

U.S.-Mexico Climate Change Agenda Working Group

Briefing Paper – Paying for Climate Action: Challenges & Opportunities in U.S.-Mexico Climate Finance Cooperation for Discussion on Wednesday, August 11, 3:00 pm EDT

Introduction

The United States and Mexico share a border of almost 2,000 miles and an interdependent border region with 15.2 million residents.¹ This border region is integrated by trade and commerce, shared water and other natural resources, and cross-border family ties. Based on the border region alone, the United States and Mexico have an interest in working together to confront emerging challenges arising from climate change. The U.S. and Mexico, according to published research, will be jointly impacted in the coming years by climate change, with a growing threat of heat waves, severe drought conditions, water shortages, wildfires, loss of shared biodiversity, and climate-induced public health challenges.² This could have a severe adverse impact on the livelihoods of residents on both sides of the shared border.

Beyond the border region, the U.S. and Mexico will be jointly impacted by extreme weather events, potential food shortages, threats to cross-border agricultural supply chains due to crop failure, and growing human migration pressures that could result in upwards of 1.5 million Mexican and Central American climate refugees annually seeking to migrate to the United States by 2050, up from 700,000 annually in 2025.³

An additional reason for U.S.-Mexico climate cooperation is the depth of the interpersonal ties between the two countries: Today, there are over 36.6 million people of Mexican descent who live in the United States, including both U.S. citizens and resident non-citizens with family ties in Mexico.⁴ Additionally, approximately 797,000 U.S. citizens now reside in Mexico⁵, including many retirees living in some of Mexico's most climate vulnerable cities such as Guadalajara, Puerto Vallarta, Mazatlán and Acapulco.

Based upon their deeply intertwined bilateral relationship, the United States and Mexico have a strategic interest in working together to respond to the challenges brought on by climate change. Toward this end, in early 2021 U.S. President Biden and Mexican President López

¹ The population of the U.S-Mexico border region is 15.2 million people with 8 million living the United States and over 7 million residing in Mexico. 90% of the border region's population lives in 15 border sister city pairs.

² Good Neighbor Environmental Board (GNEB), U.S. EPA, "Climate Change and Resilient Communities Along the U.S-Mexico Border: The Role of the Federal Agencies, December 2016

³ Abraham Lustgarten, *The Great Climate Migration*, New York Times, July 23, 2020, <https://www.nytimes.com/interactive/2020/07/23/magazine/climate-migration.html>

⁴ Pew Research Center, 2019. <https://www.pewresearch.org/fact-tank/2019/09/16/key-facts-about-u-s-hispanics/>

⁵ Censo de Población y vivienda 2020. Available at: <https://www.inegi.org.mx/programas/ccpv/2020/>.

Obrador met virtually and committed to explore ways to expand bilateral cooperation on the climate change front.⁶ The question remains, how to pay for it?

This white paper examines several facets of climate finance through the lens of the U.S-Mexico bilateral relationship. Here, emphasis is placed on Mexico's Nationally Determined Contributions (NDCs) under the United Nations Framework Convention on Climate Change (UNFCCC) and how Mexico will pay for the implementation of those NDCs.

The first part of this paper explores Mexico's perspective as to the funding of its NDCs. To this end, the first part of the paper will:

- Review Mexico's NDCs, which include both unconditional and conditional commitments to reduce greenhouse gas (GHG) emissions and carbon black (mitigation commitments), as well as commitments as to climate change adaptation.
- Analyze the potential cost to Mexico of carrying out its NDCs, and the funding gap that Mexico will face if it relies only on the federal government budget, particularly with the challenges presented by COVID-19 and the long-term global movement away from hydrocarbons. These challenges are offset to some extent by Mexico's biodiversity and natural assets as a potential source of increased international funding.
- Discuss Mexico's access to international climate finance, including through multilateral funding sources and international development agencies.

The second part of this paper will review U.S. international climate finance under the administration of President Biden and explore the extent to which the United States might provide financial support to Mexico to help with implementation of Mexico's NDCs. Accordingly, part two will:

- Review the recent history of U.S. climate finance commitments up through President Biden, to provide context as to the political issues affecting U.S. policy on international climate finance and the United States' current posture.
- Review the assistance that the United States has given to Mexico in the past related to climate change issues, both in terms of direct foreign assistance and other financing support, and analyze how the U.S. might build upon that history to assist Mexico with the financing of its NDCs.

