Contribution Determined at the national

Actualización 2022

Nationally Determined Contribution

Upgrade 2022

Ministry of the Environment and Natural Resources (SEMARNAT)

National Institute of Ecology and Climate Change (INECC)

INDEX

PRESENTATION

Mexico submits to the United Nations Framework Convention on Climate Change the update of its Nationally Determined Contribution (NDC) in accordance with the General Law on Climate Change (GLCC) and Article 4 of the Paris Agreement, and in accordance with decisions 1/CP.21 and 4/CMA.1 and its Annex.

In this NDC Mexico sets out increased ambition with new greenhouse gas mitigation commitments and endorses its climate change adaptation commitments. Based on the best available science, contained in the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), it is imperative that the international community increases its ambition to maintain the possibility of halting global warming at 1.5ºC. This requires global greenhouse gas emissions to be reduced by 43% by 2030, peaking in 2025. It will also require a 30% reduction in methane emissions, as well as other short-lived climate pollutants.

Considering the principle of common but differentiated responsibilities, as well as the capabilities of countries in light of different national circumstances, Mexico has assessed its policies and identified additional actions in order to update its NDC with the highest possible mitigation ambition by 2030. Mexico contributes 1.3% of global emissions, so coordinated action and leadership by the world's major emitters is required to achieve the 1.5ºC target. It is also necessary to increase ambition in the support that developed countries provide to developing countries, mainly in terms of climate finance, and to accelerate innovation and technology transfer for mitigation and adaptation.

The effects of climate change are already being felt in our country and, as documented by the IPCC, in all regions of the world. Mexico commits itself unconditionally to undertake comprehensive actions to reduce the vulnerability of our people to climate change and to initiate a process of adaptation. We hope that during COP 27, an agreement will also be reached so that the international community, mainly those countries that have contributed the most to historical emissions, can compensate for the losses and damages associated with climate change that are already being experienced around the globe. Mexico is also committed to support, to the extent of our capabilities, other developing countries in adapting to climate change, mainly our sister countries in the Latin American region. For our common home, we must act for adaptation on a global scale and mitigate the emissions that are the root cause of the problem.

INTRODUCTION

Mexico reaffirms its commitment to the Paris Agreement and presents the update to its Nationally Determined Contribution (NDC) with an increase in climate ambition. The increase in the national greenhouse gas mitigation target responds to a call for international solidarity and responsibility in which all countries must present renewed and scaled-up commitments to address the global climate crisis. This crisis demands a profound change in the prevailing economic model that has destroyed nature and placed profit over people. Based on climate justice, we must build a new sustainable economic model that privileges the poorest and most vulnerable, and that can leave a lasting legacy for new generations.

Mexico has begun a major historic process, the Fourth National Transformation, in which we seek to redress past injustices and end corruption, phenomena that have left more than 52% of the Mexican population in poverty. Climate change accentuates inequality, disproportionately impacting the poor and dispossessed, working women and men, indigenous communities, peasants, and migrants. Immediate attention to climate issues is required in the national project to reduce poverty and extreme economic, ethnic and geographic inequality. Consequently, Mexico has focused its public policies on poverty eradication with a focus on laying the foundations for a more balanced and fairer sustainable development, following the premise established in the National Development Plan 2019-2024 of "leaving no one behind, leaving no one out".

Our NDC includes mitigation and adaptation commitments of higher ambition. Mexico's mitigation targets and its higher ambition entail actions throughout the national economy: energy, transport, waste management, residential and commercial sector, land use, land-use change and forestry; also in industry, agriculture and livestock, and in the oil and gas sector. Our country's ongoing efforts to reduce climate change can also translate into significant economic and political benefits for our nation.

We have studied all the measures in our NDC and the investments required are substantial, but they will outweigh the costs. They will also help Mexico enter the new low-carbon economy, and lead the transformation of the global energy and agri-food systems required for a net-zero emissions world. We are convinced

that this transformation will allow the Mexican economy to become much more competitive and that it can be achieved in a context of just and sovereign transition.

Adaptation actions are articulated in 5 thematic axes: a) Prevention and attention to negative impacts on the human population and the territory, b) Resilient production systems and food security, c) Conservation, restoration and sustainable use of biodiversity and ecosystem services, d) Integrated management of water resources with a climate change approach, and e) Protection of strategic infrastructure and tangible cultural heritage. We have initiated a bottom-up construction process for adaptation policy, where we listen to the people, to indigenous peoples and their ancestral knowledge, to women and youth, and seek to support solutions that emanate from the people. The adaptation process is in a way one of resistance and struggle, in which those who defend their spaces and territories, their ways of life that are affected by multifactorial problems that are accentuated by climate change, must be empowered.

The Government of Mexico also recognises its commitment to the 2030 Agenda and its 17 Sustainable Development Goals. The climate and environmental agenda are intrinsically linked to inclusive development in which other dimensions of well-being such as health, employment, gender equity and innovation cannot be postponed. Mexico stresses that climate action must be respectful of human rights, and that it must at all times monitor and promote all rights for all, women, indigenous and Afro-Mexican peoples, children, youth, migrants, people with disabilities, LGBTQ people, low-income groups and older people[1]. Our NDC's national climate action is enhanced by the synergies of actions in the 2030 Agenda and is respectful of the fundamental human rights of all individuals.

Progress reporting on the implementation of the NDC will respond to the objectives and targets of the Enhanced Lima Work Programme and the UNFCCC Gender Plan of Action and, as a signatory to the Escazú Agreement, in line with the objectives of the Universal Declaration of Human Rights, under the principle of equal rights between women and men and the elimination of all forms of discrimination against women.

In order to fulfil the mandate to promote the participation and consultation of the population in the construction of the NDC, a participatory process was carried out at the national level during 2020 and 2022, with the collaboration of the Secretariats of

[1] Economic Commission for Latin America and the Caribbean (ECLAC) - United Nations High Commissioner for Human Rights (OHCHR). (2019). *Climate change and human rights: contributions from and for Latin America and the Caribbean (LC/TS.2019/94/Corr.1)*, *https://bit.ly/2UcqCAo.*

State, through the Inter-Ministerial Commission on Climate Change (CICC), as well as state governments, members of academia, civil society organisations, the private sector and the general public. Of particular note among the latter group was the participation of young people who demonstrated leadership and a growing commitment to addressing climate change. This was reflected in their active participation in dialogues that allowed their concerns and proposals to be included in this document. Additionally, as a result of this process, the NDC reinforces the means of implementation to meet the objectives of science and technology development, research promotion, education, training, social awareness, access to information and citizen participation in a framework of constant technological innovation to achieve territorialisation and full appropriation of adaptation and mitigation actions.

The Mexican state has strengthened the means and mechanisms to implement its climate policy and the NDC itself, which has been incorporated into the LGCC. It has also taken firm steps to integrate and execute actions that address climate change in programmes, projects and actions at different levels of government that will serve as mechanisms for the reinforced implementation of the NDC.

In this context, Mexico, as a middle-income developing country, is committed to promoting south-south and triangular cooperation to support other countries in achieving more ambitious adaptation and mitigation goals in accordance with each country's national priorities. It will prioritise scientific and technological cooperation, the promotion of research for adaptation and mitigation, as well as capacity building, and considering its strategic position, the country will work to develop links with Latin America and the Caribbean to boost regional development.

Finally, Mexico recognises that climate finance and cooperation are tools to accelerate the implementation of its commitments and expresses interest in the cooperative approaches set out in Article 6 of the Paris Agreement to increase ambition.

Componente Mitigación

Mitigation component

Our Nationally Determined Contribution on mitigation with a higher level of ambition sets out the following targets:

Mexico increases its greenhouse gas reduction target from 22% to 35% in 2030, compared to its baseline, with domestic resources contributing at least 30% and 5% with international cooperation and financing foreseen for clean energy.

Conditionally, Mexico can increase its 2030 target by up to 40%, relative to its 2030 baseline, if international finance, innovation and technology transfer are scaled up, and if other countries, mainly major emitters, make efforts commensurate with the more ambitious goals of the Paris Agreement.

Finally, the black carbon emissions reduction target of 51% unconditionally in 2030 and 70% conditionally in 2030 is ratified.

The projected baseline scenario to 2030, without mitigation policy intervention, was quantified at 991 $MtCO_2$ e as a reference point for 2030. It is specified that this reference point is 1.8% higher than the one established in 2015 in the INDC due to methodological improvements derived from the update of the National Inventory of Greenhouse Gas and Compound Emissions, which was updated with the IPCC 2006 methodologies and its Refinement of [2019][2]. The application of methodological improvements makes it possible to support national targets with the best available scientific information.

