in line with the SDGs and the Paris Agreement goals.

## 5.2.3. Institutional strengthening

A sound climate policy requires a solid system of governance, design, management and implementation, with cross-cutting views, strategic visions, integration and consolidation to promote effective climate action that also fosters coordination with all actors and sectors. Institutional strengthening is one of the instrumental lines that will support the NAP, contributing to compliance with Law No. 27520 and its regulatory decree.

This instrumental line focuses on the challenges and opportunities for the State in terms of governance, legislation, management, planning, education, training, articulation, and consensus on the required transformations and the measures promoted for adaptation and mitigation. Based on this approach, four lines of action have been defined:

Line of action 1: Regulatory Update and Adjustment

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Line of action 2. Multilevel and Multi-Actor Governance



Line of action 4. Prospective planning processes

The measures included in each line of action are detailed in Table 13.

# Table 13. Lines of action and measures of the instrumental lineInstitutional strengthening

#### Line of action 1. Regulatory Update and Adjustment

To meet the established objectives and support the process of strengthening and institutionalizing climate policy at the national and subnational levels, it is important to have updated, clear, and innovative regulations that assist various sectors and actors in developing specific objectives, establishing tools to support transition, and setting temporal parameters for implementation. In this context, and based on institutional strengthening, efforts are made to develop necessary assessments to design processes and instruments that allow for the detection of deficiencies and the identification of outdated or contradictory regulations. This aims to generate both national-level regulations and guidelines for subnational jurisdiction regulations.

N.º	Measure	Description
FI-01	Supporting the provinces and CABA in the development and adaptation of their local regulations in compliance with the objectives of Law No. 27520 and national commitments and goals (Ministry for the Environment and Sustainable Development)	Continued support to the provinces and CABA in the development of their subnational regulations or the adaptation of existing ones, in order to comply with the provisions of Law No. 27520 and the international commitments and goals undertaken
FI-02	Formulating the laws or administrative acts necessary to guarantee the implementation of Law No. 27520 (National Directorate of Climate Change, Ministry for the Environment and Sustainable Development).	Development of proposals, elaboration and approval of the necessary regulatory instruments, as well as the revision of existing ones, to guarantee the full implementation of the law, strengthening the national climate regulatory framework.

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### Line of action 1. Regulatory Update and Adjustment

FI-03	Development of guidelines on climate change for the preparation of Environmental Impact Assessments (EIA) (Ministry for the Environment and Sustainable Development)	Incorporation of guidelines on climate change in the "Guide for the preparation of environmental impact studies" (Res. 337/2019, SAyDS). In this way, it is expected that professionals from the multiple disciplines involved in the preparation of Environmental Impact Assessments (EIA) incorporate the climate approach in the preparation of such studies.
FI-04	Promoting Strategic Environmental Assessment as a tool for climate action (Ministry for the Environment and Sustainable Development)	Review of the guide for the preparation of a Strategic Environmental Assessment (MAyDS, 2019), to verify the proper incorporation of the climate variable, and awareness-raising, dissemination and training in the use of this guide and in the benefits of the Strategic Environmental Assessment tool.
FI-05	Strengthening technical capacities to incorporate climate risk analysis in Environmental Assessment processes (Ministry for the Environment and Sustainable Development)	Strengthening of technical capacities during professional training processes for the consideration of risk analysis in environmental assessment processes.

#### Line of action 2. Multilevel and Multi-Actor Governance

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The national climate policy, designed through the GNCC, includes multiple spaces that promote coordination with various sectors and actors within the National Public Administration and subnational jurisdictions, as well as with Indigenous Peoples, civil society, and its public and private actors. In this context, efforts are made to promote agile, innovative, and effective tools, methodologies, instances, processes, and instruments to encourage multilevel and multi-actor citizen and institutional participation and engagement.

N.º	Measure	Description
FI-06	Institutionalizing Intercultural Dialogues with Indigenous Peoples (Ministry for	Formalization of the working space with Indigenous Peoples, aiming to have an institutionalized and dedicated participation platform for these actors, in order to strengthen their role in the development of

Line of action 2. Multilevel and Multi-Actor Governance		
	the Environment and Sustainable Development)	national climate tools, methodologies, and instruments.
FI-07	Operationalizing the monitoring system of the National Plan for Climate Change (PNAyMCC) under the Ministry for the Environment and Sustainable Development.	Definition of indicators associated with adaptation and mitigation goals by 2030; definition and design of tools for gathering necessary information and data; establishment of governance for the system (generation of institutional agreements; establishment of roles, functions, and tasks for each institution for data collection and aggregation), and definition of system outputs.
FI-08	Strengthening the Technical Administrative Coordination of the National Climate Change Cabinet (GNCC) under the Ministry for the Environment and Sustainable Development.	Strengthening the governance framework that defines and designs the national climate policy, through the enhancement of its technical administrative coordination under the Secretariat of Climate Change, Sustainable Development, and Innovation, as indicated in Regulatory Decree No. 1030/2020 of Law No. 27520 on Minimum Standards for Adaptation and Mitigation to Global Climate Change. This measure aims to develop tools, instruments, and management methodologies, as well as regulatory and policy design frameworks, to strengthen the instruments associated with the national climate policy with technical expertise and institutional agreements, primarily the National Plan for Adaptation and Mitigation to Climate Change.
FI-09	Supporting the provinces and CABA in the development of their governance and participation spaces for the formulation of subnational response plans (Ministry for the Environment and Sustainable Development).	Continued support to the provinces and CABA in the development of their governance and participation spaces, within the framework of their response plans, as defined by Article 20 of Law No. 27520.
FI-10	Promoting instruments and instances suitable for preventing and addressing complex conflicts (Ministry of Justice and Human	Development of new mediation and facilitation mechanisms, along with strengthening existing ones; deepening training, capacity-building, and technical assistance activities aimed at both the community and public officials competent in the field. These activities play an essential role in promoting dialogue and

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#### Line of action 2. Multilevel and Multi-Actor Governance

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negotiation as tools for intervening in complex social conflicts, either from a preventive or a resolution-focused approach.

#### Line of action 3. Technical and management capacity building

A comprehensive, cross-cutting and solid approach to climate change requires the strengthening of technical and management capacities and skills focused on climate change adaptation and mitigation. To this end, different strategies should be promoted through training processes that have as a fundamental objective the mainstreaming of the climate change approach with an intergenerational perspective both in the National Public Administration and in the various sectors and actors of civil society and the private sector.

N.º	Measure	Description
FI-11	Strengthening provincial, CABA and municipal technical teams on climate change issues (Ministry for the Environment and Sustainable Development)	Strengthening of subnational teams to facilitate the planning, implementation and monitoring of climate actions to be developed in their territories, through training and technical advice.
FI-12	Supporting the provinces and CABA in the development of their response plans (Ministry for the Environment and Sustainable Development)	Continued support to the provinces and CABA in the preparation of their response plans, as defined by Article 20 of Law No. 27520, through technical advice and the hiring of adaptation and mitigation consultants.
FI-13	Promoting comprehensive education in the environment, with a perspective on sustainable development and a special emphasis on climate change, for individuals working in the public sector (Ministry for the	Support for the processes related to Law No. 27592, known as the "Yolanda Law," whose main objective is to ensure that all individuals in the public sector acquire knowledge about environmental issues to mainstream them into the design, planning, and implementation of public policies. This aims to contribute, through state management, to the construction of an environmentally sustainable Argentina (Law No. 27592, 2020).

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Line of action 3. Technical and management capacity building		
	Environment and Sustainable Development)	
FI-14	Strengthening the institutional framework and capabilities of various sectors within the national government regarding the transfer of meteorological information to ensure quality climate services (National Meteorological Service)	Facilitating the transfer of meteorological information to government users according to their needs. This will be done through raising awareness about the availability of meteorological information in various sectors of the national government, conducting a needs assessment, preparing climate information tailored to these needs, and establishing agreements to facilitate the exchange of information.

### Line of action 4. Prospective planning processes

Prospective planning—a social, comprehensive, and cross-cutting discipline conducted methodically—is a tool for long-term environmental observation. Its objective is the early identification of aspects that could significantly impact the design, administration, and management of public and institutional policies with a future-oriented vision.

N.º	Measure	Description
FI-15	Formulating in a participatory manner a long-term strategy for resilient development with low emissions (National Directorate of Climate Change, Ministry for the Environment and Sustainable Development)	Strengthening the governance framework that defines, designs, and implements the national climate policy through technical, regulatory, and financial reinforcement of its Administrative Technical Coordination (CTA, by its Spanish abbreviation) under the Secretary of Climate Change, Sustainable Development, and Innovation. Additionally, it contributes to enhancing and continuously improving the actions and tasks carried out by the External Advisory Council of the National Climate Change Cabinet.

## 5.2.4. Research, development and innovation

The promotion of active research, development and innovation (I+D+i) policies in relation to climate change is essential for the adoption of appropriate adaptation strategies. In this sense, the scientific-technological system plays a fundamental role in the generation of knowledge

and methodologies that serve as a basis for the development of sectoral plans at the local, provincial and national levels. The incorporation of innovation as a transversal axis of climate policy will be the basis for accelerating—through projects, disruptive actions and the development and transfer of technologies—the achievement of global climate action objectives. Based on this vision, the following four lines of action are defined:

- Line of action 1. Generation of climate information
- Line of action 2. Orientation of research agendas
- Line of action 3. Promotion of innovative solutions
- Line of action 4. Transfer and extension of knowledge and technologies

The measures included in each line of action are detailed in Table 14.

# Table 14. Measures of the instrumental line Research, developmentand innovation

#### Line of action 1. Generation of climate information

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In collaboration with the National Meteorological Service, other scientific-technical organizations and academia, we will develop robust information systems, models and projections, based on diagnostic tools and early warning systems, such as the mapping of climate vulnerabilities and risks. These constitute a fundamental support for adaptation management and the delineation of priority issues in conjunction with all sectors.

N.°	Measure	Description
IN-01	Developing the National Climate Change Information System (Ministry for the Environment and Sustainable Development)	Design and implementation of the National Climate Change Information System created by Law No. 27520. This will contain information on loss and damage, vulnerability, sources and sinks of greenhouse gases, technology transfer and development, climate finance and climate change impacts, monitoring and evaluation system and cross-cutting issues, among others.
IN-02	Strengthening the meteorological monitoring network (National Meteorological Service)	Expansion of the coverage of the meteorological monitoring network through the increase in the number of meteorological stations of the SMN to conduct both conventional and unconventional measurements. This will provide necessary data for the provision of representative and robust climate services.
IN-03	Modernizing the flow of data for access to	Increase in the variety and accessibility of official information for citizens and facilitation of its use in

Line of action 1. Generation of climate information		
	information by the population, government decision makers and productive sectors (National Meteorological Service)	self-protection measures. To achieve this, existing tools for information dissemination will be improved, and new ones will be developed. Examples of the latter include climate services tailored in collaboration with specific sectors, or the implementation of a mobile application that allows direct alerts to the population and enables citizens to collaboratively report weather conditions and impacts associated with severe phenomena.
IN-04	Promoting the provision of impact-based weather warnings (National Weather Service)	Establishment of the basis for the implementation of impact-based alerts.
IN-07	Update the Index of Social Vulnerability to Disasters (IVSD, by its Spanish abbreviation) with a gender perspective (Ministry for the Environment and Sustainable Development).	Review and update of the indicators and data that make up the IVSD, including gender considerations.
IN-08	Improve the climate information system (Ministry of Science, Technology and Innovation and Ministry of Defense).	Provision of regionally competitive computing services, essential for weather forecasting; modeling of complex systems; data science, among other things, through the financing of a state-of-the-art supercomputer.

#### Line of action 2. Orientation of research agendas

I+D+i activities will be oriented on the basis of the problems identified as arising from climate change and will seek to strengthen the capacities of professionals and organizations in the national scientific and technological system in relation to this issue. All this will be carried out with a view to having, by the year 2030, a greater proportion of research teams working on adaptation measures with highly qualified human resources that can implement the knowledge related to this topic in various sectors.

N.°	Measure	Description
IN-09	Promoting research and	Search for solutions to challenges of public interest

	development projects aimed at providing support to public agencies in the search for solutions to climate challenges (Ministry of Science, Technology and Innovation)	(proposed by public agencies at all levels), such as climate action, that require scientific knowledge or technological development to achieve their resolution and, thus, a positive effect on society.
IN-10	Strengthening capacities for the study of the cryosphere (Ministry for the Environment and Sustainable Development)	Financing of research grants for the study of geocryology and glaciology topics related to climate change and water resource preservation in the Andes of Argentina. It is expected that professionals will be able to contribute to the generation of inputs for territorial environmental planning, taking into account the risks associated with the retreat of glacial and periglacial environments.

#### Line of action 3. Promotion of innovative solutions

Argentina has agencies to streamline the management of financing instruments and gain efficiency in its response to the requirements of actors and agents of the public sector of Science, Technology and Innovation, and of the business sector with innovation capabilities or potential. For this reason, scientific research, knowledge generation and productive innovation in the country will be promoted in order to simultaneously improve the country's productive profile, the quality of life of the population and contribute to adaptation and mitigation objectives.

N.º	Measure	Description
IN-11	Promoting articulation and coordination among scientific and technological institutions to address issues related to climate action (Ministry of Science, Technology and Innovation)	Coordination of complementary capabilities of scientific and technological institutions in addressing a strategic issue, in pursuit of the social, economic and environmental development of the country.

#### Line of action 4. Transfer and extension of knowledge and technologies

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The development of technological capabilities will be intensified in order to respond to the demands of regional economies and industrial sectors with export potential. The goal is to optimize and professionalize the management of technology and innovation for the

provision of qualified services. This will favor greater innovative dynamism and greater intensity in the processes of linkage, associativity, transfer and extension of knowledge and scientific-technological services. These processes will be achieved through specialized institutional mechanisms and the compatibility of multilateral commitments with the preservation of sovereignty, especially in critical technological areas. All this in an appropriate regulatory context that promotes these activities and the valorization and commercialization of intangible assets, among others.

N.º	Measure	Description
IN-12	Promoting the financing of projects for the generation and transfer of scientific and technological knowledge at the municipal, CABA, provincial and regional levels (Ministry of Science, Technology and Innovation).	Financing of projects for the generation and transfer of scientific-technological knowledge to solve specific social, productive and environmental problems of municipal, CABA, provincial and regional scope in Argentina.
IN-13	Providing incentives to university students to train in climate change-related topics. (Ministry of Science, Technology and Innovation)	Training scholarships aimed at increasing the number of graduates in strategic areas for climate change and, thus, increasing the number of qualified professionals in the institutions of the National Science and Technology System.

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## 5.3. Strategic lines

The strategic lines represent central axes for fulfilling national commitments based on lines of action and specific adaptation and mitigation measures, considering the integrated approach between both strategies, as detailed below.

## 5.3.1. Biodiversity conservation and common goods

Argentina is one of the countries with the largest number of ecoregions in the world, 18 in total: 15 continental, 2 marine and 1 in Antarctica. Due to the enormous biodiversity present, the ecosystems and natural common goods of the national territory constitute the sustenance of most human activities and the basis for a great variety of services, making it a priority to formulate strategies that place the sustainability of ecological and human systems at the center.

The national government emphasizes the importance of conserving biodiversity and other common goods, not only for their provision of raw materials but also for their ecosystem services, such as climate regulation, carbon dioxide absorption, soil fertility restoration, flood mitigation, and other adverse effects of climate change. Additionally, the critical role of biodiversity conservation in preventing the emergence of emerging zoonotic diseases should be considered.

Argentina will promote biodiversity conservation at all levels in the face of the adverse effects of climate change and human action. It will also promote and strengthen the role of ecosystems in GHG mitigation and sequestration, together with the services provided for climate change adaptation, based on ecosystem-based approaches.

In this sense, six lines of action to be implemented are established:

- Line of action 1. Sustainable use of biodiversity
- Line of action 2. Increasing the area devoted to conservation
- Line of action 3. Increase connectivity at the landscape level.
- Line of action 4. Adaptive ecosystem management
- Line of action 5: Environmental Territorial Planning

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Line of action 6. Ecosystem restoration and conservation

The measures included in each line of action are detailed in Table 15.

# Table 15. Lines of action and measures of the strategic lineConservation of biodiversity and common goods

#### Line of action 1. Sustainable use of biodiversity

Sustainable use of the components of biodiversity is one of the three objectives of the Convention on Biological Diversity, which entails social and environmental benefits and is based on respecting the natural rates of species replenishment and sustaining the integrity of the ecosystems in which it operates, as part of a broader conservation strategy. For this reason, other aspects and objectives of the Convention are addressed in a complementary manner in the other action lines and their measures.

This line of action aims to strengthen local economies that rely on native biodiversity, thereby enhancing the knowledge within local communities regarding the components and processes of the ecosystems in their surroundings. This approach allows for diversification of production and fosters stronger connections between human communities and the ecosystems that sustain their livelihoods. This, in turn, provides greater resilience in the face of climate-related risks.

These modes of production allow for the preservation of the integrity and health of ecosystems, aligning with the concept of 'One Health,' which asserts that human health is closely linked to the health of the surrounding environment.

In the sustainable use of biodiversity, it is essential to consider that human communities might be exposed to pathogens that have wild animals as natural reservoirs. Therefore, it is necessary to strengthen epidemiological surveillance in animals and establish safe sanitary practices.

Additionally, the historical role of Indigenous Peoples, particularly women, in the care, preservation, and rational use of common goods must be acknowledged. Hence, it is crucial to promote mechanisms for the participation of women and LGBTQ+ people in decision-making processes, as well as in the benefits derived from the implementation.

No.	Measure	Description
CB-01	Strengthening the conservation and sustainable use of biodiversity in agroecosystems (Ministry for the Environment and Sustainable Development)	Strengthening the 'Promotion Program for the Conservation and Sustainable Use of Biodiversity in Agroecosystems' by incorporating a climate perspective and adaptation to the expected scenarios for the program implementation sites. This includes enhancing technical capacities, expanding the program to new sites, and providing assistance in accessing financing for its implementation.
CB-02	Strengthen initiatives for the sustainable use of non-timber forest products (PNFM, by	Strengthening the utilization and conservation of biodiversity through the valuation of PFNM against the adverse effects of climate change. The goal is to increase the number of pilot sites for PFNM utilization and improve the value chains of these products primarily obtained from

#### Line of action 1. Sustainable use of biodiversity

	its Spanish abbreviation) (Ministry for the Environment and Sustainable Development)	native plant species. This will be based on traditional and scientific knowledge, incorporating new tools and technologies. The aim is also to enhance techniques for harvesting, processing, storing, and marketing PFNM from a regional and national perspective. Capacity-building efforts will involve the actors engaged in PFNM utilization through the creation of guides or booklets and technical workshops.
CB-03	Enhancing the sustainable use of native camelids (Ministry for the Environment and Sustainable Development)	Conservation of South American camelid populations (mainly guanaco and vicuña) and promotion of their sustainable use, both for their intrinsic value and their significance as livelihoods for rural populations, recognizing that native fauna is adapted to the ecosystem and its natural populations do not lead to soil degradation. To achieve this, there are proposals to valorize these species (including awareness campaigns), study and monitor populations with a climate change perspective, establish guidelines for their utilization, develop community systems for sustainable use with value addition at the source, and strengthen corresponding monitoring systems.