Emission reductions of 35% by 2030 imply 347 $MtCO_2$ e reduced in that year, while compliance with conditional commitments amounts to 397 $MtCO_2$ e. The implementation period of the NDC is from 2020 to 2030, and considers policies implemented from 2013 onwards, following the publication of Mexico's General Law on Climate Change. This target would contribute to reducing emissions intensity per unit of gross domestic product by around forty percent between 2013 and 2030.

Mexico will make efforts to peak its emissions as soon as possible, and long-term decarbonisation trajectory studies will be developed[3] . A

[2] Government of Mexico. Ministry of Environment and Natural Resources (2022). Mexico: Third Biennial Update Report to the United Nations Framework Convention on Climate Change (2022).

[3] In the 2015 INDC, which was intentional and non-binding, Mexico proposed an emissions peak in 2026; however, in the framework of the Paris Agreement negotiations, it was agreed that developing countries would seek an emissions peak as soon as possible, without specifying a year, bearing in mind that developing country Parties will take longer to achieve it. Also, due to force majeure resulting from the containment associated with the COVID 19 pandemic, Mexico's emissions trend will require a detailed analysis to be carried out as part of the work to update the National Long-Term Strategy.

The following is a general description of the sector-level measures considered in Mexico's NDC.

LAND USE, LAND USE CHANGE AND FORESTRY

Nature-based solutions are at the heart of our NDC compliance. Mexico will increase its actions and the channelling of resources as a priority for the conservation of its ecosystems, and for the development of programmes based on a solidarity and sustainable economy, which encourage the participation of men and women in the recovery of our biocultural capital, of the forests, of Mexico's biodiversity, and which at the same time capture carbon and generate greater well-being for the population of our country.

The priority given to **Nature-Based Solutions** also stems from a broad recognition of the synergies between climate change mitigation and adaptation; ecosystem-based adaptation is essential to increase the resilience of our communities and to ensure respect for and conservation of their livelihoods.

Mexico will continue to implement its **National Strategy for Reducing Emissions from Deforestation and Forest Degradation (ENAREDD+),** and reaffirms its commitment to achieving a net zero deforestation target. The strengthened NDC also sets ambitious targets for increasing Natural Protected Areas (NPAs). Our country seeks to decree more than 2 million hectares (ha) of new NPAs, 1 million ha in Areas Voluntarily Designated for Conservation, and 40,785 ha of restoration.

In addition, Mexico is promoting the **Sembrando Vida Programme**, which already covers 22 states, benefiting peasants throughout the country, encouraging agroforestry, the milpa interspersed with fruit trees through agro-ecological actions, and diversifying the economy of the communities that need it most. The programme includes the creation of Peasant Learning Centres, in which the necessary technical and financial capacity is created in the communities to change the productive paradigm and strengthen the social fabric.

Finally, the increased ambition includes **a National Blue Carbon Strategy**, in which our country will work to protect mangroves, seagrasses and national marshes, an important reservoir of carbon in our country that is currently threatened by unsustainable economic activities. Mexico is the 12th country with the largest marine and coastal resources and ecosystems. It has: 775,555 hectares of mangroves, 400,000 hectares of seagrasses, and 133,000 hectares of marshes.

TRANSPORT

The transport sector in our country is one of the main sources of greenhouse gases and short-lived climate pollutants. The latter, in addition to contributing to global warming, generate significant impacts on the health of the population, which is why the LGCC has prioritised their mitigation. Our NDC contains an expanded ambition in the transport sector, following the commitments established at COP 26 in Glasgow, in which Mexico will accelerate efforts, in coordination with the private sector and the country's cities, for electric mobility.

In this sense, Mexico is working on the consolidation of a **National Strategy for Electric Mobility** to achieve these objectives and to implement fair and safe mechanisms, in addition to promoting primarily the transformation in public transport, since it is the sector with the greatest social impact.

In addition, our government has decreed **lithium as a strategic mineral**, and has established the decentralised public body called Lithium for Mexico, whose objective is the exploration, exploitation, benefit and use of lithium, located in national territory, as well as the administration and control of the economic value chains of this mineral. The aim is to guarantee the nation's energy sovereignty over lithium and other minerals that are strategic and necessary for the energy transition, technological innovation and national development. All of this in full compliance with environmental protection and the rights of indigenous peoples, indigenous and Afro-Mexican communities.

In addition to the promotion of electromobility, regulations o n vehicle energy efficiency will be strengthened, both for light and heavy vehicles, in order to reduce the carbon footprint of the vehicle fleet and encourage the transition to **more efficient vehicles**, as well as the promotion of **clean transport programmes.**

Among the necessary measures, in addition to new electrical technologies and regulations, Mexico envisages the expansion and rehabilitation of the national **rail network.** The promotion of rail transport reduces GHG emissions, due to its greater energy efficiency when transporting goods and/or people.

Another innovative measure included in our NDC refers to a **National Remote Working Strategy** that is being promoted collaboratively with industries and authorities to capitalise on the lessons learned from the COVID 19 pandemic containment to support workers to

work in this way. Remote working or teleworking contributes to reducing the carbon footprint, as well as other air pollutants, which strengthens climate change and air quality policies.

Finally, the strategy for the transport sector entails an improvement in linking **urban planning with climate change criteria** and the recovery of public space for pedestrians, considering a planning oriented towards efficient public transport systems and alternative and non-motorised transport systems.

All these actions support the achievement of the GHG target and are also essential for the **black carbon target**.

POWER GENERATION

In order to comply with the climate change policy, the Ministry of Energy contributes to the support of actions to reduce the emission of greenhouse gases and compounds through **the National Electricity System Development Programme** and the **CFE Business Plan**.

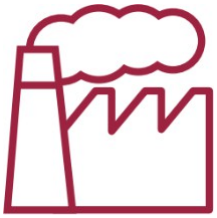
In particular, the country has measures in three main lines of action: **a) the integration of clean energy in electricity generation; b) the substitution of high-carbon fuels by natural gas in high-efficiency power plants; and c) the reduction of technical losses in the electricity grid**.

The first line of action includes the **Modernisation Plan for the CFE's hydroelectric plants** through rehabilitation and repowering actions, replacement of turbines and dredging, which aims to modernise more than 40% of the current hydroelectric plants, as well as to build 4 new hydroelectric plants with a capacity of 284 MW. It also seeks to **increase generation capacity with photovoltaic, wind and geothermal power plants and to promote renewable distributed generation**. In addition, the Ministry of Energy will promote new technologies for electricity generation, such as **green hydrogen** in hybrid power plants, among others.

In addition to meeting climate change targets, clean energy is being promoted to support **universal energy access**, for example through rural electrification projects and a solar homes pilot.

Our country will continue to be open to international collaboration, and will seek strategic alliances in full respect of national sovereignty to promote renewable energy. In this area of international cooperation, the goal of integrating **40 GW of clean energy capacity**, mobilising climate finance, within the framework of the consolidation of a prosperous and sustainable North American region with the United States and Canada, stands out. An example of this is the **Sonora Plan**, already underway, which seeks bi-national collaboration with the United States, and with local actors, for the benefit of the people of Mexico, its environment and in the framework of the global fight against climate change.

INDUSTRY



Mexican industry is committed to the fight against global climate change, and proof of this is its active participation in the design and implementation of **Mexico's Emissions Trading System** (ETS), the first in Latin America, which will regulate emissions from large industrial sources in our country. With innovative instruments, the aim is to establish a price for
The EU should provide the necessary incentives for innovation and action to enable this sector to contribute to mitigation with cost-efficient solutions.

In addition to the ETS, our country promotes actions in micro, small and medium-sized industries, particularly through the **MSME NAMA**, which seeks to support this sector, which is of great importance to the national economy and job creation, with cost-effective measures, mainly energy efficiency measures.

The increased ambition also includes the development of a **National Circular Economy Strategy**, as well as programmes and incentives for energy efficiency, considering both regulatory programmes and the promotion of **efficient cogeneration** in industry, services and commerce, and in sugar mills. There are multiple possibilities to foster a national circular and efficient industry, including international collaborations and innovations, to generate greater competitiveness and a more sustainable use of materials, water and energy, with co-benefits in the reduction of emissions.

Finally, Mexico implements a **National Cooling Strategy**, as part of the compliance with the Kigali Amendment, which promotes HFC reduction actions and participates in the **Nitric Acid Climate Action Group** (NACAG) for nitrous oxide (N_2 O) mitigation.

OIL AND GAS

The oil and gas sector has an emissions reduction target of 14% and includes measures to achieve it, which are grouped into three main lines of action: **a) increasing cogeneration, both in gas processing centres and in oil refining; b) reducing fugitive emissions from the gas subsector and the oil subsector, and c) the**
Energy Efficiency in Petróleos Mexicanos and its productive companies.

Petróleos Mexicanos has set a methane gas utilisation target of 98%, considering the production of existing and new fields, for which it will develop **a gas utilisation strategy in existing wells**, and priority works will be carried out in new developments, with estimated investments of more than 2,000 billion dollars. These actions are also essential to comply with the **Global Methane Commitment**, which Mexico is joining with concrete actions. With the collaboration of the US government, in accordance with the commitments of both countries in the fight against climate change and in full respect for the sovereignty of our country, a Plan for the implementation of mitigation actions in PEMEX will be designed.

AGRICULTURE AND LIVESTOCK FARMING

The agricultural sector is essential for mitigation actions; livestock in particular is the third largest source of greenhouse gas emissions in the country. Implementing actions for the sustainable management of these activities is also essential for adaptation and food security. Thus, measures are planned to promote **agro-ecological practices and conservation agriculture** - including the replacement of
fertilisers, the application of bio-inputs, and the **reduction of agricultural burning** - and to promote **agroforestry systems**, as well as measures to **capture and manage biogas from livestock waste**, such as composting, biodigestion and daily treatment systems to avoid the generation of methane gas.

RESIDENTIAL AND COMMERCIAL

Measures in the residential and commercial sector have significant benefits in promoting energy efficiency and thereby reducing electricity bills in homes and businesses. Opportunities have been identified in the design of programmes and actions at various levels of government to **optimise energy consumption** and promote mechanisms and **regulations** that encourage the inclusion of best practices in construction.
new and renewals. The great impact of this sector on the population is recognised, so these actions should be reinforced with dissemination campaigns and a strong gender perspective component.

It also promotes the strengthening of **distributed generation**, which has great potential both in Mexican cities and in off-grid communities, where renewable and storage technologies present a valuable opportunity for universal energy access.

In the same way, rural communities are supported to **reduce the use of firewood** and to have **more efficient combustion processes**, thus protecting the health of the population, mainly women and children in rural households that currently have a high exposure to this pollutant. This measure is very relevant for the achievement of the black carbon target.

WASTE

Methane emissions from the waste sector are an important source of GHGs; but waste management in the country also generates significant pollution problems in the localities where it is disposed of, as well as in water bodies and oceans. From an environmental point of view, improving integrated waste management will bring multiple benefits to our country, to the health of the population and to ecosystems.

The measures in this sector consider the **improvement in the integrated management of municipal solid waste**, as well as the **treatment of municipal and industrial wastewater**, and other activities related to its final disposal, **reuse, recycling, composting and biodigestion**. Progress is also considered in the capture and use of biogas, both from sanitary landfills and wastewater treatment plants.

The **National Circular Economy Strategy** will also include specific actions that improve the performance of this sector, which are expected to bring significant co-benefits, e.g. through better management of food waste and in the recycling of electronic and construction waste, which have a high mitigation potential if a life cycle analysis of their materials is considered.

INFORMATION TO FACILITATE CLARITY, TRANSPARENCY AND UNDERSTANDING

Table 1 below presents information to provide clarity, transparency and improve understanding of the mitigation component of the NDC, in compliance with decision 4/CMA.1 and its Annex.

TABLE 1. INFORMATION TO FACILITATE CLARITY, TRANSPARENCY AND UNDERSTANDING OF THE UPDATE OF THE NDC FOR THE PERIOD 2020-2030 UNDER THE KATOWICE RULES

1. Quantifiable information on the baseline (including, if appropriate, a base year):

a) Reference years, base years, reference periods or other starting points	Mexico commits to reduce its emissions from its projected baseline in 2030. The implementation period of the NDC is from 2020 to 2030, and policies implemented based on 2013 data are considered.
b) Quantifiable information on the benchmarks, their values in the relevant reference years, base years, reference periods or other starting points and, as appropriate, in the reference year;	The baseline was quantified under a baseline scenario to 2030, i.e. without mitigation policy intervention. In this scenario, 991 MtCO2e were quantified as a baseline without mitigation policies in 2030. Only mitigation actions implemented from 2013 onwards are considered in the mitigation actions. The baseline values are presented in the table below.

Sector	2013	2020	2025	2030
	MtCO2			
Transport	174	201	225	250
Electricity generation	149	166	174	186
Industry	124	149	173	199
Agriculture and livestock	98	106	114	122
Oil and gas	73	70	93	101
Waste	44	50	52	56
Residential and commercial	26	26	27	28

	USCUSS (broadcasts)	21	36	42	49
	Total gross emissions	**709**	**804**	**902**	**991**
	USCUSS (takeovers)	-169	-163	-161	-158
(c) in the case of the strategies, plans and measures referred to in Article 4, paragraph 6, of the Paris Agreement, or of policies and measures integrating nationally determined contributions where paragraph 1(b) above does not apply, Parties shall provide other relevant information;	Not applicable				
(d) Greenhouse gas target indicator from 22 per cent to 35 per cent in 2030, compared to its baseline, with baseline resources, from 22 per cent to 35 per cent. compared to its baseline, with **baseline** resources**,** at least 30% and 5% with co-operation and **expressed as** for clean energy. **numerically**, by up to**, for example, 40% compared to its baseline, with national resources contributing at least 30% and 5% with international cooperation and financing for clean energy.** 40%, compared to its 2030 baseline, by scaling up international financing, innovation and technology transfer **percentage or commensurate with the more ambitious** is ratified;	Mexico increases its greenhouse gas reduction target from 22% to 35% by 2030, national resources, contributing international finance foreseen Conditionally, Mexico can increase its 2030 target international, innovation and technology transfer, and if other countries, mainly the largest emitters, make efforts **The** unqualified reduction target of 51% reduction Finally, the unconditional 51% reduction target is ratified. emissions of black carbon, a life-sustaining climate pollutant. and 70% on a conditional basis, both in 2030.				
e) Information factors as reported in the National Inventory Report (NIR) data used (see answer 5.f.i of this table). **(**see answer 5.f.i of this table). The baseline was developed with **to quantify the** experts of each of the sectors and subjected to a process of expert and economic sector consultation **points.** subjected to a consultation process of experts and national economic sectors, as a **reference;**	Emission projections are made with activity data and emission **source** emissions as reported in the National Inventory Report (NIR) **data used** The baseline was developed to quantify the experts of each sector and in accordance with Art. 31 of the LGCC.				

f) Information Mexico integrates its National Inventory of Greenhouse Gas Emissions and Greenhouse Gas **Emissions (INEGyCEI) with the methodologies** Greenhouse Effect Compounds (INEGyCEI), with the methodologies **contained in the IPCC 2006** of the IPCC 2006 and its Refinement 2019. In accordance with the guidelines of the **Party to the** Convention the update **of** the inventories will be submitted through the Biennial Transparency Reports in Biennial Transparency Reports describing the **values of the progress and methodological improvements of the** progress and methodological improvements of the INEGyCEI, as well as of baseline **indicators.** baseline indicators. **reference.**