#### Line of action 2. Increasing the area devoted to conservation

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Increasing the surface of protected areas earmarked for strict conservation, as well as improving the conditions that allow the integration of native biological diversity into agroecosystems—especially in multiple-use protected areas—is imperative for biodiversity conservation in the face of the shifts in the distribution of species that climate change scenarios pose. It is also a fundamental aspect for sustaining the integrity of ecosystems and, with them, the ecosystem services on which human communities depend. In this sense, protected area systems will be expanded, both in marine and continental ecosystems, incorporating new territories that respond to climate projections, guarantee an adequate representation of environments, and have effective management plans with a strong climate change perspective and resources for their support.

As a management tool, the incorporation of Other Effective Area-Based Conservation Measures (OECMs) is considered. These are defined as "a geographically defined area that is not a protected area and that is governed and managed in such a way as to achieve sustained positive and lasting results for the in situ conservation of biological diversity, with associated functions and services of ecosystems and, where applicable, cultural, spiritual, socioeconomic, and other values relevant at the local level" (CBD, 2018, p. 1). These provide an opportunity to showcase applied forms of governance and management involving

### Line of action 2. Increasing the area devoted to conservation

various actors, including Indigenous Peoples and local communities, the private sector, along with the government.

Therefore, this line of action should incorporate the experiences and needs of communities that depend on ecosystem services to strengthen, through financing and recognition, territorial experiences led by cis heterosexual women and LGBTI+.

N.º	Measure	Description
CB-04	Expanding and strengthening the Ramsar Site Network (Ministry of Environment and Sustainable Development)	Expansion and strengthening of Argentina's Ramsar Sites Network in coordination with provincial authorities and the National Parks Administration, incorporating the approach of adaptation to climate change. The goal is to include new sites on the Ramsar List that encompass underrepresented wetlands of special importance for mitigation and adaptation to climate change. The objective is to raise awareness about the adaptive role of wetlands in the face of expected climate risks and include climate risk analysis, participatory assessments, and climate change adaptation measures in Site Management Plans.
CB-05	Incorporating underrepresented ecosystems in national protected areas (National Parks Administration). Incorporar ecosistemas subrepresentados en áreas protegidas nacionales (Administración de Parques Nacionales)	Incorporation of sites of high conservation value from underrepresented ecosystems in protected areas. Based on the consultancy report "Identification of Ecoregional Gaps" (Solís Neffa et al., 2021), priority areas for biodiversity conservation and conservation gaps have been identified in the ecoregions Altos Andes, Puna, Monte de Sierras y Bolsones, Espinal, Pampa, Delta e Islas del Paraná, Campos y Malezales, Esteros del Iberá, Selva Paranaense and Costero-Marina that will guide the creation of new protected areas in the National System of Protected Areas and National System of Marine Protected Areas.
CB-06	Promoting the inclusion of glaciers in protected areas (Ministry of Environment and Sustainable Development)	Promoting the creation of protected areas (national or provincial) to reduce the vulnerability of these strategic water reserves to non-climatic drivers of degradation that would act in conjunction with climate change, through their inclusion in national priorities and articulation with subnational states.

#### Line of action 3. Increase connectivity at the landscape level.

Fragmentation is a phenomenon that occurs at the landscape scale as a result of habitat loss and degradation, generating the elimination or reduction in the size of patches of native vegetation, with a consequent increase in the distances between fragments and an increase in the perimeter/surface area ratio. This translates into a greater edge effect, which implies greater threats to the ecosystem linked to the surrounding anthropized matrix, such as invasion of exotics and proliferation of diseases (plant, animal and human), or to the alteration of biophysical conditions within the patches, which implies a reduced provision of ecosystem services. For this reason, fragmentation increases the vulnerability of ecosystems to climate change. These effects will be reversed through landscape connectivity strategies, such as increasing biodiversity in productive plots, integrating native biodiversity into agroecosystems, generating or strengthening corridors and protecting areas with predominantly linear forms (such as rivers, streams, drainage ways, roadsides, railroad tracks, etc.).

In this sense, the experiences and needs of local communities should be considered from an intersectional and intercultural approach in the planning of connectivity at the landscape level, for which the generation of data and information with a gender and diversity perspective will be fundamental.

N.º	Measure	Description
CB-07	Mainstreaming adaptation in National Parks management plans (National Parks Administration and Ministry for the Environment and Sustainable Development)	Support for existing protected areas to develop the missing management plans to date, considering climate change perspective, and achieving their implementation, including the provision of equipment and personnel. In the initial phase, the measure aims to mainstream climate change adaptation (analysis of climate risks in parks and development of adaptation measures to be incorporated into their management plans) in the Campos del Tuyú, Copo, Talampaya, and Los Alerces National Parks. In a second stage, the Management Plan of El Palmar National Park will be updated, as well as guidelines for the planning of the PALMAR YATAY Ramsar Site and the Uruguay River Corridor, with special emphasis on addressing the scenarios of Climate Change and gender perspective, generations and diversities. In order to achieve the modern planning approach, which is promoted in APN, it includes the development of specific plans for Public Use, Environmental Education, among other instruments such as cultural resources management plans, EEIL, Communication, Comprehensive Risk and Vulnerability Management.
CB-08	Developing livelihood alternatives for vulnerable local communities in selected countries (National Parks	Development of livelihood alternatives for vulnerable local communities through the production, value addition and marketing of ecosystem products and services that contribute to sustainable development. The measure also involves empowering vulnerable local communities to access or create green jobs (resilient and low-emission),

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#### Line of action 3. Increase connectivity at the landscape level.

Administration and
Ministry for the
Environment and
Sustainable
Development)

as a contribution to improving their livelihoods.

#### Line of action 4. Adaptive ecosystem management

Projections of alterations in climatic variables due to climate change will have an uncertain impact on the functioning of Argentina's diverse ecosystems. This, added to the pre-existing information gaps regarding the dynamics of populations and ecosystems, creates a scenario in which it is necessary to make decisions on the management of common goods that, with an integral and systematic vision of the processes, allow for the simultaneous gathering of information and adaptation to the changes produced both by the management of ecosystems and by climate change. For this reason, the adaptive management of ecosystems is promoted as a line of action, to be carried out in response to the particularities of each territory from the local communities, putting into dialogue scientific knowledge and traditional or ancestral knowledge.

Accordingly, priority should be given to the political participation of cis heterosexual women and LGBTI+ in decision-making, research centers and instances, as well as their technical training in integrated ecosystem management.

No.	Measure	Description
CB-09	Strengthening Integrated Coastal Management (Ministry for the the Environment and Sustainable Development)	Promoting the implementation of pilot projects that favor coastal adaptation to climate change in the most sensitive coastal units and their corresponding Integrated Management Units, in accordance with the Federal Strategy on Integrated Coastal Management (EFMCI, by its Spanish abbreviation). To this end, it is proposed to generate provincial plans for integrated coastal management that include guidelines for incorporating adaptation to climate change in the territorial environmental planning (OAT) of the coasts; promote public instances of participation to broaden the scale of intersectoral articulation, integrating the different actors of the Coastal Units and their corresponding Integrated Management Units; promote the implementation of the Interjurisdictional Training Plan for integrated coastal management, linked to the implementation capacity of environmental sustainability indicators (ESI) identified in the EFMCI for their progressive implementation. Priority will be given to factors of pressure on the marine coastline,

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Line of action 4. Adaptive ecosystem management		
		related to climate change and its direct or indirect relationship with coastal erosion, and eventual changes in the distribution of its biodiversity.
CB-10	Strengthening adaptive management practices oriented to forage evaluation and livestock management (Ministry for the Environment and Sustainable Development)	Strengthening measures in the pilot sites of the National Observatory for Land Degradation and Desertification involve assessing forage availability in various Patagonian steppe systems and providing management recommendations through rotational grazing plans tailored to this supply. Such practices are essential for reducing system vulnerability to climate change, shielding them from its adverse effects, and harnessing their benefits in line with the anticipated changes in each region.
CB-11	Promoting the sustainable use of wetlands (Ministry for the Environment and Sustainable Development)	Strengthening the sustainable use of wetlands to address climate change involves diversifying livelihoods, reducing non-climatic threats to these key ecosystems for adaptation, and enhancing their conservation through their valorization. This will entail developing sustainable management plans for wetlands in the context of climate change at selected pilot sites in coordination with relevant provincial authorities. Additionally, guidelines will be generated to develop practices and regulations at both municipal and provincial levels for the sustainable utilization of wetlands in the context of climate change.
CB-12	Assessing and monitoring fisheries under climate change scenarios in the Paraná-Paraguay river corridor (Ministry for the Environment and Sustainable Development)	Conducting assessments to evaluate the effects of climate change on various inland fisheries within the Paraná-Paraguay river corridor based on existing information from climate and fisheries biology projections, available in national scientific institutions, and strengthening monitoring systems for river fishing landings.
CB-13	Strengthening applied research for conservation (National Parks Administration and Ministry of Science, Technology and Innovation).	Creation of research initiatives within National Parks to enhance biological, ecological, and cultural knowledge and conservation efforts within these areas. Within this framework, the following actions will be undertaken: -Development and implementation of the Knowledge Management program, whose general objective is to integrate research and management for the conservation of biodiversity, cultural heritage and

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#### Line of action 4. Adaptive ecosystem management

#### sustainable development.

-Development of six regional centers for applied research in Protected Areas, within the framework agreement between Ministry of Science, Technology and Innovation (MINCyT, by its Spanish abbreviation) and APN, which will have the objective of promoting studies and applied scientific activities aimed at improving the management and handling of biological and cultural resources in the Protected Areas under the National Parks Administration.

-Establishment of doctoral and postdoctoral research scholarships aligned with the priority interests of the National Parks Administration (APN). Topics include themes related to climate change adaptation, such as 'Influence of climate change on the tree line in the areas surrounding National Parks' and 'Assessment of vulnerability to climate change and development of adaptation measures.

-Development of applied research subprojects within the framework of the Sustainable Landscape and Livelihoods Recovery Project.

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#### Line of action 5: Environmental Territorial Planning

The Environmental Territorial Planning (OAT, by its Spanish acronym) is one of the instruments of environmental policy and management outlined by Law No. 25675, which allows for the integration of different land uses and the conservation of the vast biogeographical diversity of the national territory. This line of action involves combining various aspects that contribute to the construction and identity of territories at the landscape level, structuring their functioning by reaching consensus on the location of anthropogenic activities across different jurisdictional levels and with community participation. This ensures the appropriate use of common goods, recognizing ecosystems as the biophysical basis that enables all activities within them.

In this context, gender, diversity, ethnicity, age, income, disabilities, and education, among other factors, must be considered as determinants in the difficulty of accessing lands and, therefore, in participation in deciding on this territorial planning and land use.

No.	Measure	Description
CB-14	Incorporate wetlands and coastal areas as green and blue infrastructure in climate change adaptation measures (Ministry for the Environment and	Development of projects for the integration of wetlands as green and blue infrastructure, including conservation, management, and restoration actions, in adaptation measures to climate change at selected pilot sites in coordination with relevant provincial authorities. Generation of guidelines to develop practices at both municipal and provincial levels that

# Line of action 5: Environmental Territorial Planning

	Sustainable Development)	promote the integration of wetlands as green and blue infrastructure in climate change adaptation measures.
CB-15	Generating information with a climate perspective for the environmental management of wetlands (Ministry for the Environment and Sustainable Development)	Addressing the needs and gaps in information on wetlands in order to improve decisions related to climate action, through: -deepening the National Inventory of Wetlands, which provides information on the spatial distribution and types of wetlands in our country; -expanding research on vulnerability and risks of different types of wetlands and their ecosystem services in the face of climate change; -the definition of indicators of vulnerability and impact of wetlands in the face of climate change; -the deepening of GHG estimates in different types of wetlands as an input for the INGEI and in evaluations of the role of wetlands in climate change mitigation (GHG capture and emission), -and the incorporation of wetland-related variables in the SNICC and SIMARCC.
CB-16	Preventing illegal deforestation and reducing legal deforestation (Ministry for the Environment and Sustainable Development)	Promotion of interinstitutional collaboration for the formulation of development policies in line with the Territorial Planning of Native Forests, seeking solutions to conflicts of interest between conservation, agricultural and livestock production, urban development, and infrastructure.
CB-17	Promoting the update of the Territorial Planning of Native Forests (Ministry for the Environment and Sustainable Development)	Promotion of the updating of the 23 provincial Territorial Planning of Native Forests (OTBN, by its Spanish abbreviation) which, as established by Law No. 26331, must be updated every 5 years (Law No. 26331, 2018).
CB-18	Developing maps of the areas most vulnerable to land degradation and desertification due to climatic factors in future scenarios (Ministry for the Environment and Sustainable	Development of maps that allow the identification of lands which, due to edaphic, socioeconomic, and climatic factors, may be more susceptible to land degradation or desertification. These phenomena are exacerbated by various climatic variables in different regions of the country.

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Line of action 5: Environmental Territorial Planning		
	Development)	
CB-19	Elaboration of a assessment of the impacts and risks of climate change on glacial environments (Ministry for the Environment and Sustainable Development)	Preparation of risk assessments associated with glacier retreat based on the predictions of climate change and variability.
CB-20	Generating criteria for identifying frozen soils with a view to preparing a plan for their survey (Ministry for the the Environment and Sustainable Development)	Progress in the necessary planning to establish a nationwide frozen soil survey system, in coordination with the provinces. As a first step, a definition of frozen soils will be developed, and criteria for their identification and survey will be elaborated. The development of this measure will involve collaboration with regional technical teams.
CB-21	Promoting the Regional Plan for Adaptation to Climate Change in the Paraná River Delta (Ministry for the Environment and Sustainable Development)	Development and implementation of a regionally agreed planning for the territory of the Paraná River Delta —shared by the jurisdictions of the provinces of Buenos Aires, Entre Ríos, and Santa Fe— to establish and adapt management tools and instruments. These tools will allow coordinated responses to alterations in climate variables attributable to climate change. These alterations exacerbate other anthropogenic threats and endanger the integrity of this wetland landscape and its essential ecosystem functions. These functions are vital for the well-being of human populations living in the area, as well as for the numerous communities surrounding this territory, and for biodiversity. In this way, there is an expectation to have tools to carry out and improve productive practices sustainably (Sustainable Land Management), based on the goods and services provided by ecosystems. This involves revisiting what has already been developed in the Comprehensive Strategic Plan for Conservation and Sustainable Utilization in the Paraná Delta (PIECAS-DP, by its Spanish abbreviation), conducting risk assessments associated with climate change—including, for example, those related to the reduction of the average flows of the Paraná River

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#### Line of action 5: Environmental Territorial Planning

and some of its tributaries, changes in sediment transport, patterns of distribution of native and exotic species, especially those that may be invasive, the accumulation of dry matter that could favor the spread of fires, the shrinking of water bodies that facilitate the conversion of wetlands to pampas, and the impacts on ichthyofauna, among others—; conducting participatory processes involving all actors in the territory; strengthening the management plans of the various protected areas with a climate change perspective and environmental land planning; and creating tools that enable sustained presence of different levels of the government, as well as agile intervention instruments in emergency situations.

#### Line of action 6. Ecosystem restoration and conservation

Our country faces the challenge of recovering and restoring numerous ecosystems in different ecoregions. Land degradation, coupled with climate change, poses a threat to livelihoods, risking food security and even triggering migration processes and loss of natural and cultural heritage. Given this context, the formulation of restoration and conservation plans in various ecosystems across the territory will continue, aiming to maintain the processes that enable their functioning, including human activities that promote socio-economic development. Such measures will improve human health and ecosystem health, while also reducing GHGs emissions and enhancing their sinks. Similarly, it is essential to promote and ensure that cis heterosexual women and LGBTI+ lead projects contributing to the restoration and conservation of ecosystems in a territorial and

localized manner.

No.	Measure	Description
CB-22	Strengthening the Inclusive Conservation Program (Ministry for the Environment and Sustainable Development)	Support and collaboration in mainstreaming climate change adaptation across conservation-production territorial units defined for the implementation of the Inclusive Conservation Program. This involves establishing a system of technical and financial support for Indigenous Peoples' communities and other local rural communities interested in conserving the natural ecosystems within their lands and sustainably utilizing wildlife resources. Strategic allies for biodiversity conservation are considered through the creation of protected areas under Indigenous management. Aspects such as the preparation of diagnostic and basic technical documents for the implementation of

Line of action 6. Ecosystem restoration and conservation		
		the program, the strengthening of technical capacities in the territory of the actors involved in the program, and the implementation of projects will be strengthened.
CB-23	Control invasive alien species in territories under the administration of APN and other areas of influence (National Parks Administration)	Strengthening the effective management of invasive alien species (IAS) through prevention, containment, control, and eradication measures. The goal is to prevent or minimize the impacts these species can potentially cause on natural or productive systems under the jurisdiction and administration of the National Parks Administration (APN) and other related areas. This measure involves planning through projects, knowledge management, and scientific and technological production for management, enhancing institutional capacities for management, engaging with interested social actors, systematizing and disseminating management experiences, among other activities.
CB-24	Conserving and reducing the vulnerability of the Calera del Palmar historic site (National Parks Administration and Ministry for the Environment and Sustainable Development)	Implementation of conservation actions for the historical site La Calera del Palmar to consolidate its structures, reducing vulnerability to the effects of precipitation and flooding, and improving visitor conditions. The following steps are planned: -Preliminary assessment of the effects of local precipitation on surface water micro-runoff in the historical area and the infiltration effects on rocks and soils supporting historical structures (lime kiln and others) to consider them in the construction (hydrogeological aspects). -Execution of remediation works, consolidation of structures, shoreline defense, and enhancement of ruins to mitigate the effects of precipitation and flooding on the historical site. -Implementing archaeological work and monitoring complementary to the work. -Enhancing accessibility to trails and infrastructure for visiting the historical site, highlighting the ensemble's value. -Conducting environmental impact assessments for tasks and interventions that require them, following the regulations applicable in the National Parks Administration (APN). -Communicating the results to society.
CB-25	Strengthening fire	Strengthening fire prevention and mitigation through

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Line of	Line of action 6. Ecosystem restoration and conservation		
	management in National Parks (National Parks Administration)	<ul> <li>the following actions:</li> <li>-Planning through fire management plans and their annual operational plans.</li> <li>-Knowledge management and scientific-technological production.</li> <li>-Comprehensive and ongoing training of personnel (including theoretical-practical training, group management, and physical training).</li> <li>-Implementation of schemes for fire prevention and risk reduction.</li> <li>-Implementation of firefighting schemes that include response mechanisms and involvement of local communities.</li> <li>-Acquisition of equipment for prevention and mitigation tasks.</li> <li>-Planning, implementation, and monitoring of post-fire ecological restoration actions.</li> </ul>	
CB-26	Strengthening the control of invasive exotic species (Ministry for the Environment and Sustainable Development)	Prevention of the introduction and restriction of inter-jurisdictional movement of new invasive exotic species (IES). To achieve this, climate change variables will be incorporated into the current systems of risk analysis (SAR, by its Spanish acronym). The SAR will be used to assess proposals for the voluntary introduction of species to understand their invasion probabilities. Enhancement of working capacities for the control, eradication, containment, mitigation, and monitoring of species already present in the territory. In collaboration with MINCyT, CONICET (National Council for Scientific and Technical Research from Argentina), universities, and other local institutions, research lines aimed at systematizing projections of expansion in the distribution of IES present in the country, exacerbated by climate change, will be expanded.	