2. Time limits and/or periods of application:

(a) Time frame and/or period of implementation, including start and end dates, in accordance with any other relevant decisions taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (COP/MOP) (CMA);	From 2020 to 2030.
(b) Whether it is a single-year target or a single target multiannual, as appropriate.	Single year target referring to 2030.
3. Scope and coverage:	
a) General description of the target;	Mexico increases its greenhouse gas reduction target from 22% to 35% in 2030 compared to its baseline, with domestic resources contributing at least 30% and 5% with international cooperation and financing foreseen for clean energy. Conditionally, Mexico can increase its 2030 target by up to 40% over its 2030 baseline if international financing, innovation and technology transfer are scaled up, and if other countries, mainly the developing countries, are able to meet their 2030 target. the largest emitters, make efforts commensurate with the more ambitious targets of the Paris Agreement. Finally, the targets of 51% reduction in emissions of black carbon, a short-lived climate pollutant, are ratified in a non-binding manner. conditionally, and conditionally by 70%, both in 2030.
(b) Sectors, gases, categories and pools covered by the nationally determined contribution, where appropriate, in accordance with the guidelines of the Intergovernmental Panel o n Climate Change (IPCC);	The NDC includes all sectors set out in the IPCC Guidelines: [1] Energy; [2] Industrial Processes and Product Use; [3] Agriculture, Forestry and Other Land Use; and [4] Waste. The greenhouse gases included are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbon (PFC), hydrofluorocarbon (HFC), and sulphur hexafluoride (SF_6). Black carbon is also included in Mexico's NDC because it is a short-lived climate pollutant (SLCP) whose mitigation improves air quality with co-benefits for human health and ecosystems. Mexico reiterates the importance of mitigation of SLCPs to increase the ambition of the NDC, in line with the best available science presented by the IPCC in its 1.5 degree report. For the land category, both emissions and removals include changes and permanence of: [3B1] forest land, [3B2] c r o p l a n d , [3B3] grassland, [3B4] wetlands and [3B5] settlements. The five carbon pools are included: **1)** above-ground biomass, **2)** below-ground biomass, **3)** litterfall, **4)** dead wood, and 5) below-ground biomass. and **5)** soil organic matter.

c) Mitigation co-benefits	In accordance with Article 4 paragraph 7 of the Paris Agreement, Mexico's NDC, which also includes a component on adaptation to climate change, includes 5 axes, with 27 lines of action, of which 18

resulting from Parties' adaptation actions and/or economic diversification plans, with a description of the specific projects, measures and initiatives that form part of Parties' adaptation actions and/or economic diversification plans, including a description of the specific projects, measures and initiatives that form part of Parties' adaptation actions and/or economic diversification plans, including a description of the specific projects, measures and initiatives that form part of Parties' adaptation actions and/or economic diversification plans. Parts.	will have GHG mitigation benefits during the implementation phase. Among the most relevant issues addressed in the adaptation with synergies to mitigation component are: protection of strategic infrastructure; integrated management of water resources; conservation and restoration of marine ecosystems; soil restoration; restoration and conservation of blue carbon ecosystems and coral reefs; as well as actions to strengthen the management and conservation of forests and jungles. It is important to note that approaches such as ecosystem-based adaptation, community and disaster risk reduction, as well as nature-based solutions are cross-cutting to the implementation of the commitments set out in the adaptation component, thereby also supporting the reduction of GHG emissions and the establishment and permanence of carbon pools in ecosystems.
4. Planning processes:	

(a) Information on the planning processes the Party has undertaken to prepare its nationally determined contribution and, if available, on the Party's implementation plans, including, as appropriate:	Following Mexico's ratification of the Paris Agreement and its entry into force in 2016, the necessary legal adjustments were made to incorporate the stipulations of the Paris Agreement into the national legal framework, and the institutional frameworks for its implementation were defined. Thus, the General Law on Climate Change (LGCC) was amended in 2018 to establish the figure of "Nationally Determined Contributions" as the "*set of objectives and targets, assumed by Mexico, in the framework of the Paris Agreement, in terms of mitigation and adaptation to climate change to meet the long-term objectives of the United Nations Framework Convention* on Climate Change", according to Article 3 section X of the LGCC. In this same legal order, the SEMARNAT's attribution to elaborate the NDC, with the support of the INECC, and the CICC and the C3, is pointed out. On the other hand, the Special Climate Change Programme (2020-2024) is a planning instrument derived from the LGCC, and is aligned to the National Development Plan (2018-2024) and the National Climate Change Strategy vision 10-20-40, as well as to the sectoral programmes of 15 Ministries. The National Climate Change Strategy foreseen in the Law is the basis of the Mid-Century Strategy that Mexico submitted to the Convention in 2016, which sets out the long-term vision for low-emission development. Among its objectives is to identify and follow up on the actions of the Ministries that contribute to the reduction of emissions and are in line with the emission reduction guidelines of Mexico's NDC. In addition, there are actions to reduce emissions carried out by the federal entities within their sphere of competence.
i. National institutional arrangements, public participation and engagement with the local communities and the local communities.	Mexico has an institutional and governance structure established in the LGCC, headed by the National Climate Change System (SINACC), designed to operate as the permanent mechanism for concurrence, communication, collaboration, coordination and agreement on national climate policy that includes a series of institutional arrangements for its implementation. The role of the SINACC is essential for the interaction between the National Institute of Ecology and Climate Change (INECC) as responsible for

indigenous peoples, with a gender perspective;	The Climate Change Council (C3), made up of experts from the academic and social sectors to issue recommendations on mitigation and adaptation; the Federal Congress; state governments; and national associations of municipal authorities, duly accredited by the Ministry of Environment and Natural Resources (SEMARNAT); the Climate Change Council (C3) made up of experts from the academic and social sectors to issue recommendations on mitigation and adaptation; the Federal Congress; state governments; and national associations of duly accredited municipal authorities. At the state level, some states replicate the federal scheme and have an Inter-Ministerial Commission on Climate Change. During the process of updating the NDC, government agencies and state governments were involved, and consultations were held with the private sector and civil society groups. Public-Private Dialogues were held with representatives of each of the sectors included in the NDC; human rights, gender and youth associations. In addition, online consultation procedures were established so that society as a whole could participate in the process of developing climate policy and updating the NDC. The impacts of climate change affect people differently; the consequences of climate change are even more acute for people and groups in situations of social vulnerability. Recognising the legacy of a structural system that has systematically disadvantaged vulnerable groups, especially women, this update of the NDC incorporates gender-responsive approaches in its construction, as well as in the strategies for implementing adaptation and mitigation actions, which will contribute to a fairer and more egalitarian society by prioritising the needs of groups in vulnerable conditions, fostering inclusion and recognition of the knowledge of women and men, and promoting the participation of women and men in the development and implementation of adaptation and mitigation actions. indigenous peoples, under the principle of intergenerational equity.
ii. Contextual issues, including, inter alia, as appropriate:	Mexico is a federal, representative, democratic and secular republic, made up of 32 federative entities: 31 free and sovereign states and Mexico City. The federative entities, in turn, are divided into free municipalities, each governed by a municipality; there are 2,457 municipalities in the country.

(a) National circumstances, such as geography, climate, economics, sustainable development and poverty eradication;	By the size of its gross domestic product (GDP), the country ranked twelfth among the world's largest economies in 2017. The country produces about 1.4% of the world's energy and is the fifteenth largest producer globally. It also ranks thirteenth as an oil exporter, with 2.8% of global production. Due to its geographical position in the southern part of the northern hemisphere, between two oceans, the country is particularly affected by the impacts of climate change. The climate change scenarios estimated for the period 2015 to 2039 project annual temperatures to be up to 2°C higher in the north of the country, while in most of the territory they could range between 1 and 1.5°C. In the case of precipitation, precipitation is projected to generally decrease by 10 and 20%.

	The country is also exposed to the impact of extreme hydro-meteorological events that put the lives of the population, their well-being and heritage at risk; increase the incidence and intensity of forest fires; compromise the conservation of ecosystems, their biodiversity and the services they provide; affect the availability of water resources in terms of quantity and quality (water security); have negatively affected the yield of maize and other key crops, putting food security at risk; and cause damage to infrastructure and infrastructure (water security); affect the availability of water resources in terms of quantity and quality (water security); have negatively affected the yield of maize and other key crops, putting food security at risk; and cause damage to infrastructure and human settlements and limit development opportunities in the short and medium term. The fight against poverty and the alignment of all public policies with the National Development Plan is highlighted as a national priority. 2019-2024 which has as its central objective to increase social welfare.
b) Best practices and experiences related to the preparation of the nationally determined contribution;	Mexico bases the NDC on a robust national climate change policy, framed in the General Law on Climate Change, from which public policy instruments such as the SINACC, the IPCC and its Working Groups derive, which have allowed for a process of broad participation at the national level in the framework of updating and establishing commitments on climate change mitigation and adaptation. Mexico carried out a citizen consultation process, regulated by law at the national level and with specialised and key groups to improve and promote climate action through social participation and access to information. This process included forums and workshops with citizens, specialists, the private sector, federal and state public administration ministries, as well as representatives of Mexican youth, who contributed information and proposals for the NDC update phase. Similarly, the Government of Mexico has the support of international cooperation agencies to share experiences, best practices and results in order to integrate the best international experiences within the national context, through training, knowledge and technology transfer. Furthermore, the information presented in the updated NDC on mitigation is in accordance with the latest reports published by the UNFCCC, following the IPCC 2006 methodologies and the respective updates of the information contained therein. In terms of adaptation to climate change, a strengthened component is included, reflecting the country's priority to accelerate the processes of reducing vulnerability in the territory in favour of people's well-being. Mexico has the INECC, which is the institution responsible for generating and integrating scientific and technological knowledge and for evaluating national climate change policy, in liaison with the academic and research sector, in order to contribute the best available information to policy design and implementation processes. climate.
(c) Other aspirations and priorities contextual recognised in the	In order to meet the commitments set out in the Paris Agreement, since the 2015 NDC, Mexico proposed a comprehensive mitigation strategy that includes black carbon as a short-lived climate pollutant. Reducing black carbon reduces the negative impact on ecosystems and human

time of the accession to the	health, strategic infrastructure, tangible cultural heritage and the environment.