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## Line of action 6. Ecosystem restoration and conservation

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CB-27	Strengthening sustainable land management practices through conservation agriculture (Ministry for the Environment and Sustainable Development)	Strengthening measures in the pilot sites of the National Observatory for Land Degradation and Desertification aimed at preventing or mitigating processes of water erosion (loss of topsoil layers/surface erosion) and physical soil deterioration due to compaction (due to trampling or machinery use) and sealing/crust formation (blocking soil pores with fine material and the development of a thin impermeable layer on the soil surface hindering rainwater infiltration). This is achieved through conservation agriculture practices that minimize soil disturbance or management practices that prevent its degradation. These practices include maintaining a permanent cover of vegetation, implementing crop rotation, planting multiple crops together, intercropping with legumes to increase nitrogen availability, creating parallel and absorption gradient terraces, contour-line farming, incorporating legumes and winter cereals to reduce the use of nitrogen fertilizers and wind erosion, and planting crops and trees along the contour lines of sloping land, among others.
CB-28	Strengthening sustainable land management practices aimed at controlling wind erosion processes (Ministry for the Environment and Sustainable Development).	Strengthening sustainable land management practices aimed at reducing the impact of desertification caused by wind erosion processes. This is achieved through practices that promote the establishment of tree and shrub stands that provide shelter (forest curtains and edges), stabilization of sand dunes through grass planting, among other measures that also contribute to the supply of firewood and other services such as fruit harvesting, shade, among others.
CB-29	Strengthening sustainable land management practices aimed at controlling water erosion processes (Ministry for the Environment and Sustainable Development)	Strengthening sustainable land management practices aimed at controlling water erosion processes, primarily to prevent the creation or deepening of gullies. These practices include the creation of terraces or plantable soil patches that reduce the slope (such as reservoir terraces with an additional purpose of hosting plant species and wildlife habitats; evacuation or conducing terraces for transporting excess water, absorption terraces with drainage slope or gradient, level terraces -Inca style- with or without drainage systems, among others), construction of mini-dams or relief dams for guiding and retaining water in the soil matrix, sedimentation of gullies, creation of permeable dams, control of gully headcuts, construction of flow

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Line of	Line of action 6. Ecosystem restoration and conservation		
		regulators or retarders, among other actions.	
CB-30	Strengthening water harvesting practices in dry areas where moisture deficit is the main limiting factor (Ministry for the Environment and Sustainable Development)	Enhancement of measures in the pilot sites of the National Observatory for Land Degradation and Desertification (ONDTyD, for its Spanish abbreviation) focused on water harvesting in areas with arid and semi-arid climates, not necessarily with degraded lands. The improvement involves increasing natural storage capacity during the rainy season or capturing water from the groundwater table through various types of infrastructure (reservoirs, dams, temporary tanks, bucket wells, manholes and roof catchment).	
CB-31	Strengthening practices aimed at reducing grazing pressure on degraded soils (Ministry for the Environment and Sustainable Development).	Strengthening sustainable land management practices aimed at creating reserves of forage for critical periods, reducing grazing pressure on the resource. This involves both planting forage grasses or shrubs and excluding livestock from areas of natural grassland, even incorporating agroforestry management practices. It can also be achieved through practices such as 'deschampado,' which involves fencing paddocks under the forest and clearing fallen branches that obstruct movement, removing diseased trees or shrubs, and non-forage 'champas' or sub-shrubs.and subsequent sowing of a fodder grass directly on the leaf litter on the ground.F	
CB-32	Strengthening practices that prevent further degradation or restoration of degraded soils (Ministry for the Environment and Sustainable Development)	Strengthening initiatives aimed at halting degradation processes, as well as practices involving soil restoration in the process of degradation. The former refers to practices such as gully sedimentation, construction of permeable dams, control of gully headcuts, establishment of flow regulators or retarders, among others. The latter refers to practices such as shrub revegetation, sand dune stabilization through exclusion and planting of grasses, intercropping, water redistribution on contour lines in wetlands, remediation of contaminated soils through bio-stimulation, management of second-growth forests to increase organic matter input in an agricultural matrix, riverbank afforestation, recovery of saline beaches, gully floor restoration, soil decompaction, soil scarification with planting of native species, flooding of seasonal wetlands, among others.	
CB-33	Promoting a multisectoral, interjurisdictional and	Promotion of the establishment of interdisciplinary and intersectoral territorial working groups (provincial and interprovincial) and strengthening of existing	

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Line of	action 6. Ecosystem re	storation and conservation
	integrated approach to fire management (Ministry for the Environment and Sustainable Development)	ones. In these, there's a need to encourage the review of institutional status and regulations to develop management plans and productive or fire-associated management practices. Formalizing the establishment of the Advisory Council established by Law No. 26815. Establishing a connection with the work carried out by different jurisdictions in the framework of developing their subnational climate change response plans under Law No. 27520.
CB-34	Strengthen technical and combat teams associated with fire management (Ministry for the Environment and Sustainable Development)	Strengthening and expansion of technical, combatant and logistical teams—through training and recognition of the work of national teams that deal with fire management—, and of infrastructure and equipment, through the acquisition or construction of new units and maintenance of existing ones.
CB-35	Strengthening vegetation fuel management for fire prevention (Ministry for the Environment and Sustainable Development)	<ul> <li>Enhancement of vegetation management for fire prevention in peri-urban and rural areas through the following actions:</li> <li>Promotion of planned creation and maintenance of firebreaks in a planned manner.</li> <li>Development of guidelines for the selection of species (forest, forage, or ornamental) suitable for the corresponding ecoregion to prevent increased vulnerability to fires.</li> <li>Strengthening of livestock and agro-silvicultural management policies related to managing plant fuel for fire prevention.</li> <li>Building capacities for prescribed burning practices.</li> <li>Strengthening of information systems associated with fire management, considering variables such as: i) vegetation type; ii) presence of disturbances; iii) types of crops, if any; iv) maintenance status of firebreaks, and v) presence of natural firebreaks for planning.</li> </ul>
CB-36	Promote forest recovery and restoration techniques (Ministry for the Environment and Sustainable Development)	Provincial support for restoration plans through the National Fund for the Enrichment and Conservation of Native Forests on private properties and specific programs within the Provincial Strategic Plans for Native Forests 2022. Additionally, Institutional Plans for the Restoration of Areas Affected by Fires will be implemented in various provinces of the country, under the framework of the Plan for the Restoration of Areas of Native Forests Affected by Fires, funded through the National Program for the Protection of

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Line of	Line of action 6. Ecosystem restoration and conservation		
		Native Forests established by the Forest Law.	
CB-37	Building sustainable, reliable, and resilient infrastructure to improve ecosystem management in the APN (National Parks Administration and Ministry for the Environment and Sustainable Development)	Development of construction, rehabilitation, renovation, enhancement, and maintenance works for the infrastructure of the National Parks Administration (APN). This effort aims to enhance the management and sustainable use of national protected areas through investment in infrastructure, both for public use (to improve the quantity and quality of visits to protected areas) and for control and surveillance (operational use, administrative headquarters and housing) to improve the management of ecosystems.	
CB-38	Promoting ecosystem restoration practices (Ministry for the Environment and Sustainable Development)	Generation of capacities at the national level to carry out an adequate framework to promote ecological restoration processes and the strengthening of practices that currently contribute to the restoration of the country's different ecosystems, setting precedents for the implementation of a National Ecosystem Restoration Plan. For this purpose, the proposed actions include: - Strengthening the knowledge and systematization of restoration practices nationwide by creating a National Information System on Ecological Restoration that centralizes these practices, in coordination with national academic institutions; - Providing training for personnel from different levels of the government and other stakeholders involved in ecosystem restoration.;-Developing economic and ecological assessments to highlight the value of healthy ecosystems in adaptation and mitigation to climate change and the costs associated with restoration efforts; - Creating guidelines for ecosystem restoration in the context of climate change, tailored to specific territorial contexts; - Promoting the creation or strengthening of necessary infrastructure for conducting restoration processes based on each jurisdiction or ecoregion. This includes local nurseries for native vegetation, seed exchange networks, germplasm or seed banks for ecological restoration tailored for each province or ecoregion, among other necessary infrastructures for restoration processes. This also includes identifying needs, promoting regulatory adaptation, and	

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Line of action 6. Ecosystem restoration and conservation				
		providing funds for project execution. -Defining criteria for prioritizing the selection of areas important for ecosystem restoration, evaluating restoration opportunities, and establishing pilot sites accordingly. -Enhancing capacities for monitoring the progress of restored areas.		
CB-39	Strengthen the network of "Conservation beacons" for the early detection of fires (Ministry of Environment and Sustainable Development)	The expansion of the Conservation Beacons Network aims to achieve early detection of fire outbreaks. This network involves the installation of early fire detection towers in areas across the national territory that are susceptible to fires, with priority given to sites adjacent to areas under some degree of protection. Information from these towers is transmitted to provincial and national monitoring centers, generating alerts and event statistics. These installations will be equipped with complementary rapid response equipment (such as fast attack vehicles, tankers, firefighting equipment and supplies) for fire suppression and pre-suppression efforts.		

## 5.3.2. Sustainable management of food systems and forests

Argentina will consolidate policies related to land use that aim for sustainable management of natural common goods and conservation of ecosystem functions, understanding their fundamental role both in carbon storage in soil and vegetation and in facing the adverse effects of climate change. Regarding forest management, it will be necessary to address silvicultural practices through a comprehensive landscape approach that takes into account current demands for timber and non-timber products, as well as the maintenance of the diversity of ecosystem services associated with forests and their soils.

Similarly, climate actions related to agricultural, fishing, forestry, and agro-industrial production will be designed and implemented considering the significant contributions made by these sectors to the national GDP as a source of employment, foreign exchange earnings, and, most importantly, the supply of food to the population. For this reason, the country recognizes safeguarding food security and sovereignty as a fundamental priority and aims to reduce the vulnerability of its production systems to the impacts of climate change. In this context, the practices will incorporate rural settlement as a cornerstone, making access to land and culturally appropriate technologies crucial for rural, peasant, and indigenous populations, who play a fundamental role in the fight against hunger and poverty.

Since climate is the primary source of risk, often causing irreversible damage, comprehensive climate risk management is essential to strengthen the resilience of food systems, reducing the vulnerability and exposure of actors to climate risks, especially among the most vulnerable. Water resource management is also considered fundamental in ensuring production efficiency.

In the mentioned context, seven general lines of action were defined, encompassing specific measures to be implemented by 2030 to respond to this vision in the sectors of agriculture, livestock, forestry, fishing, and native forests:

- Line of action 1. Soil conservation
- Line of action 2. Efficiency and production diversification
- Line of action 3. Agroforestry and fisheries climate risk management
- Line of action 4. Integrated management of agroecosystems
- Line of action 5. Mechanisms for production traceability
- Line of action 6. Deforestation reduction
- Line of Action 7. Population Relocation and Rooting

Consistent with the information provided at the beginning of the section, Table 16 only describes measures from the PNAyMCC that contribute to adaptation. Nevertheless, considering that the NAP is the adaptation component of the PNAyMCC, the latter contains all the measures not listed here, as it includes measures categorized as "mitigation" or "loss and damage."

# Table 16. Lines of action and measures of the strategic lineSustainable Management of Food Systems and Forests

#### Line of action 1. Soil conservation

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Technologies such as the implementation of cover crops, no-tillage, crop rotation, techniques for optimal integrated water management, inter-planting, polycultures, incorporation of borders and live fences and even the implementation of traditional crops that cover most of the year (double cropping in one year or triple cropping in two years) will conserve the soil and prevent its physicochemical and biological degradation. This will increase its capacity to cope with the risk of water and wind erosion and, therefore, its resilience to adverse events intensified by climate change. Simultaneously, carbon sequestration in the soil resource will be increased.

Projects led by cis heterosexual women and LGBTI+ that contribute experiences and knowledge related to the conservation and sustainable use of soils should be strengthened. At the same time, it is necessary to promote technical-professional training and labor

### Line of action 1. Soil conservation

inclusion of cis heterosexual women and diversities in other aspects related to this line of action.

No.	Measure	Description
GS-01	Promoting crop rotation (Secretariat of Agriculture, Livestock and Fisheries).	Promotion of crop rotation in the entire area used for extensive agriculture. This involves planned alternation of different crops within the same area on an interannual and intraannual basis, aiming to keep the soil covered throughout the year. Among the associated benefits are the contribution of organic matter to the soil, leading to carbon sequestration, improvement of physical and chemical properties, and reduction of erosion. To achieve this, there is an active decree that establishes a differential export tax between cereals and oilseeds (Decree No. 230/2020).

#### Line of action 2. Efficiency and production diversification

Efficiency in agricultural activity is framed within policies aiming to increase the total grain production through higher crop yields. Meanwhile, efficiency in livestock production is achieved by enhancing herd productivity and increasing the volume of meat produced per slaughtered animal.

The agricultural and livestock sector will promote measures for the development, improvement, and adoption of varieties and breeds adapted to local climatic conditions to achieve higher yield potential and production diversification. Regarding production diversification, the aim is to promote the production of foods that ensure a healthy and safe diet for the Argentine population. In terms of forest-industrial production, goods will be produced efficiently and competitively, maintaining the sustainability of all involved assets, without altering the water cycle in the area or replacing valuable natural environments. This effort will also contribute to mitigating climate change, with the goal of reaching 1.6 million hectares planted by 2030. Extension programs, field agents, and research in the agricultural, forestry, and fishing sectors will enable the promotion of more diverse productions adapted to climatic conditions.

Regarding native forests, policies promoting sustainable use of native forests will continue to be developed. In this regard, Strategic Technical Guidelines of Law No. 26331 aim to balance production with the conservation of biodiversity and all environmental and cultural goods and services derived from the forest. Sustainable forest management (SFM) will be promoted, involving the revision and updating of practices and techniques related to

#### Line of action 2. Efficiency and production diversification

surveying, formulation, planning, silvicultural management, and forest utilization. Forest Basin Development Plans will achieve sustainable production of forest products (both timber and non-timber), maintain or enhance the ecosystem services of native forests, enhance the competitiveness of value chains, ensure efficiency in forest use, promote employment, and ensure the fair distribution of economic, social, and environmental benefits.

Jobs generated through efficiency and diversification should provide opportunities for cis heterosexual women and LGBTI+ to build economic autonomy, enabling greater possibilities for choice and the ability to live a life free from violence.

No.	Measure	Description
GS-02	Improving access to water and water management (Ministry of Agriculture, Livestock and Fisheries)	Generation of access to water collection, conduction and storage infrastructure, incorporation of irrigation system infrastructure or refunctionalization or adaptation of existing systems, promotion of more efficient use of water resources and mitigation of damages due to reduced river flows and increased evapotranspiration, to sustainably improve access to water for agricultural and livestock producing families, with a focus on family, peasant and indigenous agriculture producers, recognizing that women and children are mostly assigned the task of providing the resource. Specific actions are carried out through projects in the territory, financing to specific organizations and producers, in coordination with decentralized organizations and subnational states.
GS-04	Promoting sustainable management of forest production systems (forest basins) (Secretariat of Agriculture, Livestock and Fisheries)	Improvement of the sustainable management of productive forestry systems, including actions both at the enterprise level and at the basin or regional scale. At the enterprise level, the use of high-value native species is promoted for forestation in massifs and for the enrichment of native forests. Also, an additional economic benefit is granted to forestry enterprises that adopt or have sustainable forest management certifications.

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Line of action 2. Efficiency and production diversification		
		At the basin level or regional scale, the goal is to implement management plans for forested landscapes, zoning forest basins based on environmental, economic, and social sustainability criteria. Furthermore, considering the climatic dimension, recommendations for management are made to account for future climate scenarios. Possible actions to reduce risks include the development and incorporation of new genetically adapted materials suited to these scenarios, sustainable practices to prevent forest fires, and silvicultural management to prevent or decrease the incidence of pests, among others.
GS-06	Reducing food losses and waste (Ministry of Agriculture, Livestock and Fisheries)	Coordination, proposal and implementation of actions and public policies for the prevention and reduction of food waste and loss (FWL) in Argentina, creating value for the agrifood system and society as a whole, within the framework of the National Plan for the Reduction of Food Losses and Waste. The aim is for losses and waste to be captured or recovered as resources and inputs for the outcome of each stage of the life cycle. Based on this approach, the Food Recovery Hierarchy pyramid is used to prioritize handling and management measures and practices in the following order: prevention and reduction at source, recovery for human consumption, reuse, reprocessing, recycling, use for composting or energy generation, elimination and final disposal.
GS-07	Strengthening agricultural value addition (Secretariat of Agriculture, Livestock and Fisheries)	Strengthening livelihoods through intervention tools that improve conditions for the development and addition of local, regional and associative value of agricultural products and by-products. It is aimed at all small and medium-scale productive enterprises, including family, peasant and indigenous agriculture. It also seeks to promote the development, production, processing, registration, marketing and consumption of agricultural bioinputs. In particular, it provides for the construction of public infrastructure for agroindustrial development, support for private investment in agroindustrial initiatives and livelihoods in rural areas through calls for thematic proposals that respond to the needs of vulnerable groups, and the creation of a network of production or value-adding centers with a triple focus on production, training and

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#### Line of action 2. Efficiency and production diversification

support carried out by rural women who are victims of gender-based violence.

#### Line of action 3. Agroforestry and fisheries climate risk management

Comprehensive climate risk management is considered one of the fundamental pillars of the sector, especially for its contribution to adaptation. In this sense, preventive, corrective and response actions will be carried out in the event of fires, droughts, floods, and other extreme weather events such as storms and hail.

The aforementioned actions are mainly focused on strengthening and expanding Early Warning Systems and agro-climatic information systems, promoting risk transfer instruments and agricultural insurance, and improving predial infrastructure, as in the case of horticultural, fruit and wine production systems.

Regarding native forests, actions will be implemented through planning, interinstitutional, interjurisdictional, and interdisciplinary coordination, capacity strengthening, on-site control at the property and supra-property level, and risk transfer. On the ground, efforts will be made to promote the reduction of fuels (both fine and coarse) and other prevention activities, such as firebreaks, for the detection, prevention, and control of forest fires. Additionally, it will be crucial to consider the gender and diversity dimension in building vulnerability parameters to strengthen the specific resilience of cis heterosexual women and LGBTI+. This will involve the development of infrastructure and public works, prevention protocols, and violence response mechanisms for the integrated management of climate-related risks.