Paris Agreement;	productive sectors, including agro-ecosystems. Mexico was also the first country to present commitments on adaptation, understanding the importance of working in parallel on reducing emissions and improving the national response. Similarly, the Government of Mexico expresses its commitment to integrate, both in the design and implementation of the NDC, gender and human rights approaches with the participation of subnational governments, local governments and cities, as well as indigenous peoples and local communities, civil society organisations, women's and youth organisations, the private and financial sectors and other stakeholders.
(d) Specific information applicable to Parties, including regional economic integration organisations and their member States, that have agreed to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that have agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16-18, of the Agreement on Paris;	Not applicable
(e) The extent to which the Party has based the preparation of its nationally determined contribution on the results of the global stocktake in accordance with Article 4, paragraph 9 of the Paris Agreement;	Mexico will use the results of the global stocktake as published by the UNFCCC. It also considers the emissions gap prepared by the UNFCCC secretariat and the UNFCCC Special Report on Emissions from Deforestation and Forest Degradation. 1.5ºC of the IPCC, as well as the obligation of countries to act according to their national circumstances and capabilities, with developed countries acting first.

(f) Each Party with a nationally determined contribution under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans that result in mitigation co-benefits, in accordance with Article 4, paragraph 7, of the Paris Agreement, shall submit information on: **i. How the economic and social consequences of the response measures have been taken into account in the development of the nationally determined contribution;**	Mexico recognises that climate change affects different groups within a community differently and that it often exacerbates social, economic, gender and resource a c c e s s inequalities. In this sense, it integrates a cross-cutting approach to climate change into the country's strategic systems and sectors in coordination with the three levels of government, academia, the private sector and civil society organisations. In particular, in terms of adaptation, an analysis of vulnerability to climate change was carried out for the design and implementation of actions, in which social gaps and benefits in reducing inequalities were identified, which in turn address human rights principles.
ii. The specific projects, measures and activities that will be undertaken to contribute to mitigation co-benefits, including information on adaptation plans that also deliver mitigation co-benefits, which may include,	The adaptation component is made up of five strategic axes: • **Axis A.** Prevention and attention to negative impacts on the human population and the territory; • **Axis B.** Resilient production systems and food security; • **Axis C.** Conservation, restoration and sustainable use of biodiversity and ecosystem services; • **Axis D.** Integrated water resources management with a climate change approach; • **Axis E.** Protection of strategic infrastructure and tangible cultural heritage; Among the most relevant issues addressed in the adaptation with synergies to mitigation component are: protection of strategic infrastructure; integrated management of water resources and w a s t e w a t e r treatment; preservation and restoration of

including key sectors such as energy resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry; as well as economic diversification measures, which may cover, inter alia, sectors such as industry and manufacturing, energy and mining, transportation and the communications, construction, tourism, real estate, agriculture and agriculture. fishing.	marine ecosystems; soil restoration, restoration and conservation of blue carbon ecosystems and coral reefs; as well as actions to strengthen the management and conservation of forests and jungles. For detailed information, see the adaptation and synergies component of the NDC.

5. Methodological assumptions and approaches, including those used to estimate and account for anthropogenic emissions of greenhouse gases.

greenhouse gases and, where appropriate, anthropogenic removals:

(a) The assumptions and methodological approaches used to account for anthropogenic emissions and removals of greenhouse gases corresponding to the Party's nationally determined contribution, in accordance with decision 1/CP.21, paragraph 31, and in accordance with the guidance on the	The methodological approach used for the estimation of greenhouse gases is the one established by the IPCC 2006 and its Refinement 2019. The methodology, activity data and emission factors are described in Mexico's NIR which will be updated as necessary in the Biennial Transparency Reports.

accountability approved by the COP/RA (CMA);	
b) The assumptions and approaches methodological used to be accountable for the application of policies and measures or strategies in the contribution determined to national level;	See point 5a above. Specific assumptions and methodologies will also be applied, where appropriate, when accounting for the progress of various policies and measures and will be presented in the relevant biennial reports.
(c) If applicable, information on the way in which that the Party shall take into account the methods and guidelines existing in the framework of the Convention for count the emissions and the absorption anthropogenic, of in accordance with Article 4, paragraph 14 of the Paris Agreement, according to corresponds;	The methodological approach for the estimation of greenhouse gases is that set out in the 2006 IPCC Guidelines, as well as their updates, where technically applicable given data availability, according to national circumstances. The methodology, activity data and emission factors are described in the Mexican NIR.
(d) The methodologies and the IPCC metrics used to estimate the emissions of greenhouse gases. emissions and the absorption anthropogenic of gases from effect greenhouse;	The IPCC 2006 Guidelines and their 2019 Refinement are used to estimate GHG emissions and removals. Future updates of the IPCC Guidelines where technically feasible, as well as the availability of activity data according to national circumstances.
e) Assumptions, methodologies and approaches specific to	To address CO_2 emissions and removals from natural disturbances on managed lands and from reforestation, the methodology and approach to carbon stock change based on changes in ecosystems is used, primarily through CO_2 exchange processes between the land surface

each sector, category or activity,	and the atmosphere. Therefore, increases in carbon stocks over time will be equated with net removals.

consistent with IPCC guidance, as appropriate, including, where appropriate: **i. The approach used to address emissions and subsequent removals resulting from natural disturbances on land exploited;**	emissions from the atmosphere, while reductions in total carbon stocks will be matched by net CO_2 emissions. This is in accordance with the 2006 IPCC Guidelines. Methodological details for estimating carbon stock changes from 1) gains and losses and 2) stock differences are presented in the Mexico NIR.
ii. The approach used to count the emissions and the absorption resulting from the products of wood collected;	Wood product removals are quantified in INEGyCEI.
iii. The approach used to address the effects of the structure of age of the forests;	To address the effects of age structure in forests, information from the National Forest and Soil Inventory (INFyS) is considered, which has established clusters or sampling units throughout the national territory where dasometric information on the country's forest vegetation is collected. The INFyS information is processed to carry out stratified sampling by vegetation type, which provides information on the structure and characteristics of the country's forests. Methodological details can be found in the NIR and its improvements will be presented in the BTR. subsequent ones.
(f) Other assumptions and methodological approaches used to understand the nationally determined contribution and, if appropriate, to estimate the related emissions and removals, indicating: **i. How reference indicators, baselines and/or reference levels are constructed,**	According to the baseline definition above (see 3a), 991 Mt CO_{2e} would be emitted in 2030 in a hypothetical baseline scenario. The development of the baseline is the projection of the historical trend of driving variables of the different emission sources. Updated methodological information from INEGyCEI is used for this projection. To integrate the emissions trajectory at national level, projections are developed for each sector, category and in some cases by emission source. The stages of the 2030 baseline development process are as follows: 1. Identification of driving variables: Those variables are identified that are characterised in terms of the generation of greenhouse gas and compound emissions (GHG and GHG-emissions); 2. Detection of information sources: From which the activity data necessary to estimate the projections of energy consumption, production, demand, among others, are obtained. The main sources of information for