No.	Measure	Description
GS-08	Improving rural roads (Ministry of Agriculture, Livestock and Fisheries)	Improvement, maintenance and recomposition of secondary and tertiary roads, known as rural roads, in order to make it possible for vehicles to travel all year round and improve conditions for the movement of people, supplies and production. To this end, it is planned to carry out works to improve existing roads based on specific projects and to strengthen the road maintenance systems of the provinces, including financing and acquisition of machinery and road equipment, supplies and materials for the execution of works.
GS-09	Improving intra-farm and rural community infrastructure (Ministry	Promoting and improving access to productive infrastructure, both individual and community, including that used to delimit land and develop certain management practices, protect crops or livestock, and

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Line of action 3. Agroforestry and fisheries climate risk management		
	of Agriculture, Livestock and Fisheries)	prevent the loss of production and food. It will be carried out through different instruments with small-scale investments, financing and technical assistance.
GS-10	Improving agricultural and livestock prevention in the face of gradual and extreme weather events (Secretariat of Agriculture, Livestock and Fisheries).	Strengthening prevention against extreme events by financing specific actions in areas with a high recurrence of emergencies and vulnerable productive systems. In addition, it seeks to create stable tables or spaces for the articulation of actions between national and provincial bodies to improve the National System for the Prevention and Mitigation of Agricultural Emergencies and Disasters created within the framework of Law No. 26509, the exchange between managers and competent actors of the Law at national and provincial level, in order to build diagnoses on the current state of public and private capacities and the needs to be prioritized for the improvement of the system and to analyze climate trends and the measures to be adopted in each region.
GS-11	Improving agricultural emergency response to climatic events (Secretariat of Agriculture, Livestock and Fisheries)	Improving actions aimed at dealing with agricultural and livestock emergencies and disasters, in order to mitigate the damage caused by climatic events and other factors. It also aims to provide direct assistance to producers of Family, Peasant and Indigenous Agriculture (AFCI, by its Spanish acronym) and artisanal fishermen who are at productive risk in situations caused by exceptional, unexpected, unforeseeable or irresistible events, in areas that have not been declared agricultural and livestock emergency zones or disaster areas. Finally, this measure assists producers, through the provisions of the Agricultural Emergency Law, once the event has been declared.
GS-12	Promoting risk management instruments (insurance) (Secretariat of Agriculture, Livestock and Fisheries)	Promoting access to the insurance market and hedging instruments for small and medium-scale productive enterprises in the agricultural and livestock sector through the implementation of various plans or incentive programs. In this way, through the use of financial instruments for risk management, it is hoped to reduce the variability of agricultural and livestock producers' income as a result of the impact of climate variability and change. It also seeks to strengthen the Agricultural Insurance Program of the Province of Mendoza.

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# Line of action 3. Agroforestry and fisheries climate risk management

GS-14	Strengthening organizations, cooperatives and communities in the face of climate change and variability (Secretariat of Agriculture, Livestock and Fisheries).	Promotion and strengthening of cooperatives, organizations, and rural communities, recognizing them as hubs for knowledge exchange, community support, and opportunities. These entities increase the adaptive capacity of their members, enhancing their resilience against adverse climate events. The strategy involves reinforcing existing institutional spaces, such as the National Council of Family Farming, Indigenous, and Rural Farming, as well as formalizing rural producers and their organizations through tools like the National Registry of Family Farming (RENAF) and the National Registry of Family Farming Organizations (RENOAF). Encouragement of cooperative formation is a key aspect, providing technical and financial assistance for their establishment, along with activities to strengthen and integrate existing organizations.
GS-15	Preventing Forest Fires in Native Forests (Ministry for the Environment and Sustainable Development)	Development, promotion, planning, and implementation of guidelines and measures for reducing fire risks and controlling fires at the individual property level and beyond, involving different levels of intervention in the management of native forests, including risk transfer. This includes reducing fuel (both fine and coarse) and promoting other preventive activities such as firebreaks, primarily in the Andean Patagonian Forest and Espinal regions. Strengthening and coordinating early detection and control programs and plans with the provision of capabilities for initial attack on forest fires, complementing national and local emergency response systems and services.
GS-16	Promoting research, development and generation of information on climate change and variability in the agricultural, forestry and fisheries sector (Secretariat of Agriculture, Livestock and Fisheries)	Promotion of the development of research lines that assess the impacts and risks of different climatic variables (such as droughts, temperature increases, heavy precipitation) on agricultural, forestry, and fishing productions in the country (e.g., soil), analyzing the vulnerabilities of various production systems, developing technologies and processes that contribute to adaptation and mitigation to climate change, among other issues. It also aims to provide both agrometeorological and socioeconomic information that enables better decision-making.

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#### Line of action 4. Integrated management of agroecosystems

Agroforestry systems will be promoted that aim to achieve a balance between productive capacity, integrality, and ecosystem services to maintain and improve the well-being of producers, communities, and associated communities. The National Plan for Forest Management with Integrated Livestock (MBGI, for its Spanish abbreviation), funded by Law No. 26331, private investment, and other sources, serves as a tool to promote deforestation-free livestock farming, develop certification schemes for products from properties implementing MBGI, and establish differentiated markets for their products (timber, non-timber, and meat products). Additionally, the national government will design and implement policies, programs, and projects that promote sustainable intensive and extensive primary production, considering various approaches, including agroecology. This approach aims to generate more sustainable, inclusive, and participatory production. Likewise, the leadership and participation of cis heterosexual women and LGBTI+ in projects under this line of action will be promoted, including specific groups such as indigenous women, rural women, and women in family farming.

No.	Medida	Description
GS-17	Promoting agro-ecological practices (Secretariat of Agriculture, Livestock and Fisheries).	Knowledge generation, training, extension and exchange of knowledge and experiences that contribute to the development of agroecological production. It also seeks to promote processes of transition to agroecology, both in extensive and intensive production systems (of various scales), and to improve the resilience of producers of family, peasant and indigenous farming through the application of the agroecological approach. To this end, it aims at the formation and consolidation of networks with municipalities, producers and science and technology organizations; the preparation of guidelines to promote the productive transition; technical-productive and socio-organizational support and advice with a presence in the territory through specific projects and Territorial Agroecological Nodes (NAT, by its Spanish acronym), as well as the creation of funds for family, peasant and indigenous farmers who carry out agroecological production and for those who are in the process of transition or who express an interest in becoming involved in this type of production.
GS-19	Strengthening agricultural extension programs and access to information (Secretariat of Agriculture, Livestock	Strengthening extension programs and territorial agents in the context of adaptation to climate change and variability is crucial, with a focus on family farming, peasant, and indigenous systems, incorporating a gender perspective and

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Line of action 4. Integrated management of agroecosystems		
	and Fisheries).	intergenerational equity. This strengthening involves training, technical assistance to enhance production, bolstering organizations, financial support to improve agricultural production and marketing, and promoting the implementation of new techniques and technologies among small and medium-sized producers and indigenous communities.
GS-20	Sustainable management of marine fisheries (Secretariat of Agriculture, Livestock and Fisheries)	The sustainable management of fishery resources includes both research, administration and conservation of their populations in the long term, as well as the interrelationships with the ecosystems where they develop. The objective of this measure is the sustainability of fisheries, making the maximum development of fishing activity compatible with the rational use of resources by regulating the fishing of target species and those that are caught incidentally (birds, mammals and turtles), ensuring both human welfare and economic and social development, as well as the proper functioning of the marine ecosystem. To this end, various actions are carried out to implement ecosystemic management of fisheries and actions aimed at eradicating illegal, unreported and unregulated fishing, including integrated control systems.
GS-21	Promoting agroecological and regenerative livestock farming (Secretariat of Agriculture, Livestock and Fisheries)	Agroecological livestock farming and other related approaches such as regenerative livestock farming consist of systems based on perennial pastures with moderate stocking rates appropriate to the local ecological capacity, both for the diversification of agricultural systems and for the optimization of pure livestock systems in ecosystems that do not allow the development of agriculture. This measure will promote agroecological/regenerative livestock farming in groups of producers who are in mixed or livestock farming systems in agroecological transition. To this end, technical and organizational advice will be provided to producers, instances of exchange of experiences will be generated and encouragement will be given to the generation of research and extension processes applied to agroecological livestock farming.
GS-22	Promoting forest watershed management (Ministry	Promoting participatory planning at the landscape/regional scale through Forest Basin Development Plans to achieve sustainable production

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#### Line of action 4. Integrated management of agroecosystems

of the Environment a Sustainable Development) of forest products (timber and non-timber) and the maintenance or improvement of ecosystem services of native forests.

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#### Line of action 5. Mechanisms for production traceability

Product traceability mechanisms will be strengthened with a strong State presence in order to discourage agricultural, livestock and forestry production that directly or indirectly involves the degradation of ecosystems, such as overfishing, among others. In this way, the aim is to value and promote production chains based on the sustainable use of biodiversity, the care of productive ecosystems and the export of primary products with low environmental impact.

Similarly, the construction of this line of action should promote self-managed, community-based and sustainable economies carried out by cis heterosexual women and diversities, encouraging their technical-professional training and their participation in decision-making.

No.	Measure	Description
GS-23	Promoting sustainable forest management practices (Ministry for the Environment and Sustainable Development)	Promotion of the revision and updating of practices and techniques of survey, formulation, planning, silvicultural management and forest harvesting within the framework of SFM. Identification and generation of information to improve management guidelines. Attention to monitoring methods, silvicultural models, integrated use of forest resources and other activities associated with SFM. Optimization of national and provincial management and control systems linked to interventions in native forests that obtain forest products, for verification of origin and traceability. Experiment with adaptive management and generate capacities in the formulation of management plans through model sites and demonstration farms. Standardize, agree, regulate and disseminate SFM methods and practices.
GS-24	Extend the use of SACVeFor to the entire national territory (Ministry for the Environment and	Promoting the adherence of the 23 jurisdictions to SACVeFor (a system for issuing forestry guides and permits that allows traceability of forestry production from origin to final destination) as a shared instrument to provide transparency and monitoring of forest use within the framework of Law No. 26331.

#### Line of action 5. Mechanisms for production traceability

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#### Line of action 6. Deforestation reduction

This will be achieved through planning for the conservation and sustainable management of native forests, interinstitutional, interjurisdictional and interdisciplinary coordination, and capacity building of public, private and civil society actors for forest management. The development and promotion of native forest financing structures and instruments and the adaptation of national and provincial legal frameworks will provide improvements in the administrative systems related to the transfer, receipt, accountability and application of financial resources from the National Fund for the Enrichment and Conservation of Native Forests.

Legally, Argentina is currently addressing the problem of illegal deforestation and has drafted a bill to criminalize environmental offenses. In addition, continuous improvements will be made to the National Native Forest Monitoring System and the expansion of the Deforestation Early Warning System at the national level. On the other hand, we will promote the timely updating of provincial Native Forest Land Use Plans (OTBN), which are essential to provide solutions to conflicts of interest between conservation, agricultural and livestock production, urban development and infrastructure.

The prevention of forest fires, the reduction, control and mitigation of risks, the restoration and recovery of ecosystems, together with the fundamental fact that agricultural and livestock production should achieve an increase in production without implying a significant increase in the effective area of land, are fundamental actions to ensure the reduction of the rate of deforestation in the national territory.

These actions should be complemented with the political participation of cis heterosexual women and diversities in decision-making spaces.

No.	Measure	Description
GS-25	Promoting the continuous improvement of the National Native Forest Monitoring System (Ministry for the Environment and Sustainable Development).	Optimization of tools and control mechanisms developed within the framework of the application of Law No. 26331, through the continuous improvement of the National Native Forest Monitoring System, which includes the integration of management and use follow-up systems (SACVeFor and SIIF) and the expansion of the Early Deforestation Warning System at the national level.

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#### Line of Action 7. Population Relocation and Rooting

The rooting of local communities to their territory will be achieved through the promotion of land tenure, through Management and Conservation Plans in the form of Integrated Community Plans, among other modalities, to promote legal access to the use and sustainable management of native forests. In the area of agricultural production, we will promote land titling, rural rooting and land regularization programs that will be accompanied by the promotion of diversification of the livelihoods of subsistence producers, and the generation of programs to strengthen organizations, cooperatives and communities.

Likewise, these programs should promote measures aimed at reducing ownership gaps and access to credit for cis heterosexual women and LGBTI+. On the other hand, it will be important to generate data and monitoring with a gender perspective to evaluate progress in this area.

No.	Measure	Description
GS-26	Strengthening land titling, rural rooting and land regularization programs (Secretariat of Agriculture, Livestock and Fisheries)	Strengthening the rooting of local communities in their territory, which will be achieved through plans and programs for land titling, rural rooting and land regularization, analysis and comprehensive approach to the land ownership situation of peasant and indigenous family farming (AFCI), registration of family farmers and AFCI organizations, and technical advice, financing and support for local food production and job creation.
GS-27	Promoting strategies for the rooting of indigenous and peasant communities (Ministry for the Environment and Sustainable Development).	Promotion of forest tenure and rural rooting in indigenous and peasant communities through Management or Conservation Plans in the form of Integrated Community Plans, among other modalities, to guarantee legal access to the sustainable use and management of native forests. In addition, it is expected to generate employment opportunities, improve income and access to basic services for rural and indigenous families, in order to discourage migration to urban areas; promote the formal participation of communities in forest production networks, train communities in the sustainable production of goods associated with native forests, promote the systematization and dissemination of popular knowledge related to traditional use and community forestry, and promote the valorization of the productive and care work of rural women in native forests.

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#### Line of Action 7. Population Relocation and Rooting

GS-28 Creating the N Forest Product Program (Mini the Environme Sustainable Development)	Reduction of gender gaps in the communities that inhabit native forests, through the financing of non-patentable machinery and tools, improvement of facilities, tools and supplies for production; improvements in the marketing processes of forest products and services (already existing or to be incorporated) that are under the control and management of women; strengthening of capacities and organizational forms, networks and women's associations, either through infrastructure works for common spaces, support for the formation of legal entities and knowledge of their rights, strengthening of women's skills in information and communication technologies, etc.; technological innovations aimed at alleviating work or improving health and safety conditions, production, marketing or care activities.
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### 5.3.3. Sustainable mobility

One of the fundamental pillars of Argentina's climate policy is transportation, whose main public and private sector actors are committed to implementing concrete measures aimed at both reducing greenhouse gas emissions generated by the activity and adapting its infrastructure and operation, seeking to ensure the movement of goods and people, even in the worst climate scenarios. Thus, the national climate policy is aimed at continuing to drive regional socioeconomic development and making possible the effective enjoyment of fundamental human rights such as food, work, health and education.

The formulation of the sector's climate action lines is explained on the basis of a systemic and circumstantial analysis, which contemplates the particularities of the management and planning of the mobility and transportation subsystems and promotes an introspective review of each one as well as the dialogue between them, all for the sake of greater holistic efficiency and in light of the well-known Avoid-Change-Improve-Adapt approach. In turn, its application will be differentiated according to the types of demand (passenger and freight) and the scale of flows (urban and interurban) considering the possibilities and potential of each.

The systemic approach mentioned does not limit itself to implications strictly related to each sector of the actions but extends and aims to maximize positive impact on national and regional industrial development, the reduction of structural socioeconomic disparities, and comprehensive improvement of quality of life.

Within this framework, the following lines of action should be highlighted:





- Line of action 2. Development of sustainable mobility at the urban level
- Line of action 3. Strengthening the railway system
- Line of action 4. Enhancing the inland waterway system
- Line of action 5. Reduction of Argentine aviation emissions
- Line of action 6. Progressive replacement of fossil fuels
- Line of action 7. Efficient use of energy in the transportation sector

In line with what was indicated at the beginning of this section, Table 17 only describes those PNAyMCC action lines that contain "adaptation" or "adaptation and mitigation" measures. Therefore, only the first line of action is detailed. In any case, considering that the NAP is the adaptation component of the PNAyMCC, all the measures not included here can be found in the PNAyMCC, since they include measures categorized as "mitigation" or "loss and damage".

# Table 17. Lines of action and measures of the strategic lineSustainable mobility

Line of action 1. Adaptation of infrastructure and transportation operations to climate change

This line of action incorporates, within the planning of the sector, a series of measures to address the infrastructures of the different transportation systems that exist in the vast national territory.

Efforts will also be made to correctly measure potential impacts and develop appropriate response systems to ensure the mobility of goods and people in adverse weather scenarios. Improvements in transportation infrastructure will have a positive impact on the health of the population, guaranteeing accessibility to health facilities even in extreme weather conditions.

The measures contemplated will be carried out with a gender and diversity perspective, considering in particular the violence suffered by women, children and diversities. For this purpose, the technical-professional training of cis heterosexual women and LGBTI+ will be promoted for their participation in the processes of elaboration of research and scientific development projects.

No.	Measure	Description
MS-01	Promoting the incorporation of the climate change adaptation approach in the design and maintenance of transportation infrastructure (Ministry of	Development and implementation of methodologies and training of technical personnel for the incorporation of climate change adaptation criteria in the design and maintenance of transportation infrastructure to make it resilient, including railroads, roads (including works of art, i.e. bridges, tunnels and culverts), rural roads, ports and airports.

# Line of action 1. Adaptation of infrastructure and transportation operations to climate change

	Transportation)	
MS-02	Incorporating resilient river-maritime transportation infrastructure (Ministry of Transportation)	Development of structural measures, such as construction of flood defenses, canalization, and retention of excess water. Initially, there will be progress in the comprehensive assessment of the river-maritime situation to predict the climate impact magnitudes more accurately required for the design of river protection works, sanitation, drainage, soil interventions, slopes, and variations in ground levels.
MS-03	Assessing the impacts of climate change on transportation systems (Ministry of Transportation)	Generation of useful information to facilitate the planning and design of adaptation measures for the country's different transportation systems and to prevent potential damages.
MS-04	Strengthening the prevention and contingency of the transportation system in the face of extreme climate change events (Ministry of Transportation).	Integration of information and early warning systems associated with transportation; promotion of the development of contingency and recovery plans at the local level; and the incorporation of sectoral impacts in the development of water resource management plans.
MS-05	Strengthening the capacities of the people responsible for the design and planning of transportation infrastructure to adapt to climate change (Ministry of Transportation).	Deepening the capacities of public and private actors responsible for the design and planning of transportation infrastructure to incorporate the approach of climate change adaptation in the different projects, focusing on the knowledge of climate change scenarios, their associated risks, impacts and adaptation needs of the sector. It also considers the promotion of scientific and academic production of training material.

## 5.3.4. Sustainable and resilient territories

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This strategic line includes measures aimed at strengthening infrastructure, housing stock, urban equipment and territorial development. This includes policies related to the incorporation of climate change criteria in the design, planning and execution of public works and housing, in order to develop resilient infrastructure that favors adaptation, reduces exposure to risk and, at the same time, contemplates the efficient use of resources and innovation during the construction and operation process. This line also includes the design of territorial planning

policies that contribute to the consolidation of inclusive, compact, resilient, biodiverse and healthy cities, incorporating Ecosystem-based Adaptation and Community-based Adaptation approaches, placing the sustainability of ecosystem services at the center and involving local and indigenous populations.

Sustainable territories include policies for access to water and sanitation services, both for populations and productive systems. They also incorporate actions and instruments for the environmental management of the territory and the integrated management of water resources, considering the improvement of habitability, energy efficiency and the possible impacts linked to climate change in the development of cities and territories, in order to minimize exposure to current and future climate risks. Sustainable and resilient territories contribute to improving the health and quality of life of the populations that inhabit them.

Four lines of action were defined for this strategic line, according to specific criteria for each measure:

- Line of action 1. Tools for waste and effluent management
- Line of action 2. Sustainable infrastructure and equipment
- Line of action 3. Territorial planning and integrated management of water resources
- Line of action 4. Sustainable housing

In line with what was indicated at the beginning of this section, Table 18 only describes the PNAyMCC measures that contribute to adaptation. In any case, considering that the NAP is the adaptation component of the PNAyMCC, the latter will include all the measures that are not included here, given that they include measures categorized as "mitigation" or "loss and damage".

# Table 18. Lines of action and measures of the strategic lineSustainable and resilient territories

#### Line of action 1. Tools for waste and effluent management

This line of action seeks to strengthen each of the stages of waste management through specific programs and regulations governing extended producer responsibility, the prohibition of single-use plastics and the improvement of working conditions for workers involved in the sector, among other things. Also included are actions aimed at promoting the reuse and valorization of different waste flows, including the use of energy, coordinating actions with the industrial sector, as well as the adaptation of final disposal processes, including the treatment of industrial effluents and the adaptation of sanitary landfills.

As part of this line, actions will also be designed to eliminate at least 50% of open-air dumps and the adaptation of current and future final disposal centers, incorporating design parameters and criteria that take into account climate projections, in order to reduce the risk to infrastructure and nearby populations due to climate change. Improvements in the working conditions of waste workers should consider occupational health and safety aspects, as well as the situation of cis heterosexual women and LGBTI+ employed in the

# Line of action 1. Tools for waste and effluent management

sector. To this end, it is essential to generate data and information with a gender perspective and technical-professional training for cis heterosexual women and LGBTI+ to promote leadership roles in the sector.

No.	Measure	Description
TS-01	Strengthening the proper management of packaging waste (Ministry for the Environment and Sustainable Development)	Reduction of the amount of packaging that reaches final disposal or is improperly managed, through different actions. Projects such as the Law of Minimum Standards for Packaging Management, the Law of Extended Producer Responsibility, the Prohibition of Single-Use Plastics, as well as those related to the management of phytosanitary packaging through their current regulations, are identified.
TS-02	Improve the working conditions of waste pickers (Ministry for the Environment and Sustainable Development and Ministry of Social Development)	Strengthening the social and labor inclusion of workers who collect and recover urban solid waste.
TS-05	Building waste treatment and disposal centers taking into account climate projections in the operation and design parameters (Ministry for the Environment and Sustainable Development)	Recovery, treatment, and efficient final disposal of waste in Socioenvironmental Complexes, considering climate change scenarios in operational and design parameters. Modification of operational parameters of active treatment and final disposal centers, as well as design parameters for future projects, is also planned wherever possible, to accommodate projections of increased precipitation and temperature.
TS-06	Strengthening the stages of Integrated Waste Management through local regulations (Ministry for the Environment and Sustainable Development).	Promotion and technical support to the different subnational governments for the development of regulations and initiatives aimed at improving Comprehensive Waste Management, with social inclusion, in the provinces and CABA.
TS-07	Eradicating open-air dumps (Ministry for the Environment and Sustainable	Financing of central projects and works for the eradication of open dumps, including the construction of environmental centers, sanitary landfills, treatment plants, transfer plants and other works aimed at

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#### Line of action 1. Tools for waste and effluent management

	Development)	improving the integrated management of urban solid waste (RSU, by its Spanish abbreviation). It also includes the delivery of machinery and equipment to strengthen municipalities in the eradication of landfills and the promotion of the circular economy.
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#### Line of action 2. Sustainable infrastructure and equipment

Improving the quality of life and the socio-spatial integration of the most vulnerable households is a priority for the management. Its purpose is to sustainably improve the habitation of the population, with special emphasis on low-income neighborhoods. In line with this and through the execution of integral neighborhood projects, the aim is to consolidate the target population in the place where they live, providing access to land ownership, contributing to the provision of urban infrastructure, community equipment and environmental sanitation, and promoting the strengthening of their human and social capital.

It also incorporates measures for the design, implementation and retrofitting of infrastructure to make it sustainable and resilient, contributing to the reduction of climate risks. In this sense, actions are included to strengthen the health system in the face of climate change and reduce the vulnerability of public health service infrastructure at all levels (municipal, provincial and national) by promoting the incorporation of climate considerations in the expansion or construction of resilient and low-carbon health facilities.

No.	Measure	Description
TS-08	Improving the living conditions of food-producing families in order to promote the establishment of roots (Ministry of Territorial Development and Habitation)	Encouraging the incorporation in land use plans of the conservation of food production areas close to urban consumption areas and the construction of housing for producer families with low carbon footprint materials.
TS-09	Promoting green and blue infrastructure projects in an urban context (Ministry of Public Works, Ministry of Territorial Development and Habitation and Ministry	Development of methodology, training and criteria that allow the prioritization and implementation of solutions associated with Ecosystem-based Adaptation. This includes the implementation of projects for the creation, restoration and conservation of green spaces or metropolitan parks, including typologies such as urban trees, linear parks, public green spaces, green

Line of action 2. Sustainable infrastructure and equipment		
	for the Environment and Sustainable Development)	belts, biological corridors, protected areas and urban forests; the inclusion of the approach in Urban Macro-Drainage Master Plans; preparation of guidelines for the development of green and blue infrastructure, and training for technical teams.
TS-10	Developing water and landslide risk mitigation works that take into account future climate change scenarios (Ministry of Public Works and Ministry of Territorial Development and Habitation)	Execution of mitigation works associated with public urban development projects and in general for flood and avalanche prevention.
TS-11	Regularization of electric power distribution networks (Ministry of Territorial Development and Habitation)	Installation, improvement and expansion of electric power distribution networks.
TS-12	Incorporating the climate perspective in the design parameters of future works (Ministry of Public Works)	Verification, strengthening and incorporation of the climate perspective in the different works and projects of the Ministry of Public Works, both for the monitoring of its portfolio and for the design, evaluation and execution of future works.
TS-13	Promoting the adaptation of existing critical infrastructure to increase its resilience to climate change (Ministry of Public Works)	Conducting quantitative risk analysis studies considering climate change scenarios for various critical infrastructures such as dams, large bridges, aqueducts, etc., and implementing projects to adapt critical infrastructure to climate risks. This includes large-scale projects (e.g., dams, bridges, roads, rural roads, etc.) in collaboration with subnational jurisdictions or Watershed Committees, as well as smaller-scale projects in collaboration with municipalities (e.g., urban drainage).
TS-14	Strengthening road infrastructure to improve connectivity and trafficability for people and cargo (Ministry of Public Works and Ministry of	Execution of new works, conservation, improvement, repair or rehabilitation, emergency, paving and signaling of roads, urban roads and rural roads.

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Line of action	2. Sustainable infrastructure and equipment	
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	Territorial Development and Habitation).	
TS-15	Expanding coverage of health facilities (Ministry of Public Works and Ministry of Health)	Execution of health works such as primary health care centers, health care centers, hospitals, first aid rooms, among others.

# Line of action 3. Territorial planning and integrated management of water resources

In order to reduce land consumption as a result of diffuse urban sprawl, which leads to less access to the resource and greater encroachment on critical ecosystems, territorial planning is needed to ensure access to adequate habitation with a focus on comprehensive risk management and adaptation to climate change. For this to be strategic, it must take into account the potential of soils to obtain what is necessary without altering natural balances, such as hydrological cycles, biotic relationships and ecosystem services. It is also necessary to take into account the needs of the different populations in order to provide them with goods and services with the least possible impact and thus prevent damage to the environment and people's health.

In line with the above, comprehensive water resources management is a fundamental tool for managing and using water in a sustainable and balanced manner, taking into account the different social, economic and environmental interests. To this end, a combination of structural and non-structural measures is proposed, aimed at providing infrastructure to ensure access to water, conducting planning processes and generating information to facilitate decision-making.

In this regard, the measures contemplated should guarantee the participation of cis heterosexual women and LGBTI+ in decision making as well as their technical-professional training in order to facilitate their incorporation into jobs related to water quality analysis laboratories and water basin committees.

No.	Measure	Description
TS-16	Strengthening the capacities of local governments for territorial environmental planning with a focus on comprehensive risk	Promotion of comprehensive planning processes for cities, their productive peri-urban areas and non-urbanized areas with environmental or productive functions, seeking to strengthen the state's land management capacities.

Line of action 3. Territorial planning and integrated management of water resources		
	management and adaptation to climate change (Ministry of Territorial Development and Habitation)	
TS-17	Strengthening existing cartography, preparing risk maps and promoting the use of these geo-referenced hydrological information management tools for project design (Ministry of Public Works and Ministry of Territorial Development and Habitation)	Preparation, updating, dissemination and systematization of geo-referenced information useful for the design of works and for disaster prevention and response, especially in relation to flood-related risks. Training in the use of cartography. The design of new cartography is linked to flood maps at various scales and other hydro-climatic risks, as well as to other information necessary for a comprehensive analysis of projects (location of related infrastructure projects, areas of reduced visibility due to fog or dust on roads, other environmental risks that exacerbate climatic risks such as earthquakes, among others).
TS-18	Designing and executing projects to retain, distribute and take advantage of water resources for the development of economic and productive activities considering future climate scenarios (Ministry of Public Works)	Design and execution of multipurpose infrastructure works for electric power generation; water supply for human and industrial use; water regulation through reservoirs; flood control; increase of irrigation areas; increase of water supply guarantee in existing areas and improvement of navigation.
TS-20	Strengthening the Water Resources Monitoring Network (Ministry of Public Works)	Expansion and strengthening of the Water Resources Monitoring Network managed by the Ministry of Public Works' Secretariat of Infrastructure and Water Policy. This network enables the analysis of the national water resources dynamics to achieve more efficient utilization. Under this framework, the National Hydrological Information System (SNIH, by its Spanish abbreviation) is managed, which stores data collected by the National Hydrological Network (RHN) and other national and provincial organizations. The network also maintains the stations of the Bermejo River Regional Commission (COREBE, by its Spanish

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Line of action 3. Territorial planning and integrated management of water resources		
		acronym) and the automatic weather stations associated with the National Meteorological Radar System (SINARAME, by its Spanish acronym) surface water quality monitoring network and operating continuous water monitoring stations in the Matanza Riachuelo basin.
TS-21	Supporting the preparation and financing of Master Plans for Comprehensive Water Resource Management (Ministry of Public Works)	Support for the preparation, updating and improvement of water resource management plans at the level of interjurisdictional basins, aquifers and urban areas, to achieve comprehensive water resource management with a systemic approach, including transboundary basins or aquifers. It also encourages the creation and institutionalization of Basin Committees/Organizations and their strengthening in order to consolidate intersectoral and interjurisdictional agreements and establish full federal governance to facilitate Comprehensive Water Resources Management (GIRH, by its Spanish abbreviation).
TS-22	Promoting the development of hydrometeorological models that consider future climate change scenarios (Ministry of Public Works)	Development of highly complex hydrological models to estimate water level and flow at the urban and basin scale. It is expected that the information can be generated and communicated in real time to the main actors involved in emergency management.
TS-23	Expanding and improving safe water and sanitation coverage in urban and rural population groups (Ministry of Public Works and Ministry of Territorial Development and Habitation)	Execution of water collection, purification and distribution of safe water to households; collection of sewage (including permitted industrial effluents), transport, treatment and discharge into receiving bodies in environmentally friendly conditions; aimed at urban and rural population grouped together.
TS-24	Extending and improving safe water coverage for the dispersed rural population (Ministry of Public Works)	Execution of safe water collection and storage works in dispersed rural population housing.
TS-25	Increasing access to basic services for	Development of projects to increase the number of home connections to basic services (drinking water,

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# Line of action 3. Territorial planning and integrated management of water resources

families in RENABAI
low-income
neighborhoods
(Ministry of Social
Development)

sewage and electricity) in homes belonging to the National Registry of Basic Services (RENABAP, by its Spanish acronym) low-income neighborhoods.

#### Line of action 4. Sustainable housing

Actions related to the development of sustainable construction, through the implementation of climate criteria in all programs for access to habitation and in urban renewal and densification processes, as well as the use of sustainable materials that can be recovered and recycled for the construction of housing with public and private funds. These actions should take into account the vulnerability of female-headed households, single-parent and non cis heterosexual families

No.	Measure	Description
TS-27	Increasing energy efficiency and incorporating renewable energies in public housing projects (Ministry of Territorial Development and Habitation)	Implementation of actions to save energy in public housing projects in their operational phase: promotion of the application of bioclimatic design strategies, envelope insulation methods and the incorporation of solar thermal systems.

## 5.3.5. Energy transition

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The decarbonization of the energy matrix as a long-term horizon implies a structural change in energy supply and use systems. The energy transition, driven by the demand for climate action, must be fair, affordable and sustainable.

The key dimension for a successful energy transition is that it must be sustainable over time, both socially, environmentally, technologically, economically and financially. For Argentina, being a semi-peripheral, developing, mostly technology-importing country with frequent balance-of-payments challenges, the transition process should contribute to reduce the structural restrictions to the country's socioeconomic development.

For the decarbonization path of Argentina's energy matrix to be virtuous and sustainable over time, it must be based on the country's technological and productive capabilities, considering its macroeconomic possibilities, its energy resources and its social context, promoting the active participation of the provinces and local actors in the process. Thus, mitigation and adaptation to climate change will be planned in harmony with energy security, just transition, economic and techno-industrial development. This implies a pace compatible with macroeconomic stability and the strengthening of the energy trade balance, which contributes to achieving energy sovereignty and increasing the export capacity of energy goods.

The energy transition must be a fair process that guarantees access to energy at an affordable price and competitive costs, prioritizing active energy saving and efficiency policies. At the same time, the transition is presented as an opportunity to boost local development through the development of new industries, jobs and value chains that promote a secure, affordable and competitive energy supply matrix. In this context, it is essential that the energy transition and technological scaling promote quality jobs at the federal level.

The integration of the gender perspective in the process is of vital importance to achieve a just energy transition. This entails the design of cross-cutting inclusion strategies, so that the needs of all gender identities are part of the design and evaluation of the initiatives, programs and policies to be developed. The transition process also represents an opportunity for cis heterosexual women and diversities to become protagonists in the development process. The patterns of female labor inclusion in the energy sectors—which are strategic—and the development of incremental targeted policies should be modified in order to insert cis heterosexual women and diversities in them. In order to guarantee access to energy services in all households, it is proposed to expand access to energy in rural and urban populations, especially in the most vulnerable sectors, where women are overrepresented.

Seven lines of action have been identified that will have an impact on all energy and industry sectors, through the production of manufactured goods, the construction of new infrastructure, the promotion of sustainable mobility and energy efficiency in the residential, agricultural, and livestock sectors.

- Line of action 1.Development of national technological capabilities
- Line of action 2. Energy efficiency
- Line of action 3. Clean energy in greenhouse gas emissions
- Line of action 4. National strategy for hydrogen development
- Line of action 5. Gasification
- Line of action 6. Resilience of the energy system
- Line of action 7. Planning and monitoring of energy development

In line with what was indicated at the beginning of the section, Table 19 only describes those lines of action of the PNAyMCC that contain "adaptation" or "adaptation and mitigation"

measures. Therefore, all lines are detailed except the fourth and fifth. In any case, considering that the NAP is the adaptation component of the PNAyMCC, all the measures that are not included here can be found in the latter, since they include measures categorized as "mitigation" or "loss and damage".

# Table 19. Lines of action and measures of the Energy transitionstrategic line

#### Line of action 1. Development of national technological capabilities

The goal is to leverage the country's energy resources to enhance scientific, technological, and productive improvements. The aim is to create sectoral added value through the development of local suppliers, generating quality employment, and fostering continuous learning processes and capacity building in line with our climate and energy transition objectives by 2030. This approach anticipates reducing vulnerabilities associated with the energy system, establishing conditions of greater stability upon which long-term resilient and sustainable scaling is possible.

Therefore, it is essential to promote the employment and technical-professional training of cis heterosexual women and LGBTI+ in strategic technological development sectors to have positive impacts on existing gender gaps.

No.	Measure	Description
TE-01	Developing the renewable energy value chain (Secretariat of Industry and Productive Development and Secretariat of Energy)	Promoting the production of renewable and clean energy equipment at the national level. It includes the promotion of access to financing for industries with domestic manufacturing projects, as well as the promotion of domestic demand through incentives to industries and businesses for the incorporation of renewable energies in their facilities. It also includes the facilitation of tools for the development of suppliers and the strengthening of related regulations.

#### Line of action 2. Energy efficiency

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Under this line of action, measures will be developed to promote the efficient and rational use of energy, with the objective of reducing energy consumption in all sectors of the economy by 2030. Also included here are measures associated with greater efficiency in electricity generation and the adoption of technologies to reduce fugitive methane emissions. These measures should include technical advice, training and financing for the design and implementation of management systems and access to new and improved

# Line of action 2. Energy efficiency

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technologies that include technical and professional training for cis heterosexual women and LGBTI+.

No.	Measure	Description
TE-02	Promoting the improvement in the thermal conditioning of environments in the residential sector (Ministry of Energy)	Promotion of incentives for the implementation of thermal insulation measures in building envelopes of households with the aim of reducing energy consumption for thermal conditioning of spaces.
TE-05	Increasing the participation of LED technology luminaires in buildings (Ministry of Energy)	Promotion of the replacement of inefficient luminaires in buildings in order to reach a 100% LED technology lighting park.
TE-06	Promoting the incorporation of water economizers in buildings (Ministry of Energy)	Encouragement of the installation of devices that allow rational use of water, reducing energy needs for heating and pumping.
TE-07	Improving energy efficiency in industrial and commercial establishments (Secretariat of Energy and Secretariat of Industry and Productive Development)	Promotion of proper energy management in industries and businesses, and consequently the reduction of energy consumption, through the implementation of Energy Management Systems and incentives for the acquisition of efficient equipment.
TE-08	Raising awareness and sensitizing the population on the rational use of energy (Secretariat of Energy)	Implementation of awareness and sensitization policies on energy use, focusing on changes in habits and its efficient and responsible use. This will be achieved through the development of comprehensive education programs at all levels of the formal education system, in coordination with the different jurisdictions of the country and in conjunction with multiple communication actions.
TE-10	Implementing LED reconversion projects in public lighting (Secretariat of Energy, Ministry of Public Works and Ministry of	Promotion of the replacement of street lighting luminaires with LED technology in order to increase the efficiency of lighting systems.

### Line of action 2. Energy efficiency

Territorial Development and Habitation)

#### Line of action 3. Clean energy in greenhouse gas emissions

This line of action contemplates increasing the participation of low-emission energies, replacing the use of more polluting fuels, which will reduce emissions of short-lived climate pollutants and other atmospheric pollutants with a significant impact on people's health. A gender and diversity analysis is needed to contribute to the diversification of the energy matrix from an integral, equitable and fair perspective.