The grey agenda sectors identified include the following:

including, where appropriate, sector-, category- or activity-specific reference levels, identifying, for example, key parameters, assumptions, definitions, methodologies, data sources and models used;	The Energy Information System of the Ministry of Energy; The Statistical Yearbook of Mexican Mining; The Prospects of the Ministry of Energy, The Programme for the Development of the National Electricity System (PRODESEN) and reports and public documents developed by various Chambers and Industrial Associations; among others. For the sectors of the so-called green agenda, the sources of information consulted were: Long-term outlook for the Mexican agricultural sector 2011-2020, SAGARPA; National Agricultural Planning 2017-2030, SADER; Fertilizer Outlook 2017-2021, International Fertilizer Association; Agrifood and Fisheries Information Service (SIAP), SADER. Likewise, feedback with key actors such as industries, chambers, associations and various agencies and organisations, represents a source of relevant information for the development of this work;
(f) Other assumptions and methodological approaches used to understand the nationally determined contribution and, if appropriate, to estimate the related emissions and removals, indicating: **i. How the benchmarks, baselines and/or reference levels are constructed, including, where appropriate, sector-, category- or activity-specific benchmarks, identifying, for example, key parameters, assumptions, definitions, methodologies, data sources, and models used;**	**3.** Projection of activity data to 2030: With the relevant information gathered, projections of activity data are integrated by sector, category and in some cases even emission source, such as, for example, energy consumption, production, head of livestock, among others, which in 2030 are estimated to be presented from the base year 2013 under a BAU scenario. In this sense, for the development of the projections it was necessary to analyse the characteristics of each one, individually defining the most convenient route to estimate future values, sometimes as a result of applying an average growth rate considering a stable historical period of time of the behaviour of the activity data, or through indicators that associate the demand or expectations of production, demand, growth or others with the requirements of the activity itself, always seeking to reflect, in a conservative and representative manner, the nature of each activity; **4.** Emission estimation: The estimation of emissions associated with the projected data for each sector was performed taking into consideration the methodological approach (emission factors, considerations and parameters) pro- vided in the IPCC Guidelines for National Inventories 2006, the same as used for the INEGyCEI update; Baseline integration: Finally, with the emissions data in the baseline scenario in each of the applicable sectors, it is possible to integrate at the national level the expected emissions trajectory 2014-2030 under a BAU scenario, the starting point being 2013 with INEGyCEI data.
ii. In the case of	The methodology for the estimation of black carbon emissions is

Parties with nationally determined contributions containing non-greenhouse gas components, information on assumptions and methodological approaches used for these components, as appropriate;	is presented in the NIR.
iii. For climate forcings included in the nationally determined contributions that are not covered by the IPCC guidelines, information on how climate forcings are estimated;	For black carbon, the construction of the baseline is carried out as described in 5.f.i. The methodology for estimating black carbon emissions is presented in the NIR.
iv. Additional technical information, if necessary;	Not applicable
(g) The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if appropriate.	Mexico expresses its interest in participating in international carbon markets under Article 6 of the Paris Agreement.
6. How the Party considers its nationally determined contribution to be fair and ambitious in the light of its national circumstances:	
(a) How the Party considers its nationally determined contribution to be fair and ambitious in the light of its national circumstances;	It is considered fair and ambitious as it requires fostering structural changes in all sectors of the national economy and mobilising climate finance of more than 185 billion dollars. It is considered that these measures will have greater benefits than costs for the country, but mobilising this sum will require a large multi-stakeholder collective effort. If the conditional target and the black carbon contribution are taken into account, Mexico would be contributing a reduction in the

	emissions by an order of magnitude of what the IPCC says countries need to achieve to keep the 1.5ºC target within reach. The increased ambition in the adaptation component aims to be fair to the Mexican population, recognising the particular vulnerability of certain communities and highlighting the coordinated and common efforts as a nation, but differentiated with respect to early attention to the most affected sectors.
b) Equity considerations, including a reflection on fairness;	Despite the fact that Mexico is not one of the countries that contributes the most greenhouse gas emissions to the atmosphere, the National Development Plan 2019-2024 establishes the premise of "Leaving no one out, leaving no one behind" and defines; "We advocate for a model development that is respectful of the inhabitants and the habitat, equitable, aimed at redressing and not exacerbating inequalities, a defender of the cultural diversity and the natural environment, sensitive to the ways and means of regional and local economic specificities and conscious of the needs of the future inhabitants of the country, whom we cannot afford to inheriting a territory in ruins". Mexico has incorporated the NDC into its legislation and its planning processes, securing pathways and processes for its implementation. This NDC is a considerable effort undertaken by the country and demonstrates the highest degree of ambition considering the current possibilities. In this way, the NDC is considers fair and ambitious. Through the coordinated action of the society, Mexico is convinced that it will be able to achieve the goals of the committed, and through the community's solidarity-based action international level, it will be possible to achieve the goals set out in the Agreement. Paris.
(c) How it has addressed by the Party in Article 4, paragraph 3 of the Paris Agreement;	Mexico submitted its Intended Nationally Determined Contribution (INDC). (INDC) and its unconditional mitigation commitment considering national circumstances in 2015, which is updated in this document. The NDC represents the highest level of ambition possible in for the country at this point in time, taking into account its level of development. This is considered to be fair, given that Mexico's contribution to the global emissions of 1.3% of the global total, with *per capita* emissions of 3.7 tonnes, which is below the global average of 5 tonnes *per year.* *per capita*, i.e. 4.4 times lower than that of our main partner in the world. trade, the United States with 16.5 tonnes *per capita* and half of the world's largest world emitter, 7.5 tonnes *per capita*.
(d) How it has addressed by the Party in Article 4, paragraph 4 of the Paris Agreement;	Mexico as a middle-income developing country, which ranks among the top 20 in the world. It recognises its share in the global responsibility for mitigation and has established commitments covering all sectors considered in the 2006 IPCC Guidelines, with targets to 2030. For the definition of such commitments, it follows the content of the IPCC reports, the state of development and the poverty reduction priorities, the need to integrate policies to combat

poverty, and the need to
on Short-lived Climate Pollutants, and other policies
promising projects that are in the process of development, such as the first
Latin American Emissions Trading System. It also
considered the current state of climate policies in countries
developed countries, the possibilities for climate finance and
transfer of current technologies. Other considerations include the
analysis and strengthening of public policy on gender equality policies.
carbon prices in other jurisdictions.

(e) How the Party has addressed Article 4, paragraph 6 of the Paris Agreement.	Not applicable
7. The manner in which the nationally determined contribution contributes to the achievement of the objective of the Convention, as set out in Article 2:	
(a) How the nationally determined contribution contributes to the achievement of the objective of the Convention, as set out in its Article 2; paragraph 1(a)	Mexico's NDC is aligned with the Paris Agreement objective of keeping the global average temperature increase well below 2°C above pre-industrial levels. Furthermore, economic and national circumstances have been considered both for the construction of the baselines and for the possible pathway of the mitigation potential. In particular, the targets consider the need for accelerated action to achieve peaking of emissions as soon as possible and decarbonisation in the second half of the century, as outlined in Article 2 for developing countries.
b. How the nationally determined contribution contributes to the implementation of Articles 2.1(a) and 4.1 of the Paris Agreement.	Mexico's NDC is aligned with the Paris Agreement's goal of keeping the global average temperature increase well below 2°C above pre-industrial levels and to make additional efforts to achieve even 1.5°C. Mexico's emissions represent 1.3% of global emissions, so achieving these targets requires large emitters to rapidly and deeply reduce their emissions. Mexico's 35% emissions reduction by 2030 translates into avoiding the emission of around 347 MtCO2e in that year to contribute to the global target. In addition, the country could reduce emissions by up to 4o% if the following conditions are met: a) it receives more international funding, mainly for measures with higher economic costs, b) it receives more international support for technological innovation and technology transfer, b) other countries achieve a global increase in ambition, particularly from the countries with the highest emissions, which allows a global decarbonisation pathway consistent with the ambitious objective of maintaining the global temperature by 1.5ºC.

Adaptation Component

ADAPTATION COMPONENT

Mexico is a megadiverse country with both Atlantic and Pacific[4] coasts, unique in its biological richness at continental and coastal-marine level. It also has a vast and diverse cultural wealth that translates into a wide range of languages and cultural identities. Since the submission of the first NDC in 2015, the country has incorporated adaptation commitments, reflecting a commitment to address its vulnerability and protect its biological and cultural diversity and richness.

In recent decades, knowledge on national vulnerability to climate change has advanced substantially, resulting in an evolution in the treatment of information and the application of approaches that are proposed and implemented for the design of adaptation measures. The interaction of factors such as geographical position, environmental and socio-economic conditions and high social backwardness combined with cultural elements result in a country that is highly vulnerable to potential impacts of climate change, confirming once again that adaptation and risk reduction are tasks that cannot be postponed.