No.	Measure	Description
TE-13	Incorporating renewable energy sources in industry and commerce (Secretariat of Industry and Productive Development)	Implementation of actions and programs aimed at facilitating, enabling, increasing and disseminating the generation and use of energy from renewable sources in industries and businesses.
TE-15	Implementing electricity generation projects from non-conventional renewable sources connected to the grid (Secretariat of Energy)	Reduction of GHG emissions produced by electricity generation, through the installation of generation plants from non-conventional renewable sources. It includes wind, solar, small hydroelectric plants (with a capacity of less than 50 MW) and generation from biogas and biomass, among other renewable sources defined in Law No. 27191. The measure includes both existing and future plants.
TE-17	Enhancing hydroelectric generation considering future climate change scenarios in the design variables (Secretariat of Energy)	Electricity generation from large-scale hydroelectric developments (greater than 50 MW) connected to the grid.
TE-18	Promote the distributed generation of renewable energy integrated to the public power grid (Secretariat of Energy)	Generation of electricity at residential and commercial level connected to the grid, using renewable sources. It contemplates that part of the generation will be carried out directly at the points of consumption, reducing the load and losses on the energy transmission and distribution systems.
TE-20	Providing isolated rural communities with access to energy from	Promotion of renewable electricity generation—wind, solar, and small-scale hydroelectric projects (PAH, by its Spanish abbreviation)—in off-grid homes and public

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Line of	Line of action 3. Clean energy in greenhouse gas emissions		
	renewable sources (Secretariat of Energy)	facilities. The Renewable Energy Project in Rural Markets (PERMER, by its Spanish acronym) aims to provide renewable energy to homes, rural schools, national parks, clustered communities, and small productive enterprises located far from distribution structures. This initiative supports subsistence-based economies, thus facilitating their sustainability and reducing rural migration.	
TE-24	Developing regional electricity markets for low-scale renewable energy (Secretariat of Energy)	Development of small-scale renewable generation projects (<90 MW) of a local nature, taking advantage of available transportation capacity or energy storage facilities at points on the grid whose contribution will reduce or eliminate supply restrictions and forced generation with high-cost, imported and non-renewable fuels. Promotion of local productive development and the creation of quality employment. Promotion of the involvement of the provinces in the development of the energy sector and guarantee of security and sustainability in the supply of regional demands, taking advantage of the availability of local resources and transportation capacities.	

#### Line of action 6. Resilience of the energy system

The possibility of extreme climatic events in different regions of Argentina demands additional efforts to ensure a stable and reliable electricity supply, both in generation and in high and medium voltage transmission and distribution. Adjustments will be made not only in the generation matrix but also in high and medium voltage transmission and distribution networks to ensure energy supply even during peak seasonal demands. Access to affordable energy will be ensured through the expansion of the electric grid and the promotion of distributed generation, both in rural and urban areas, considering a gender and diversity perspective to ensure equitable and fair access to energy.

No.	Measure	Description
TE-29	Expanding and improving the electricity transmission system considering future climate change scenarios (Secretariat of Energy)	Expansion and strengthening of the national interconnected system through the expansion of energy infrastructure works. A series of works are considered in the electrical transmission system in Extra High Voltage (500 kV) and High Voltage (330 kV - 132 kV).
TE-30	Strengthening existing	Actions to improve and strengthen the infrastructure of

#### Line of action 6. Resilience of the energy system

	electricity distribution networks to increase their resilience to climate change (Secretariat of Energy)	existing electric power distribution networks in order to reduce the probability of failures in the event of extreme weather events (heat waves and the resulting increase in demand, heavy rainfall and floods). The measure contemplates strengthening the capacities of cooperatives and distribution companies to design and implement measures to prevent failures.
TE-31	Increasing secure access to energy in rural and urban populations, focusing on low-income neighborhoods (Secretariat of Energy)	Strengthening and expansion of electricity distribution networks, as well as natural gas networks, to expand and ensure access to energy in rural and urban populations. The measure considers future climate change scenarios in the design variables of the infrastructure in order to design and implement new resilient distribution networks.

#### Line of action 7. Planning and monitoring of energy development

The energy transition will be undertaken in a federal manner, with the active participation of the provinces in the planning and development of productive energy generation clusters, considering the impacts of the sector. The inclusion of local actors, both from the public and private sectors, will be sought in essential projects for the reduction of emissions in the sector, generating territorial and gender equity in the development of national technological capabilities. Likewise, a central objective within the sector will be to promote comprehensive planning processes that allow for the sustainability of the sector in the short, medium and long term. In this context, we will seek to strengthen follow-up and monitoring schemes by promoting continuous improvement schemes.

No.	Measure	Description
TE-32	Strengtheninging clean, fair and sustainable energy planning (Secretariat of Energy)	Support for the preparation of the Energy Transition Plan and strengthening the energy sector's planning capabilities to contribute to the fulfillment of Argentina's climate commitments, in line with socioeconomic development objectives.

## 5.3.6. Productive transition

In order to achieve the commitments undertaken, profound structural changes in modes of consumption and production are necessary in a context of national and global economic recovery. The world needs to move towards an ecological transition from productive development, taking into account climate action and just transition.

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This strategic line aims to integrate the macroeconomic, social and environmental components, implementing policies and improvements in the competitiveness of national productive development that promote the reduction of GHG emissions and increase the resilience of the national productive system. It also addresses policies to promote energy efficiency, water efficiency and rational use of resources, with a strong link to the circular economy and the analysis of the life cycle of products, as some of the available means, among others, to achieve sustainable development.

Within the productive transition, the strategies aim to provide solutions focused on sustainable production accompanied by active financing policies. At the same time, regional development will be strengthened with a direct impact on the territory, thus making production chains resilient to climate change.

Within this framework, the following lines of action should be highlighted:

- Line of action 1. Development of national value chains
- Line of action 2. Sustainable design and process innovation
- Line of action 3. Climate risk management in the industrial and tourism sectors
- Line of action 4. Productive resilience
- Line of action 5. Circular economy

In line with what was stated at the beginning of the section, Table 20 only describes measures from the PNAyMCC that contribute to adaptation. Nevertheless, considering that the NAP is the adaptation component of the PNAyMCC, in the latter, you can find all measures that are not listed here, as it includes measures categorized as "mitigation" or "loss and damage" that contribute to adaptation.

# Table 20. Lines of action and measures of the *Productive transition*strategic line

#### Line of action 1. Development of national value chains

With the aim of promoting a balanced development of the Argentine Republic, this line of action will contribute to the reduction of territorial gaps, promoting resilient productive development throughout the national territory and, particularly, in the regions most vulnerable to climate change. In this sense, the actions framed here are aimed at the development of sectors that create formal jobs, encourage the addition of value at origin and boost the competitiveness of regional productive complexes.

No.	Measure	Description
TP-01	Strengthening the value	Strengthening the recycling value chain enables an

#### Line of action 1. Development of national value chains

chain of the recycling industry (Secretariat of Industry and Productive Development)

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increase in the variety and quantity of treated and reused waste. This includes reinforcing the processing and treatment industry, researching and developing new equipment technologies, and implementing best treatment practices. Financing is provided to adapt the industries' technology and for training purposes.

#### Line of action 2. Sustainable design and process innovation

With the aim of promoting a balanced development of the Argentine Republic, this line includes measures related to the principles of the circular economy, with emphasis on resource efficiency and minimizing the generation of waste in production processes. Also included are actions aimed at the promotion and development of new designs aimed at maximizing the useful life of products and facilitating their reuse after use. The sustainable design of products will include a reduction in the use of toxic materials and single-use plastics, as well as ergonomic criteria to reduce health risks for users. The knowledge and experiences of cis heterosexual women and diversities, historically overlooked, will be incorporated. The development of new designs will consider innovation with a gender perspective through the contributions made by cis heterosexual women and LGBTI+. In turn, the work of cis heterosexual women's and LGBTI+ cooperatives will be encouraged.

No.	Measure	Description
TP-04	Improving water management, primarily within mining operations and projects and, in addition, financing water savings in other productive sectors, using funds from the mining sector (Secretariat of Mining)	Improvement of water management in mining operations and projects as a priority. It also includes the financing, from mining sector funds, of water saving works in other sectors or facilities (such as waterproofing of irrigation canals) as a compensation measure, preferably in water basins located in regions with water stress projections.
TP-05	Improving water efficiency in industries (Secretariat of Industry and Productive Development)	Improvement of water management in industries includes both the minimization of water usage and the reduction of environmental impact resulting from its use.
TP-07	Promoting the implementation of tourism quality and sustainability programs	Strengthening sustainability and resilience in the tourism sector through the implementation of the Ministry of Tourism and Sports' own voluntary programs within the framework of the Argentine

#### Line of action 2. Sustainable design and process innovation

that address climate change (Ministry of Tourism and Sports)	Tourism Quality System (SACT, by its Spanish acronym) and the dissemination of other programs, namely: Ecosello Hoteles más Verdes, ISO 21401 "Sustainable Management of Accommodations" and other quality programs addressing climate change that have international validity and recognition. The SACT programs that address the sustainable and resilient development of tourism are the following: Environmental Management Guidelines for Tourism Organizations and Municipalities (from the initial level of SACT), and 24 Iram Sectur Standards (belonging to the advanced level), which establish personal competency requirements and quality, environmental and safety management requirements for tourism organizations of different sectors.
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# Line of action 3. Climate risk management in the industrial and tourism sectors

The line of action includes policies and measures that, with a focus on prevention of extreme weather events, reduce risks in production chains and different areas of development such as the tourism, manufacturing and health sectors, among others. It also includes measures for coordination with other risk management systems of the National Public Administration to strengthen their interoperability.

Risk reduction in production chains and in different sectors contributes not only to reducing climate risks, but also risks to the health of the people who work directly in these activities, and indirectly in the communities where they are located.

Similarly, the incorporation of the gender and diversity perspective is fundamental for the construction of indexes and the monitoring of risk management.

No.	Measure	Description
TP-09	Promoting the integration of climate change adaptation and mitigation into provincial tourism plans, programs and planning (Ministry of Tourism and Sports)	Incorporation of climate change adaptation and mitigation into tourism sector plans, programs and strategic planning in order to promote sustainable and resilient tourism in all of the country's destinations.
TP-10	Incorporating the climate variable in the formulation and	Promotion and encouragement of new tourist investments aimed at enhancing the competitiveness of tourist destinations by reducing their vulnerability to

Line of action 3. Climate risk management in the industrial and tourism sectors		
	evaluation of new private tourism projects (Ministry of Tourism and Sports)	climate threats. This includes the development of tools for investors and private stakeholders, consisting of recommendations for the formulation and evaluation of new tourism projects that incorporate climate variables for short, medium, and long-term analysis, focusing on the country's main tourist destinations.
TP-11	Promoting the diversification of the tourist offer of the destinations in the face of the different climatic risks that affect their development (Ministry of Tourism and Sports)	Identification of the vulnerabilities of the main tourist destinations in the face of climate change, and the need to diversify their tourism offer. The aim is to create more sustainable and resilient tourism products, incorporating new activities adapted to the climate scenarios of the territory.
TP-12	Incorporating the climate variable in Mine Closure Plans and Environmental Impact Assessment of mining projects (Secretariat of Mining)	Introducing climate risk assessment in the mine closure process of mining projects, and in the environmental impact assessments of projects. This includes the development of guidelines and other documents to incorporate this analysis in the sector's procedures.

#### Line of action 4. Productive resilience

It refers to the improvement of productive and logistic infrastructure and regional development with direct impact on the territory. To this end, innovations and technologies will be adopted for transportation and logistics in general, promoting a policy aimed at promoting local production and increasing exports. It also contemplates increasing the resilience of tourism activities by strengthening the capacities of the actors involved in the country's tourism activities, including measures for coordination between the public and private sectors.

Improvements in productive and logistical infrastructure for local production will contribute to the enhancement of local infrastructure with collateral benefits for the health of communities. They should also be carried out with a gender and diversity perspective to address and reduce gender gaps in the sector.

No.	Measure	Description
TP-13	Strengthening the technical capacities of	Actions to promote the adaptation of industries to climate change.

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Line of action 4. Productive resilience		
	industries and businesses to increase their resilience to climate change (Secretariat of Industry and Productive Development)	
TP-14	Strengthening the technical capacities of provincial and municipal tourism agencies in the area of climate change and comprehensive risk management (Ministry of Tourism and Sports)	Raising awareness of the public sector linked to tourism regarding the climate risks to which tourist destinations and the people working in the sector are exposed, and the resulting economic losses. Based on this, the aim is to design and implement measures to increase resilience to climate change in their own territories.
TP-15	Raising awareness and training of tourism providers on climate change (Ministry of Tourism and Sports)	Raising awareness of the situation and climate risks among tourism organizations, self-employed workers and other people working in the tourism sector.
TP-16	Sensitizing tourists on climate change (Ministry of Tourism and Sports)	Development of different communication tools aimed at sensitizing and raising awareness among tourists regarding climate change and climate risk management in tourist destinations.
TP-17	Financing the implementation of resilient infrastructure in tourist destinations (Ministry of Tourism and Sports)	Building resilience, which involves management and structural measures to improve the efficiency of processes and management and, in turn, extending the lifespan of assets. In this way, the aim is to collaborate in reducing the vulnerability of tourist destinations by strengthening their infrastructure. This measure includes new works and modifications to existing works.

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### Line of action 5. Circular economy

This line of action includes measures aimed at valorizing the different waste streams in the industry. Measures for energy reuse, transformation and industrial symbiosis are contemplated, reducing both waste generation and raw materials consumption.

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Measure

Description

#### Line of action 5. Circular economy

r r iii a c C F E	recovery of materials/inputs in ndustries and the adequate treatment of waste (Secretariat of Industry and Productive Development)	generation, gaseous emissions and liquid effluents in industries, as well as their adequate treatment. This includes management plans, logistics, collection, technological improvements in facilities, and capacity building to implement Extended Producer Responsibility. The measure includes incentives and incentives for the separation of large generators of organic matter, with on-site treatment.

## 5.4. Analysis of adopted measures and vacancies

The preparation and contents of the plan have been formulated in order to comply with Law No. 27520. All the minimum adaptation measures and actions established in the law are included in this plan, either in specific measures or in one of the cross-cutting approaches or strategic and instrumental lines.

Article 22 of the law establishes the following adaptation measures and actions:

- a. Developing hydrometeorological models to obtain appropriate projections of atmospheric and hydrological variables necessary for environmental risk management, including extreme events.
- b. Implementing prevention measures to protect human health from the impacts of climate change.
- c. Managing water resources with an integrated approach to ensure the availability, sustainable use and quality of water resources for various human and natural uses in the face of climate change impacts.
- d. Considering comprehensive risk management in the face of extreme climate phenomena attributed to climate change, Implementing measures to increase the response capacity of human settlements.
- e. Evaluating the impacts on the energy matrix and demand as a consequence of climate change.
- f. Preparing a cartography of the areas most vulnerable to desertification due to climate factors in future scenarios.
- g. Implementing a coastal management program aimed at protecting ecosystems and populations located in the most vulnerable areas.
- h. Planning territorial organization that considers environmentally sustainable land use.
- i. Implementing measures to promote food sovereignty in the face of the impacts of climate change.
- j. Evaluating the alterations suffered by glacial and periglacial systems, developing mechanisms for their protection.

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Measures a), c) and h) are contained in the strategic line *Sustainable and resilient territories*; f), g), h) and j) in the line *Conservation of biodiversity and common goods*; and i) in the line referring to *Sustainable management of food systems and forests*. Measure b) in the cross-cutting approach Health, and d) in *Comprehensive risk management*.

# 5.4.1. Adaptation requirements

As mentioned in the methodology section, the climate action planning process that gave rise to this NAP was approached from a combined perspective that responds both to the complexity of the climate change challenges faced by Argentina and to the institutional framework established at the national level to respond to them. Thus, adaptation measures are the result of a complex construction.

On the one hand, the main climate risks were characterized and work was carried out with technical teams from the jurisdictions grouped by region to identify the priority vulnerabilities associated with the prioritized climate risks. Likewise, the technical team of the Climate Change Adaptation Coordination identified other relevant vulnerabilities that, together with the previous ones, must necessarily be considered in order to reduce priority risks. This set of priority and relevant vulnerabilities were presented in workshops for civil society, where feedback was obtained, which later allowed the pertinent adjustments to be made. As a result of this participatory process, and with subnational policies and management initiatives in the jurisdictions in sight, a large part of the prioritized adaptation measures emerged.

On the other hand, some adaptation measures included in this plan do not respond to the priority and relevant vulnerabilities defined in the participatory process, but were prioritized by the different areas of national government concerned as part of ongoing policies at this level. This process, which combined regional construction strategies and bottom-up and top-down sectoral inputs, has allowed the adaptation measures contained in this NAP to address all the prioritized risks.

It should be clarified, however, that the plan does not exhaust the necessary adaptation measures, but simply materializes a milestone in Argentina's climate action planning, which is conceived as a continuous, progressive and iterative process. The adaptation measures presented here are not exhaustive, and it is expected that future developments of the plan may expand and improve existing measures and propose new ones, in order to address the risks and impacts identified during this process (in case they are still relevant) and those arising from subsequent diagnoses. In this regard, and in line with the proposed continuous planning cycle, climate risks will continue to be reviewed in light of renewed scientific knowledge, along with prioritization and relevance criteria.

In addition, a regional overview of the risks presents some vulnerabilities that are not being addressed in the adaptation measures identified in this plan:

#### All regions

With regard to the risk of damage to the livelihoods of family, peasant and indigenous agriculture producers due to fires, floods and other threats, two vulnerabilities have not been addressed: the insufficient allocation of the budget established by the Law on Historical Reparations for Family Farming and the insufficient regularization of land.

#### Central region

Regarding the risk of health effects on rural populations and low-income neighborhoods due to an increase in cases of dengue fever, inefficiencies in local management with respect to spraying have not been addressed.

Regarding the risk of increased hospitalizations and fatalities due to heatwaves in elderly individuals, children, people with chronic illnesses, persons with disabilities, and those in vulnerable situations—including those experiencing homelessness, living in inadequate environments, or belonging to indigenous communities—it remains crucial to address vulnerabilities related to insufficient knowledge or resources for constructing or adapting homes adapted to climatic conditions.

#### Cuyo region

Regarding the risk of health impacts due to reduced access to drinking water in the urban population due to droughts, no specific work has been done on vulnerabilities associated with insufficient soil-based instruments or on household water consumption controls.

With regard to the risk of damage to the livelihoods of family, peasant and indigenous farmers as a result of fires, floods and other hazards, the inability to compete with large producers adds to the vulnerability not addressed for all regions.

On the other hand, with regard to the risk of reduced access to food for the urban population, due to the impact on food supply, interruption by avalanches or flooding of roads and access routes due to landscape instability caused by the loss of glacial and periglacial environments, no specific work was done on the vulnerabilities linked to the limited diversity of suppliers of inputs and services in the region.

With regard to the risk of loss of sources of monetary income due to the impact on the quality and flow of water available for (non-agricultural and livestock) production, the vulnerabilities associated with informal and precarious contractual relations and insufficient resources to address water efficiency actions remain to be addressed.

#### NEA region

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With regard to the risk of affecting the trafficability and physical connectivity of people and the movement of inputs and services due to flooding or damage to roads and highways as a result of flooding, vulnerabilities related to insufficient maintenance of drains and culverts have not been addressed.

With regard to the risk of reduced access to safe water for the dispersed rural population for consumption, the insufficient control of compliance with regulations related to the use of agrochemicals remains to be addressed.

In relation to the risk of loss or reduction of livelihoods due to the impact on the riverbanks caused by extraordinary low water levels in the Paraná River and floods in the Uruguay River, there are five vulnerabilities that still need to be addressed with adaptation measures: those related to deep-sea vessels and large boats; those associated with the development of artisanal fishing activities in an informal situation; those related to the insufficient control of catches, boats and gear, and activity in fishing grounds; those related to the insufficient regularization and formalization of workers engaged in artisanal fishing; and those related to insufficient inter-jurisdictional coordination to regulate fishing and nautical activities.