Advances in knowledge about vulnerability, as well as consideration of the information presented in the IPCC special reports, provide a guideline for the construction of a National Adaptation Policy (NAP) foreseen in the LGCC that aims to guide the implementation of this component through collaborative, multi-sectoral processes that recognise the broad, complex and urgent nature[5] of adaptation.

This component broadens its scope by integrating cross-cutting elements such as **Nature-based Solutions** (NBS) and **Community-based Adaptation** (CBA); **Ecosystem-based Adaptation** (EbA); and **Disaster Risk Reduction-based Adaptation** (DRR**)**. Likewise, and as a result of a participatory process developed at national level, between March 2019 and November 2020, it incorporates feedback from the three levels of government, experts, academia, productive sectors, civil society organisations, youth and the general public. Likewise, elements are integrated to promote the adaptation of the population, ecosystems, productive systems, security

[4] National Commission for the Knowledge and Use of Biodiversity (CONABIO). (2020). Megadiverse Mexico. *https://bit.ly/36on57F*

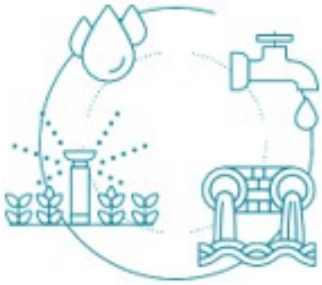
[5] Broad refers to the diversity of traditional as well as scientific and specialised knowledge; complex points to the fact that not everything is measurable at the moment in terms of adaptation; and urgent because it responds to principles of social and environmental justice.

The adaptation component thus increases its scope of action. In this way, the adaptation component increases its scope of action.

During the characterisation of the lines of action, the required means of implementation were defined in terms of capacity development and strengthening, knowledge generation and scientific research, as well as the development and transfer of technology and the consolidation of financial mechanisms for adaptation actions to be developed by 2030.

Consequently, the update of the adaptation component of the NDC presents a greater ambition in the actions to be carried out in the territory and foresees the establishment and consolidation of Monitoring and Evaluation (M&E) mechanisms in order to strengthen transparency in the reporting of progress and results obtained in the reduction of vulnerability. It also considers increasing the participation of the different sectors and organisations involved in decision-making, as well as in the planning and use of funding by recognising opportunities and establishing requirements for their adequate implementation with a long-term vision.

The five axes and 27 lines of action that reflect the Government of Mexico's commitment to climate change adaptation under the NDC are presented below.

Eje	Icono del Eje	Líneas de acción
A Prevención y atención de impactos negativos en la población humana y en el territorio		7 líneas
B Sistemas productivos resilientes y seguridad alimentaria		5 líneas
e Conservación, restauración y aprovechamiento sostenible de la biodiversidad y de los servicios ecosistémicos		7 líneas
D Gestión integrada de los recursos hídricos con enfoque de cambio climático		4 líneas
E Protección de infraestructura estratégica y patrimonio cultural tangible		4 líneas

AXIS A. PREVENTION OF AND ATTENTION TO NEGATIVE IMPACTS ON THE HUMAN POPULATION AND THE ENVIRONMENT ON THE TERRITORY

In Mexico, various social groups are particularly vulnerable to the impacts of climate change. These include indigenous peoples and Afro-Mexicans, the vast majority of whom live in high-risk areas and find themselves in situations of poverty and marginalisation. Moreover, the inequality gaps present in the Mexican population increase geographical, age and gender vulnerability by restricting women's access to means of production such as land, financing, training, education and information, thus reducing their adaptive capacity in the face of climate change.

It is these socio-economic conditions, together with the increase in hydro-meteorological phenomena such as floods and droughts, that have forced people to move from their homes and seek new opportunities in other territories. These processes sometimes lead to conflicts and competition for resources that can aggravate pre-existing vulnerabilities.

Axis A is composed of 7 lines of action whose main objective is to move towards the implementation of actions in the territory. It takes into account social inequality gaps and aims to reduce the impacts associated with climate change by raising awareness among the population, providing access to information and developing tools and instruments for decision-making. It considers a preventive approach and a long-term vision.

It also considers contributing to the fulfilment of strategic themes related to 15 SDGs and 45 of their targets, including: cities and human settlements that adopt and implement integrated policies and plans for adaptation; resilience of people in vulnerable situations and reduction of their climate exposure and vulnerability; and preventive health, considering criteria of gender equality, intersectionality and human rights, to name a few.

The table below shows the corresponding action lines, highlighting new actions, existing synergies with mitigation and, where relevant, linkages with the SDGs.

Axis A. Prevention and attention to negative impacts on the human population and on the territory			
ACTION LINE	**ACTION LINE NEW**	**SYNERGY WITH MITIGATION**	**ODS**
A1. Implement actions in 50% of the municipalities identified as vulnerable according to the National Atlas of Vulnerability to Climate Change and the Special Programme on Climate Change. Change Programme 2020-2024 prioritising those with the greatest social backwardness		↻	
A2. Implement comprehensive adaptation strategies that strengthen resilience in human settlements.	✓	↻	
A3. Strengthen early warning systems and protocols for prevention and action at the three levels of government in order to in the face of hydrometeorological and climatic hazards in different natural and human systems.			
A4. Incorporate climate change adaptation criteria in planning, territorial and disaster risk management instruments in all sectors and levels of government.	✓		
A5. Strengthen financial instruments for disaster risk management and attention through the integration of climate change adaptation criteria.	✓		
A6. Implement strategies to reduce health impacts related to diseases exacerbated by climate change.	✓	↻	
A7. Identify and address the forced displacement of people due to the negative impacts of climate change.	✓		

AXIS B. RESILIENT PRODUCTION SYSTEMS AND FOOD SECURITY

Food is a fundamental human right that is guaranteed when people enjoy, in a timely and permanent manner, physical, economic and social access to food in sufficient quantity and quality for its adequate consumption. This right contributes both to their well-being and to the satisfaction of their nutritional and cultural needs. In Mexico, the increase in temperature and changes in rainfall patterns resulting from climate change could cause many crops to become unsuitable for the region where they are currently grown. Similarly, the ecological structure and functioning of marine ecosystems, as well as the goods and services they provide, are expected to be affected. In such scenarios, the conservation of agro-biodiversity, the fight against desertification and the reduction of overexploitation of terrestrial and marine natural resources is recognised as a challenge closely related to food security.

Similarly, extensive livestock farming has important social and environmental impacts. The constant increase in demand for livestock products accelerates the deforestation of large tracts of forests and results in the pollution and depletion of water bodies. Likewise, in a context of climate change, the feeding and thermal comfort requirements of livestock will require integrated sustainable management strategies such as the establishment of silvopastoral systems and regenerative livestock farming.

Given this scenario, **Axis B** proposes 5 lines of action that primarily support the fulfilment of 9 SDGs and 11 of their targets, related to the sustainability of food production systems and resilient agricultural practices that contribute to the maintenance of ecosystems and strengthen the capacity to adapt to climate change by encouraging research, development and the application of scientific and traditional knowledge. It also addresses the fair and equitable distribution of the benefits provided by genetic diversity and species diversification; the adaptation of value chains and investment plans that integrate climate change criteria and sustainable technological development; and traditional knowledge that favours the reduction of inequality gaps, placing the rights, needs and realities of all people in vulnerable situations at the heart of the

adaptation processes in the face of climate change. The following table highlights new lines of action, synergies and linkages with the SDGs.

Axis B. Resilient production systems and food security			
LINE OF ACTION	NEW COURSE OF ACTION	SYNERGY WITH MITIGATION	ODS
B1. Promote sustainable production and consumption practices, the conservation of genetic resources and the restoration of biocultural landscapes.	✓	↻	
B2. Incorporate climate change risk into the value chains and investment plans of the productive sectors.	✓	↻	
B3. Contribute to the prevention and management of pests and diseases of domesticated animal species and plant crops, facilitated and exacerbated by climate change.	✓	↻	
B4. Strengthen environmental policy instruments and implement actions to ensure protection of native crops relevant to agriculture and food security from the potential impacts of climate change.	✓		
B5. Promote financing mechanisms to address the negative impacts of climate change in the primary sector.	✓		

AXIS C. CONSERVATION, RESTORATION AND SUSTAINABLE USE OF BIODIVERSITY AND ECOSYSTEM SERVICES

Biodiversity plays a fundamental role in carbon sequestration and global climate regulation through the ecosystem services it provides. Mexico ranks 5th among the most diverse countries in the world, hosting approximately 12% of the planet's biodiversity. A high percentage of the country's terrestrial and aquatic biological diversity

is threatened by factors such as habitat destruction; overexploitation of resources; soil, water and air pollution; the presence of invasive alien species; and the adverse effects of climate change. The degradation and loss of ecosystems will increase the vulnerability of people and biodiversity to the effects of climate change.