With regard to the risk of ecosystem damage due to an increase in the extent, occurrence and spread of fires, it is important to address the vulnerability associated with the inequitable distribution of resources among provinces for fire prevention, control and management and with indiscriminate or inadequate burning as a management practice in agroecosystems.

#### NOA region

Regarding the risk of health impact due to reduced access to drinking water in urban populations during droughts, insufficient awareness among the population about the risks associated with droughts and water conservation has not been addressed.

With regard to the risk of damage to the livelihoods of family, peasant and indigenous farmers caused by fires, floods and other hazards, there are several vulnerabilities that remain to be addressed, which are related to the insufficient risk transfer instruments for family farming and the insufficient diversification of technologies in agricultural and livestock processes.

Regarding the risk of loss of sources of monetary income due to the impact on productive activities, power outages or damage to transmission and distribution networks caused by extreme weather events, the vulnerabilities associated with the insufficient knowledge of energy distribution companies about climate risks remain to be addressed.

As for the risk of loss of sources of monetary income due to extreme events (heat waves, heavy rains, avalanches, fires) affecting tourism activities, no work has been done on the insufficient network organization and community participation for prevention and response to extreme events, nor on the scarce regulations governing the informality of tourism activities and scarce resources for oversight.

Regarding the risk of loss of sources of income due to reduced production caused by the health impact on workers during travel or in outdoor workplaces due to exposure to extreme weather events or endemic diseases, vulnerabilities associated with insufficient prevention during interepidemic periods and control during epidemics have not been addressed. Additionally, there hasn't been sufficient capacity within institutions for an intercultural approach to the issues faced by indigenous and rural communities.

Regarding the risk of affecting the health of rural populations and low-income neighborhoods due to an increase in cases of dengue fever, the insufficient local management of spraying was

#### Patagonia region

not addressed.

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As for the risk of loss of sources of income due to disruptions in productive activities caused by power outages resulting from damage to transmission and distribution networks due to heavy rainfall, insufficient work has been done on the lack of diversity in suppliers of inputs and services in the region.

Regarding the risk of impact on ecosystems due to an increase in the extent, occurrence, and spread of fires, there is still a need to address vulnerabilities associated with exotic forest plantations without adequate firebreaks or management practices.

In relation to the risk of loss of sources of monetary income due to the impact on the quality and flow of water available for (non-agricultural and livestock) production, the vulnerability related to insufficient resources for water efficiency measures has not been addressed.

Finally, regarding the risk of loss of income sources due to impacts on tourism activities caused by the increased extent, occurrence, and spread of fires, as well as the reduced availability of snow and water, vulnerabilities associated with insufficient regulations and control over effluent discharge into water bodies have not been addressed. Also, there are limited regulations overseeing the informal nature of tourism activities, including constraints on enforcement.

## 5.4.2. Survey of proposals with Indigenous Peoples

Preliminary ways to respond to the effects of climate change were identified and agreed upon together with the representatives of the Indigenous Peoples' organizations that participated in the Intercultural Dialogues of the regions mentioned in section 1.4.1.1.1.

# Table 21. Survey of proposals from Indigenous Peoples

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#### **NOA region**

*1) Awareness-raising and training on climate change and ancestral knowledge* 

- Promoting training on ancestral knowledge and interculturality to civil defense and firefighters.
- Promoting training to schools and other institutions on climate change from the native cosmovision, by authorities of indigenous organizations.
- Incorporating climate change as a topic in the training of other programs with Indigenous Peoples, such as those related to small producers (INTA, by its Spanish abbreviation), courses on access to employment, and Introduction to Work Courses (CIT, by its Spanish acronym).
Opening and strengthening awareness and dialogue on climate change with the participation of indigenous peoples (intercultural tutor, pedagogical partner, bilingual interpreter).

*2) Scope of the public climate policy with indigenous participation and territorial roots* 

- Strengthening the response of indigenous communities with community alert systems.
- Strengthening public policies for the rooting of communities, considering the work that Indigenous Peoples carry out in the preservation of biodiversity, based on their worldviews (for example, through training in jobs related to climate change).
- Institutionalizing the role of indigenous environmental guardians, formed by the organizations of Indigenous Peoples with specific functions. For example, allocating economic and technical resources, materials and tools, etc.
- Including communities in tourism projects (for example, the role of indigenous guides/historical promoters with a connection to the territory and culture of the people in archaeological sites).
- Promoting Indigenous Community Rural Tourism; Indigenous Sustainable Community Tourism; and Ethnic Tourism with indigenous guides or historical promoters, emphasizing the sense of belonging to the territory and culture of the people.
- Promoting access to information about climate change through communication strategies with cultural identity to display and disseminate in the territory (materials in various languages, dissemination of materials about the climate change law, signage, etc.).
- Including the topic of *Climate Change from the Perspective of Indigenous Peoples* in national programs related to access to water, civil defense, firefighters, health promoters, etc.

#### **Central region**

- Institutionalizing the role of indigenous environmental guardians by defining their role (biodiversity conservation, function of environmental experts, etc.) and their needs (equipment, training, mobility, salaries, geographic information and management platform, etc.).
- Bilingual Intercultural Education:
  - Strengthening the training of indigenous teachers, recognizing the different ancestral practices of indigenous peoples and their communities.

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- Promoting training for schools and other institutions, both rural and urban, on climate change from the native cosmovision, by authorities of indigenous organizations.
- Involving universities to provide training on indigenous peoples and their role in climate change (indigenous law chairs, etc.).
- Developing productive projects integrating the indigenous agroecological system:
  - Execution of community infrastructure for value addition at origin.
  - Strengthening the commercialization of indigenous production.
- Climate information:
  - Developing and implementing a national platform for indigenous peoples and climate change.
  - Promoting access to climate information tools (SIMARCC, etc.).
- Promoting equitable access to emergency agricultural and livestock or climate funds.
- Community participation in climate change strategies:
  - Expanding and institutionalizing the space for participation of Indigenous Peoples in the National Plan.
  - Encouraging the participation of indigenous peoples in the development of provincial response plans.
- Strengthening access to infrastructure and appropriate technology to guarantee access to water (human consumption and production):
  - Technical advice for the design of catchment, storage and distribution systems.
  - Elaboration of water quality studies.
  - Execution of works.

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- Promoting changes in (non-indigenous) agricultural and livestock production systems that are more sustainable (forest conservation, agroecology, etc.).
- Promoting training for Indigenous peoples' representatives in the implementation of the Escazú Agreement from their original worldview, led by Indigenous organization authorities; and connect it with the ILO Convention.
- Amending Law No. 26331 on Native Forests: include the brown category in native forest territorial planning (Indigenous protection areas).
- Strengthening Indigenous community organization.

#### South region

- Institutionalizing the role of native environmental guardians for the care of biodiversity.
- Regulating the law (ILO Convention 169) for Free, Prior and Informed Consultation (FPIC), so that the decisions of the communities in their territories become binding.
- Strengthening and promoting the participation of spiritual and political authorities in prior consultations, including municipal authorities and competent bodies. And promoting education and transmission of ancestral knowledge, practices and wisdom.
- Promoting projects for reforesting with native species in cases where damage couldn't be avoided, led by Indigenous communities and their organizations, and prohibit deforestation of native species and activities involving the introduction of invasive exotic species that harm the environment.
- Promoting access to energy through small-scale wind (bird-friendly) and solar projects at the community level.
- Integrating the participation of Indigenous communities in Comprehensive Community Plans (PIC, by its Spanish acronym).
- Incorporating knowledgeable representatives from Indigenous communities to integrate the principle of interculturality into national climate policies and promote its application through interculturality.
- Systematizing Indigenous communities' experiences and practices related to climate change and create a repository.
- Providing training on treaties and regulations related to climate change. Strengthening the participation of Indigenous communities in the consultation processes of Environmental Impact Assessments.
- Ensuring food sovereignty for Indigenous communities through infrastructure, training, promotion of agroecology, protection of native seeds, and funded projects.
- Providing training and equipment that are not harmful to health and the environment to combat pests.
- Promoting access to water as a fundamental right and ensuring access to water for production.
- Safeguarding sacred sites with ancestral medicine and cultural practices.
- Promoting the decentralization of financing to the communities through projects agreed upon with them.
- Generating sustainable management enterprises respecting the *Kvme Felen*/Good Living.

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- Incorporating indigenous communities in the articulated work with the Ministry of Agriculture, Livestock and Fisheries for fisheries control.
- Ensuring the use of flora and fauna according to the ancestral cosmovision and current regulations, in coordination with the competent agencies.

#### NEA region

- Including the worldview of indigenous peoples in public policies (climate change, health, education, among others).
- Strengthening the tenure and recognition of indigenous territories (tenure, survey and ownership).
- Strengthening intercultural education (bilingual schools exist to understand each other).
- Institutionalizing the role of indigenous environmental guardians formed by the organizations of Indigenous Peoples.
- Strengthening the knowledge of native communities for fire prevention and firefighting, with adequate equipment.
- Promoting spaces for youth participation with tools to strengthen capacities.
- Revalorizar, fortalecer y visibilizar las prácticas y los saberes ancestrales de los pueblos indígenas.
- Revalorizing, strengthening, and making visible the ancestral practices and knowledge of Indigenous peoples.
- Developing a dynamic registry or inventory of biological indicators based on ancestral knowledge to generate alerts and as input for the formulation of plans and public policies (for example, fire management plan, management of protected areas, among others).
- Reforesting and restoring deforested Indigenous territories with native species, involving Indigenous communities to ensure proper practices.
- Promoting the establishment of working groups on climate change involving representative institutions of Indigenous peoples and other actors related to decision-making on natural resource projects (private sector, provincial authorities, and national authorities).
- Establishing accessible and appropriate mechanisms for accessing information in different sectors and levels of the State.

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 Strengthening coordination, monitoring, and control by national agencies regarding environmental issues and public policies in the provinces.

### Section 6 Monitoring system

### 6.1. Introduction

The monitoring of the adaptation processes and results of the NAP reflects the efforts being made by the Argentine Republic to achieve the objectives of its Second Adaptation Communication. To this end, the design, development and implementation of a monitoring system from the very beginning of the formulation of the NAP is of utmost importance. This allows, on the one hand, to make the progress and results of the actions visible and, on the other hand, to improve the management of the different actions throughout the implementation.

The establishment of a monitoring system for NAP measures has several objectives. Firstly, to make visible the actions that are being carried out, in accordance with the periodic reporting commitments to the UNFCCC and those at the national level. Secondly, to use and take advantage of the monitoring system for learning and management improvement; that is, to observe and measure whether what is being done through the NAP effectively leads to the adaptation goals committed to in the Second Adaptation Communication or whether, on the contrary, it is necessary to modify the lines of action or measures. In this way, monitoring facilitates planning and decision making.

It should be clarified that, in the context of the PNAyMCC, a joint monitoring system for mitigation and adaptation is being designed. Although at the international level slightly different terms are used for mitigation and adaptation monitoring, it was decided to unify languages and concepts in order to arrive at a simple monitoring plan and, above all, one that is feasible to implement. Based on the background of MRV in mitigation, a working group was formed between the adaptation and mitigation teams of the DNCC, with the task of accompanying the design process of the PNAyMCC monitoring system; however, in this section, only the progress made in the adaptation component is described.

The monitoring system designed for this plan comprises several steps. It is understood that, first of all, the political and institutional contexts and frameworks must be understood, existing information must be identified, and the roles and responsibilities of the different actors involved in the NIP must be defined. It is important to be clear about the objective of monitoring, to define what aspects are to be monitored and for what purpose. In addition, it is extremely important to clearly define the operationalization of the data collection for the measurement of indicators. In order to develop a successful monitoring system, it is necessary to have measurable, relevant and achievable indicators, and to be clear from the outset where and with which teams and institutions the data will be collected. All this provides the added value of having a monitoring system to support management.

The NAP monitoring system is conceived as a continuous process under construction, which will provide flexibility and allow for adjustments as the national climate policy planning and implementation process progresses.

At the time of publication, this plan has defined the purpose, scope, approach and contents of the monitoring system. In addition to the background, work will continue on the set of indicators required and on the construction of agreements on the operationalization, data collection, system governance, and the definition of the knowledge and communication products (reports, publications, etc.) that should be produced to disseminate the results and progress of the monitoring system. Subsequently, it should also be analyzed how the results of this system will be integrated into the National Climate Change Information System (SNICC), established in Article 17 of Law No. 27520 (2019).

The monitoring system is based on the following pillars:

- The monitoring system respects and takes as a basis for all its actions Law No. 27520 on Minimum Standards for Climate Change and is inserted in a clear, concrete and transparent manner in the context of adaptation and mitigation in Argentina.
- The monitoring system seeks articulation with other information or monitoring and evaluation systems corresponding to different national government agencies.
- The monitoring system will be part of the SNICC.

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- Within the framework of the GNCC, participatory instances of jurisdictions, key actors and sectors such as the national scientific-technological sector will be promoted for the design and implementation of the system, thus achieving a process of feedback and continuous revision.
- The National Directorate of Climate Change (DNCC) will seek to provide the system with specific and sustained funding over time for its proper functioning in terms of actors participation, data collection, interpretation and synthesis of information, report writing and updating processes.
- The monitoring system will guarantee the dissemination and communication of progress or results in a transparent manner.
- The monitoring system is flexible, with a view to continuous development and improvement, based on national capacities and available resources.

### 6.2. Political and institutional context of the system

For the design and development of the PNA monitoring system, it is of utmost importance to investigate and analyze the political-institutional context in order to find synergies, ensure integration with other information systems and avoid duplication of efforts.

In the first instance, the monitoring background regarding adaptation within the DNCC was identified and analyzed. In this sense, during the years 2020 and 2021, a set of progress and results indicators were developed The existing indicators for adaptation refer to the eight thematic axes: capacity building on climate change adaptation; incorporation of risk analysis, adaptation measures and monitoring and evaluation systems at national, subnational and municipal levels; reporting to the National Climate Change Information System (SNICC); promotion of cross-cutting approaches for the adaptation process at sectoral and subnational levels; integrating gender and diversity perspectives; partnerships; civil society participation; and awareness raising and education.

For each thematic axis, progress and results indicators were developed:

- Progress indicators: these are indicators that show progress towards the desired results. Most of them measure milestones, i.e., stages or products made available to different actors.
- Outcome indicators: these are indicators that aim to measure results, i.e. the changes generated in and for key actors after having used the products made available.

In addition to the indicators, descriptive, informative and methodological sheets were prepared for each indicator and agreements were reached on data collection and the tools to be used. Among the latter, surveys, questionnaires and spreadsheets were considered to help record progress and results.

At this stage, all existing indicators refer exclusively to learning and management improvement of the National Directorate of Climate Change in the adaptation process and compliance with the established goal. In this regard, it should be clarified that no indicators have yet been developed at the level of adaptation measures.

Simultaneously, cause-effect chains of prioritized climate risks in the five major regions of Argentina (according to the IPCC AR5 concept, 2014) are being developed with the aim of laying a basis for adaptation measures. Although there are no quantitative indicators for these risks, but qualitative descriptions, it is a very important basis for any kind of adaptation monitoring.

In addition to the previously mentioned backgrounds, it is necessary to identify other databases, monitoring systems, and existing information from other plans, programs, or projects relevant to the NAP, which can assist in data collection and utilization. One of the key lessons learned is that, before commencing the identification and characterization of indicators that could potentially be used to monitor each measure, an assessment of available information sources, data quality, and reporting frequency must be conducted. This allows for the initial selection of indicators that are more feasible to monitor.

### 6.3. System components

### 6.3.1. Purpose of monitoring

As mentioned, the monitoring system serves more than one purpose. In this sense, establishing a system is necessary not only to increase the visibility of the actions being carried out, but also to improve management and verify whether the plan is being fulfilled. Depending on the purpose chosen, the specific contents, indicators and methods for measuring them are then defined.

Considering that the NAP is the adaptation component of the PNAyMCC, for which a joint adaptation and mitigation monitoring system is being designed, the purpose of the monitoring system is described below:

The monitoring system of this plan shows the degree of progress and results of Argentina's adaptation and mitigation goals assumed in its Second NDC and of the adaptation and mitigation measures included in the PNAyMCC.

Through the lessons learned during its implementation, the monitoring system ensures the continuous improvement of national climate policy management, facilitating planning and decision making.

In addition, the monitoring system allows the communication or dissemination of progress and results in a transparent manner.

### 6.3.2. Monitoring approach and contents

In the NAP monitoring system, it was decided to monitor two major components, according to their purpose:

1. On one hand, progress will be measured, and where possible, outcomes will also be assessed concerning the National Adaptation Goal established in the Second Adaptation Communication and the regional targets outlined in this Plan.

In this case, a set of indicators will be formulated that can give an idea of the progress and results of the goals established until 2030.

2. On the other hand, the progress and, if possible, the results of the adaptation measures implemented in the different sectors, which are an important part of the NAP, will be measured.

For this second component of the monitoring system, indicators of progress or results of the measures included in the NAP will be used. Initially, existing indicators will be monitored and progressively new indicators will be identified, developed and quantified, taking into account that both the monitoring system and the NAP are dynamic and evolve over time.

### 6.3.3. Indicators

With the agreement and definition of the purpose and approach of the monitoring system, different sets of indicators were established to demonstrate progress and outcomes for the proposed adaptation measures in the NAP. These indicators can be found in the fact sheets for each measure.

Within the cross-cutting approach of Institutional Strengthening, under Action Line 2: Multilevel and Multi-actor Governance, Measure No. 5, aimed at operationalizing the monitoring system of the PNAyMCC, efforts are directed toward developing indicators of progress and results concerning the adaptation and mitigation goals for 2030.

With respect to the National Adaptation Goal, as indicated in section 4, in order to facilitate the monitoring of progress in its fulfillment, five dimensions were identified (perception of climate change impacts and adaptation measures; social involvement; reduction of vulnerability; integration of communities and social groups in vulnerable situations, gender and intergenerational approach, and generation of co-benefits), as well as sub-dimensions and

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targets. The latter will be monitored by adopting a hybrid approach, i.e., combining quantitative indicators and other qualitative analysis instruments that will address previously defined variables. In this way, a narrative will be achieved that will make it possible to account for progress in meeting the national objective and will facilitate the review of the planning and implementation process developed. The following table explains the structure of indicators and variables to be developed.

Dimension	Subdimension	Scope	Goals	Indicators
Five dimensions are defined:1. Societal perception of climate change impacts and adaptation measures.2. Social involvement.3. Decrease in vulnerability.4. Integration of communities and social groups in situations of vulnerability, gender approach and intergenerational approach.5. Generation of co-benefits.	Different subdimensions are defined for each dimension to facilitate monitoring of the goals: 1.2 Climate change information and knowledge. 1.3 Perception and attitudes 2.1 Cultural change 2.2 Citizen participation 3.1 Institutional capacity 3.2 Energy 3.3 Water 3.4 Health 3.5 Agriculture, livestock and fisheries 3.6 Housing and habitation 3.7 Industrial production 3.8 Tourism, sports and cultural heritage 3.9 Mobility 3.10 Ecosystem services 4.1 Vulnerable communities and	The unit of analysis is indicated (society in general, national governments, sectors, regions, etc.).	The goals for each subdimension by 2030 are specified.	Quantitative indicators and variables to be analyzed qualitatively are specified. For example, for a goal related to housing damage caused by floods, the following quantitative indicator can be defined: by 2030, "x" infrastructure projects implemented to prevent flooding in low-income neighborhoods. Additionally, a qualitative analysis can be defined, consisting of a narrative explaining how various measures contribute to achieving the goal and in what manner.