Human rights, such as the right to drinking water and food, the right to health and the right to a healthy environment, are strongly dependent on ecosystems and the diversity found in them. This biodiversity, in the case of indigenous peoples, is an intrinsic part of their culture and traditional knowledge.

In this sense, Axis C integrates priority issues for the country based on the conservation and restoration of blue carbon ecosystems, seas and oceans, forests and priority species, among others. It also integrates actions to strengthen the management and increase the connectivity of Natural Protected Areas and other conservation schemes under climate change scenarios with respect for the collective rights and common goods[6] of the communities that inhabit them. Through these actions, the aim is to increase resilience and development, ensuring synergies for the mitigation of GyCEI.

This is expressed in 7 lines of action that contribute as a priority to the achievement of 11 SDGs and 32 of their targets oriented to issues such as: reducing the degradation of natural habitats, halting the loss of biological diversity and the protection of endangered species;

conservation of ecosystems and their biodiversity for sustainable development; and promoting actions to counter desertification, r e h a b i l i t a t e degraded lands and soils. This table also highlights new actions, synergies and linkages with the SDGs.

[6] Suárez, G. (6 August 2017). *Indigenous communities, custodians of forests and biodiversity, Communiqué, in Mexican Civil Council for Sustainable Forestry*. CCMSS. *https://www.ccmss.org.mx/wp-content/uploads/2017/08/08/Comunicado_CCMSS_Lospueblos_comunidadesindi%CC%81genas.pdf*

Axis C. Conservation, restoration and sustainable use of biodiversity and ecosystem services			
LINE OF ACTION	NEW COURSE OF ACTION	SYNERGY WITH MITIGATION	ODS
C1. Achieve zero net deforestation by 2030.			
C2. Strengthen environmental policy instruments and implement actions to conserve and restore inland ecosystems, increase their ecological connectivity and foster their resilience.			
C3. Strengthen instruments and implement actions for biodiversity conservation and restoration in marine, coastal and freshwater ecosystems, as well as promote the increase and permanence of carbon reservoirs, with an emphasis on blue carbon			
C4. Promote actions to prevent the establishment, control and eradicate invasive species, diseases and pests, whose impacts are exacerbated by the effects of climate change.			
C5. Design and implement actions that contribute to combating desertification and soil conservation.			
C6. Strengthen environmental policy instruments and implement actions to conserve and restore islands and increase their resilience.			
C7. Implement conservation and restoration actions for the oceans and seas to make them resilient to climate change. climate			

AXIS D. INTEGRATED WATER RESOURCES MANAGEMENT WITH A CLIMATE CHANGE PERSPECTIVE

Water is one of the most valuable resources for the integral and sustainable development of the country. Life and health depend directly on water resources, as well as the balance of ecosystems, the development of society and sectors of the economy. Having access to water in sufficient quality and quantity is a human right that serves as a precondition for the exercise of other rights such as health, food, a healthy environment, decent housing and education, among others. The adverse conditions generated by climate change can severely affect the exercise of this human right.

Water availability in our country is under threat. At least 14% of hydrological basins are in deficit and 16% of aquifers are overexploited[7] . In addition, the daily water supply and sanitation service within the home does not have universal coverage. In rural areas, this percentage is lower than in urban areas, and the situation is even worse in marginalised areas. Social asymmetries, as well as gender inequalities, affect the availability and accessibility of water in sufficient quantity and quality.

Against this backdrop, **Axis D** proposes 4 lines of action to promote the integrated management of water resources and the improvement in the provision of services from a climate change perspective, which will contribute to the achievement of 8 SDGs and 21 of their targets, in which the following themes are observed: efficient use of water resources in all sectors and sustainability of freshwater abstraction and supply in the face of scarcity; capacity building in water and sanitation activities and programmes; promoting research and technology development, promoting climate technologies for water harvesting, efficient use of water resources, wastewater treatment, recycling and reuse; protection and restoration of water-related ecosystems, including forests, mountains, wetlands, rivers, aquifers and lakes; integration of the value of ecosystems and biodiversity into national and local planning, as well as strategies for development and poverty reduction. The table below shows new actions, synergies and linkages with the SDGs.

[7] National Water Commission (CONAGUA). (2018). Estadísticas del Agua en México 2018. http://sina.conagua.gob.mx/publicaciones/EAM_2018.pdf

Axis D. Integrated water resources management with a climate change approach			
LINE OF ACTION	NEW LINE OF ACTION	SYNERGY WITH MITIGATION	ODS
D1. Implement actions for the sustainable use of water resources in their different consumptive uses with a focus on climate change.			
D2. Promote hydrological environmental services, through conservation, protection and restoration in watersheds with a focus on Nature Based Solutions.			
D3. Increase the treatment of industrial and urban wastewater, ensuring water quantity and quality in human settlements with more than 500,000 inhabitants.			
D4. Guarantee access to water in quantity and quality for human use and consumption, in the face of climate change conditions.			

AXIS E. PROTECTION OF STRATEGIC INFRASTRUCTURE AND CULTURAL HERITAGE TANGIBLE

Strategic infrastructure provides the technical means, necessary facilities and services for the development of essential activities. In the same way, it represents a fundamental support to guarantee the human rights to health, security, physical integrity, well-being and sustainable development of the country.

Mexico has a tangible cultural heritage that includes both natural and cultural assets that, due to their natural, aesthetic, artistic or scientific value, contribute to the Mexican identity. This heritage is made up, on the one hand, of environmental assets and riches that include natural areas that are the habitat and shelter of numerous species, many of them endemic, and on the other hand, of buildings, enclosures and archaeological remains that concentrate a historical legacy of the societies that preceded the current one.

The preservation of strategic infrastructure and heritage represents inherent challenges that will be exacerbated by the adverse effects of climate change.

climate variability. For example, energy sector infrastructure is vulnerable to climate variability, as droughts or severe rains can affect the optimal functioning of hydropower generation[8], among others.

In light of the above, the four lines of action of Axis E promote that the planning, design, construction, maintenance and operation of infrastructure are focused on strengthening its resilience to ensure the continuity of service provision. The main objective is to ensure the resilience of new and existing infrastructure, as well as tangible cultural heritage, going beyond standard designs and encouraging the development and incorporation of science-based climate change risk identification and adaptation criteria that integrate traditional knowledge and innovation to increase the strength of the elements that comprise it.

In particular, actions that address the protection of tangible cultural heritage from the effects of climate change will consider respect for spiritual or religious beliefs, as well as the roles of women and men, seeking to ensure the right to enjoy cultural heritage and guarantee access to it; likewise, the positive potential of culture, heritage and traditional knowledge and the enjoyment of cultural rights will be considered.

This will contribute, above all, to meeting 9 SDGs and 21 of their targets, highlighting issues such as: reliable, sustainable, resilient, quality infrastructure with affordable and equitable access to support economic development and human well-being; resilient infrastructure in cities and human settlements, implementing integrated policies and plans for climate change mitigation and adaptation, as well as comprehensive disaster risk management; protecting and safeguarding cultural and natural heritage; and upgrading infrastructure and retrofitting industries to make them sustainable. The table below shows new activities, synergies with mitigation and linkages with the SDGs.

[8] INECC - SEMARNAT. (2012). Fifth Submission of Mexico to the United Nations Framework Convention on Climate Change. https://unfccc.int/resource/docs/natc/mexnc5s.pdf

Axis E. Protection of strategic infrastructure and tangible cultural heritage			
ACTION LINE	**NEW COURSE OF ACTION**	**SYNERGY WITH MITIGATION**	**ODS**
E1. Increase the structural and functional security of current and future strategic infrastructure in the face of climate change-related events.		✓	
E2. Incorporate climate change adaptation and integrated disaster risk management criteria in strategic infrastructure investment projects.	✓		
E3. Protect, restore and conserve tangible cultural heritage in the face of climate change impacts	✓		
E4. Generate and strengthen public financing instruments, as well as promote private investment, for infrastructure and cultural heritage projects that incorporate adaptation criteria.	✓		

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