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# Table 22. Indicators and variables to be studied associated to the National Adaptation Goal



Dimension	Subdimension	Scope	Goals	Indicators
	approach 4.3 Intergenerational approach 5.1 Mitigation			

### 6.3.4. Operationalization

As stated in the methodological section, the tools for the collection of the necessary information and data are defined and designed at this stage. In addition, the governance, institutional agreements, roles, functions and tasks of each institution for data collection and aggregation are organized.

In this sense, for each of the indicators, a descriptive and methodological sheet will be prepared containing the following information:

- General information about the indicator:
  - Indicator number and name
  - Detailed description (specification) of the indicator
  - Indicator approach (adaptation measure, mitigation measures, etc.)
  - Type of indicator (progress or result)
  - Assumptions for the indicator to be met
- Formula or methodology for data collection:
  - Description of data collection method
  - Unit of measurement
  - Scope of the indicator, level of application, coverage, scale (national, provincial or municipal), geographic or socioeconomic scope, etc.
  - Baseline (if necessary)
  - Disaggregation of data: gender, age, hierarchical level, region, sector, etc.
  - Data source
  - Monitoring indicator frequency
  - Funding required for measurement
  - Agency responsible for generating the indicator

Once the NAP monitoring system has been implemented, the results obtained will be analyzed and interpreted to extract communication products for the different actor groups, to guide decision-making to make adjustments to the plan and to identify lessons learned.

As stated in the FI-05 action sheet, governance, institutional arrangements for the provision of the data required for monitoring and the specific procedure for the operation of the system will be developed in the short term.

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### 6.3.5. Products and reports

As mentioned, the results derived from the monitoring system will be translated into communicable outputs, thereby fulfilling the purpose of the monitoring system. These products, their objectives, recipients, and frequency will be defined after the operationalization of the system.

### Section 7 Necessary resources

As mentioned in Section 5. Measures to address climate change, one of the four instrumental lines of this NAP is that of Financing for transition. It outlines guidelines for the financing of this plan, which result from the combination of an international financing strategy with a domestic financing strategy based on the reallocation of resources and the implementation of innovative mechanisms that include the participation of the private sector.

The diverse nature of the proposed action measures, the way in which they are interwoven into cross-cutting actions and the multiplicity of sectors and actors involved over various time horizons present the challenge of providing an immediate and simple response to the cost of their implementation. However, some global values of the resources required—calculated as of the date of writing of this document—can be presented for the six strategic lines identified.

Although Tables 23 and 24 show general values for the measures presented in this NAP—which should be analyzed in depth at the time of implementation—, their estimation is very useful to know in advance the magnitude of the efforts required and to identify opportunities to cover these funds according to the strategies established in Section 5.

<b>Strategic line</b> (123 total measures)	Cost in millions of in millions of dollars	Percentage of measures with associated cost	Number of measures with associated cost/total
Conservation of biodiversity and common goods	26 062.10	82.05	32/39
Sustainable management of food systems and forests	6 160.38	88.00	22/25
Sustainable mobility	350.00	100.00	5/5
Sustainable and resilient territories	117 737.62	73.91	17/23
Energy transition	73 559.10	70.59	12/17
Productive transition	8.97	35.71	5/14
Total	223 878.17		

### Table 23. Estimated costs by strategic line

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# Table 24. Estimated costs of adaptation measures by strategic lineof action

<b>Strategic line</b> (72 total measures)	Cost in millions of in millions of dollars	Percentage of measures with associated cost	Number of measures with associated cost/total
Conservation of biodiversity and common goods	148,07	86,36	19/22
Sustainable management of food systems and forests	6 109,20	93,33	14/15
Sustainable mobility	350,00	100,00	5/5
Sustainable and resilient territories	114 909,45	82,35	14/17
Energy transition	4 004,80	66,67	2/3
Productive transition	5,69	30,00	3/10
Total	125 527,21		

## 7.1. Costs by strategic line

### 7.1.1. Conservation of biodiversity and common goods

The preliminary estimate of the resources needed to implement this strategic line includes 32 of the 39 measures identified, amounting to an estimated USD 26,062.10 million. It should be clarified that, although most of the measures are designed to contribute to a particular line of action, in many cases they contribute to the fulfillment of more than one of them within the strategic line. This means that the measures should not be understood as separate, watertight compartments, but rather that progress in one direction is generally positive for all the others.

That said, a strict categorization of the measures shows that the resources needed for the implementation of measures aimed at increasing the area devoted to conservation are relatively more limited compared to the other lines of action. In this sense, expanding and strengthening the network of Ramsar sites and incorporating underrepresented ecosystems into national protected areas would require about USD 2 million. The cost of a third measure included in this line of action, promoting the inclusion of glaciers in protected areas, should be added here. The cost estimate for measure 5 "Incorporating underrepresented ecosystems into national protected areas" depends on the needs that arise for the purchase of land, which are not estimated.

Within the line of action Sustainable use of biodiversity, two of the three measures (promoting the conservation and sustainable use of biodiversity in agroecosystems and strengthening initiatives for the sustainable use of non-timber forest products) add up to costs of approximately USD 85 million. The costs of strengthening the sustainable use of native camelids remain to be estimated.

The two measures identified to increase connectivity at the landscape level (mainstreaming adaptation into National Park management plans and developing livelihood alternatives for vulnerable local communities in selected landscapes) are estimated to cost just over USD 14 million.

On the other hand, the five measures aimed at adaptive ecosystem management total costs of USD 2.17 million. A large part of this budget corresponds to the measure aimed at strengthening applied research for conservation with a climate change perspective, which amounts to just over USD 0.84 million.

With regard to the resources needed to implement the Ecosystem Restoration and Conservation action line, which covers 16 of the 18 planned measures, a partial estimate indicates that the cost amounts to USD 25,957 million.

It should also be clarified that for the measures related to glaciers, the amount required for their financing has yet to be defined. Likewise, a significant portion of the measures related to environmental land management are still in the budgeting process, so the resources needed to implement this line of action have not yet been estimated.

National funds and funds from international financing sources will be used to implement all the measures in this strategic line. Estimated expenses include the development of studies, diagnoses and guidelines with a climate change perspective, investment in infrastructure and equipment, purchase of inputs, hiring of personnel to carry out field work, advice, technical support and training, and the maintenance of coordination and articulation spaces between jurisdictions to take the necessary steps.

It is also important to highlight the need for agile and independent sources of financing to make the area's policies operational. This aspect was emphasized both by the substantive areas during the development of the measures and in the technical and plenary commissions of CONADIBIO. This would require not only an increase in the budget allocated to these policies, with more staff in different regions of the country and territorial anchorage in accordance with the federal organization of Argentina, but also funds that are readily available to act in the event of emergencies, such as revolving funds. Additionally, specific funds to address particular issues, such as compensation funds that could be constituted from the contributions of those sectors that directly benefit from the use of biodiversity and common goods.

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### 7.1.2. Sustainable management of food systems and forests

The estimated cost to date of the measures under this strategic line is approximately USD 6,160.38 million. However, it will be necessary to estimate a higher overall cost, since this preliminary budget includes 22 of the 25 measures proposed.

The line of action for agroforestry and fisheries climate risk management is the one that will require the most resources. Particularly noteworthy is the measure aimed at improving agricultural and livestock emergency response to climate events, which has an estimated cost of almost USD 3,520 million, that is, more than half of the total cost calculated for the entire strategic line of action. Next in terms of cost is the measure to promote risk management instruments, with an estimated budget of USD 626 million, followed by the measure to improve intra-farm and community infrastructure, with a cost of USD 554 million, and finally, the measure to prevent forest fires in native forests, with a cost of just over USD 7 million.

The resource requirement for measures related to production efficiency and diversification is the second largest cost item in this strategic line. The following budgets are estimated for the following measures: strengthening agricultural value addition, USD 338 million; and improving access to water and water management, USD 66 million.

The costs of measures involving integrated ecosystem management amount to almost USD 300 million, distributed as follows: promoting forest management with integrated livestock farming, USD 10 million; strengthening agricultural and livestock extension programs and access to information, USD 21 million; sustainably managing marine fisheries, USD 250 million; promoting agroecological and regenerative livestock farming, USD 2.22 million; and promoting forest basin management, USD 13.04 million.

The measures to generate production traceability mechanisms (promoting sustainable forest management practices; nationalizing the Forestry Administration, Control and Verification System; and promoting the continuous improvement of the National Native Forest Monitoring System) have not yet been costed.

Finally, the resource requirements for actions aimed at promoting relocation and population rooting amount to USD 147 million for the measure to strengthen land titling, rural rooting and land regularization programs; USD 21 million for the measure to promote strategies for the rooting of indigenous and peasant communities; and USD 4 million for the creation of the Native Forest Producers program.

In general, these measures have both national and international financing and their costs estimate both human resources and material interventions in the territory. However, most of them require at least one additional source of funding to be identified in order to meet the established goals.

### 7.1.3. Sustainable mobility

The Sustainable mobility line focuses on establishing the commitment of both the public and private sectors to reduce greenhouse gas emissions generated by the activity, and to accelerate the path of adaptation of its infrastructure and operation, seeking to ensure the

movement of goods and people, even in adverse climate scenarios. These objectives involve actions ranging from planning and institutional strengthening in relation to the development of new forms of mobility, development of sustainable urban mobility systems, renewal of vehicle fleets, to the large deployment of infrastructure works with adaptation criteria, including the prioritization of various modes of transport (aeronautical, river, maritime, lake, rail, road, etc.), in all modes (air, water or land).

Measures requiring the most resources are those that seek to promote the incorporation of the climate change adaptation approach in the design and maintenance of transport infrastructure, USD 115 million, and to incorporate resilient river-maritime transport infrastructure, USD 200 million. Other measures within this same line will require fewer resources, such as assessing the impacts of climate change on transport systems, USD 10 million; strengthening prevention and contingency for extreme climate change events, USD 10 million; and strengthening the capacities of those responsible for the design and planning of transport infrastructure in climate change adaptation, USD 15 million.

### 7.1.4. Sustainable and resilient territories

As of the date of writing this document, the total estimated costs for the measures in this line amount to USD 117,737.62 million. Although this is the line with the highest estimated cost at the moment, higher costs are anticipated, given that this figure is made up of the costs required for 14 of the 17 measures proposed. These are, to mention a few: the eradication of open-air dumps (USD 187 million); and the expansion and improvement of safe water and sanitation coverage in urban and rural population groups, and in dispersed rural population (both totaling USD 72,008.11 million).

The estimated expenses for the development and implementation of these measures derive from national treasury funds and consist of the costs corresponding to human resources trained for the analysis and development of the tools. Also considered is the financing of international cooperation projects for the implementation of the measures that include the execution of public works (closure of open-air dumps, extension of infrastructure services, etc.).

### 7.1.5. Energy transition

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The estimated expenses for the development and implementation of the measures derive from national funds and international or private financing, and are focused on the costs corresponding to human resources trained for the analysis and development of the tools and incentives established, as well as the costs associated with technological resources, works and access to information and data systems. In addition, there are costs associated with the execution of workshops and working groups to encourage technical exchange between the private sector and regulators, in order to identify opportunities and barriers to the achievement of the proposed goals.

### 7.1.6. Productive transition

At the time of writing this document, it has been possible to estimate the approximate cost of 7 of the 19 measures. The estimated expenses correspond to measures related to the development of value chains in industry, improvements in processes to increase water efficiency, recovery and consolidation of the productive nature of waste in industrial processes and, also, integration of climate change adaptation in tourism plans, programs and planning. The expenses estimated so far for the development and implementation of these measures derive mostly from funds from the national treasury to execute the assistance and support plans and programs. International financing is also being considered in order to implement pilot projects and strengthen the assistance provided by the national government.

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## **Appendix I**

Glossary

Term	Definition
Agroecology	A discipline that provides the basic ecological principles for studying, designing and managing agroecosystems that are both productive and conserving natural resources, as well as culturally sensitive, socially just and economically viable (Altieri, 1995). By understanding ecological processes and relationships, agroecosystems can produce more sustainably, with fewer negative environmental and social impacts and fewer external inputs (Altieri, 1995). It is based on co-creation of knowledge, combining science with traditional, practical and local knowledge of producers (FAO, 2018).
Threat	A natural or human-induced physical event or trend that has the potential to occur and cause loss of life, injury or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources (IPCC, 2019). When hazards are analyzed in the context of climate change, they are referred to as climate hazards and refer to both extreme weather events of sudden manifestation and their physical impacts, for example, intense precipitation that generate floods or flooding of water bodies due to strong winds, as well as gradual and slow-onset changes (trends), such as changes in average rainfall or temperature regimes, coastal erosion, snowfall decrease, among others.
Common goods	It refers to all those natural (material), cultural, economic and social (immaterial, intangible) assets that are, or should be, of common access and benefit to society as a whole. Although it can be used as a synonym for "natural resources", the term commons refers to a broader vision that contemplates sustainability criteria, which implies both a review of the way in which they are currently used, managed and reproduced, as well as the fair distribution of the benefits resulting from access to them.
Adaptive capacity	It is defined by the IPCC (2018) as the ability of systems, institutions, people, and other organisms to adjust to potential harm, take advantage of opportunities, or respond to consequences. Also, this concept encompasses both the resources (natural, financial, institutional or human) available for adaptation in a given system, and the capacity of that system to effectively deploy those resources to advance adaptation (Brooks and Adger, 2004 in UNFCCC, 2021).
Ice sheets	A body of ice that originates on land and covers a continental-sized area, generally defined as covering > 50,000 km <sup>2</sup> , that has formed over thousands of years by accumulation and compaction of snow. It is an ice sheet flowing outward from a high central ice plateau with a small average surface slope. The margins usually have a steeper slope and most of the ice is discharged through fast-flowing ice streams or outlet glaciers, often into the sea or on ice shelves floating in the sea. There are only two ice sheets in the modern world, one in Greenland and one in Antarctica. The latter is divided into the East Antarctic Ice Sheet (EAIS), the West Antarctic Ice Sheet (WAIS) and the Antarctic Peninsula Ice Sheet. During

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Term	Definition
	glacial periods, there were other ice sheets. (IPCC, 2018).
Edge effect	The edge effect consists of the generation of variable physical and biological conditions, determined by the transition between two or more habitats. When there is a process of degradation and consequent fragmentation of a natural habitat, the islands become smaller and have a greater proportion of edge in relation to the surface. In other words, as the proportion of edge to surface is greater, the influence of external physical conditions is greater on the environment contained therein. Usually, when this happens, the environment is considered to become more vulnerable (Adámoli et al. 2011).
Green jobs	Green jobs are decent jobs that contribute to preserving and restoring the environment either in traditional sectors such as manufacturing or construction or in new emerging sectors such as renewable energies and energy efficiency. A distinction can be made between two types of green jobs: jobs in green economic sectors, from an end-product perspective, and job roles in all sectors, from an environmentally friendly process perspective (ILO, 2016).
Exposure	Presence of people, livelihoods, environmental services and resources, species and ecosystems, infrastructure, economic, social or cultural assets in areas at risk of being affected by climate change-related hazards (IPCC, 2019). For example, coastal populations in areas affected by southeast storms or populations in flood zones.
Industry 4.0	New way of producing through the adoption of 4.0 technologies, that is, solutions focused on interconnectivity, automation and real-time data. This transformation covers not only a company's production of goods or services, but the entire value chain, since it reconfigures both the production processes and product performance, as well as business management, relationships with customers, suppliers and suppliers and, in a broader sense, business models.
Subnational jurisdictions	Provinces and Autonomous City of Buenos Aires
Tropical nights	Annual number of days in which the daily minimum temperature was higher than 20 °C (SAyDS, 2015a).
Gender and diversity perspective	It consists of analyzing the ways in which public policies are defined, designed and executed and the differential impact they have on the lives of cis heterosexual women and LGBTI+ according to their realities. The aim is to produce specific measures that guarantee equality in the access and exercise of human rights and that strengthen their autonomy and participation in decision-making. This perspective must be applied to all phases of the creation of public policies (design, implementation, monitoring and evaluation) and to all types of actions (legislative, political, programmatic).

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Term	Definition
Gender equality principle	Gender equality implies the guarantee of equal rights between women and men, both in terms of norms and laws (formal equality) and in terms of opportunities and results (substantive equality). Gender equality, women's autonomy and a care society are a condition, a path and a catalyst for sustainable development (ECLAC, n/d).
Intergenerational equity principle	Refers to the need to guarantee the conservation of natural resources and the environment for their access and enjoyment by present and future generations.
Restauration	Process of assisting the recovery of ecosystems that have been degraded, damaged or destroyed (Gann et al., 2019).
Climate risk	Potential adverse consequences (not yet occurred) of a climate-related hazard or threat, which may also result from adaptation or mitigation responses to that hazard/threat (IPCC, 2019).
Food safety	At the individual, household, national and global levels, it is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life (FAO, 1996).
Sensitivity	Extent to which a system or species is affected, adversely or beneficially, by climate variability or change (IPCC, 2019). IPCC (2019) clarifies that effects can be direct (e.g., a change in crop yield in response to a change in mean, range, or variability of temperature) or indirect (e.g., damage caused by an increase in the frequency of coastal flooding due to sea level rise). It should be clarified that sensitivity is determined by those factors that directly affect the consequences of a hazard, which may include physical attributes of a system (e.g., house construction material, soil type in agricultural fields), social, economic, and cultural (e.g., age structure, income structure) (GIZ and IISD, 2017, p. 16).
Climatic signal	Gradual climate events or changes, which do not depend on exposure, vulnerability or human activities, and therefore cannot be influenced by adaptation or other measures to address climate-related damage and loss (GIZ and EURAC, 2017). For example, increased heavy rainfall corresponds to a climate signal, urban flooding caused by it does not, as it also depends on vulnerability factors and human activities. In other words, action can be taken to reduce floods, but not to reduce torrential rainfall. It should be clarified that climate signals can be hazards in themselves.
Ecosystem services	Benefits (goods, resources or processes) that humans obtain from ecosystems (Millennium Ecosystem Assessment, 2005).

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Term	Definition
Industrial symbiosis	An instrument encompassed under the paradigm of the circular economy that promotes sustainable growth and increased resource efficiency. It achieves this by establishing synergies of exchange and use between industries, aiming for mutually beneficial relationships among the involved sectors. Synergies can range from the reuse of waste streams from a given industry as raw material for another industry to the use or implementation of common services, infrastructures or projects.
Food sovereignty	The right of each people, community and country to define its own agricultural, pastoral, labor, fisheries, food and land policies that are ecologically, socially, economically and culturally appropriate to its unique circumstances. This includes the real right to food and food production, which means that all peoples have the right to have food and resources for the production of safe, nutritious and culturally appropriate food, as well as the ability to sustain themselves and their societies.
Vulnerability	The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. This includes, for example, the social, economic, cultural, institutional or infrastructural conditions that make a population susceptible to a given hazard. These conditions exist prior to the occurrence of a disaster and will determine the intensity of damage caused by the hazard. Therefore, the degree of damage that a disaster may cause is directly related to the existence of greater or lesser vulnerability conditions.

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