⁶ <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/01/u-s-mexico-joint-declaration/>

1. The Mexican Perspective: Mexico's National Determined Commitments (NDCs); Expected Costs; Funding Gaps; and Sources of Funding

a. Scope: unconditional commitments; conditional commitments; adaptation

Mexico submitted its updated NDCs in December 2020. With respect to mitigation, Mexico ratified its 2016 unconditional commitment to reduce GHG emissions by 22% by 2030 and carbon black (particulate matter) by 51%, with no increase in ambition from 2016.⁷ Implementing the unconditional GHG commitment would: (1) avoid the emission of 211 MtCO₂e, (2) decarbonize the Mexican economy's intensity by 37%, and (3) decrease its emissions per capita by 23% by 2030.

Mexico's updated NDCs also ratified its conditional commitments in the 2016 NDC to reduce GHG emissions by up to 36% by 2030 and carbon black by 70%. The conditional GHG commitment would help avoid an additional 137 MtCO₂e by 2030 and support the implementation of a more accelerated decarbonization pathway.

The conditional commitments were predicated on four conditions, pertaining to (1) greater ambition by high GHG emission countries, (2) Mexico receiving adequate increased financial resources, (3) transfer of necessary technology, and (4) progress on global carbon pricing and tariff adjustment for carbon content.⁸ Notably, the second specified condition is that *"Mexico obtains additional financial resources to increase ambition on a scale that allows for implementation of projects and not only studies addressing technical or institutional issues"*. This makes clear that Mexico needs financing to develop projects that reduce GHGs, and that, from Mexico's perspective, funding for technical assistance or studies on institutional issues should not be included in the measurement of funds provided by the international community.

Chart 1 below illustrates Mexico's commitments in the 2020 NDCs, both unconditional and conditional, and identifies the sectors where Mexico anticipates reduction of greenhouse gases to meet its unconditional commitments.

⁷ The reference point was quantified under a business-as-usual (BAU) scenario of emission projections based on economic growth in the absence of climate change policies. In this scenario, 991 MtCO₂e of emissions were quantified in 2030. Undertaken policies are considered based on the information available in 2013. Actions implemented after 2013 will be considered towards mitigation.

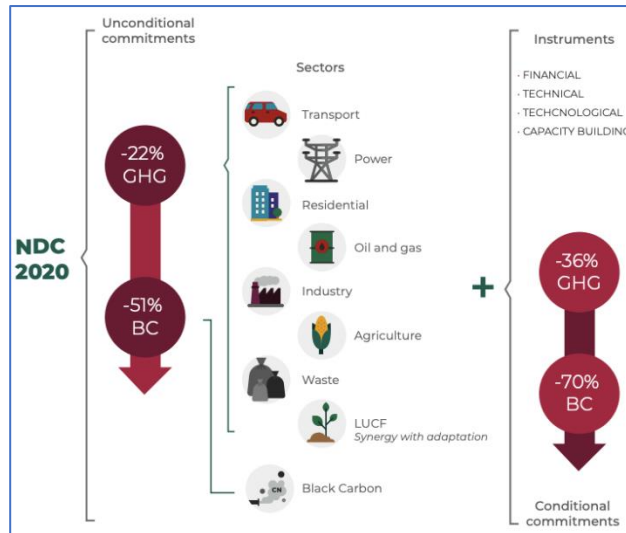
⁸ 1) The Paris Agreement as a whole achieves greater global ambition led by the countries with the highest emissions and the greatest economic development;

2) Mexico obtains additional financial resources to increase ambition on a scale that allows for implementation projects and not only studies addressing technical or institutional issues;

3) The transfer of available technology is facilitated through international cooperation; and

4) progress is made at the international level on policies to establish an international price for carbon and adjustments on tariffs for carbon content.

Chart 1 – Illustration of Mexico’s Updated NDCs



Source: Mexico’s Nationally Determined Contributions 2020 Update, UNFCCC website, page 22⁹

With respect to adaptation, the updated NDCs are more ambitious than the 2016 version, as the 2020 NDCs now include cross-cutting elements such as Nature-based Solutions (NBS), Community-Based Adaptation (CBA) approaches; Ecosystem-Based Adaptation (EBA); as well as Disaster Risk Reduction (DRR) Adaptation. The only specific target for adaptation is to reach net-zero deforestation by 2030. To date, Mexico has not published a road map of specific steps to carry out the adaptation commitments.

b. Funding Requirements and Funding Gap

i. Funding Requirements

A 2018 report¹⁰ by INECC (*Instituto Nacional de Ecología y Cambio Climático*) concludes that, based on specified GHG-reduction activities for the 30 sectoral measures mentioned in Mexico’s 2016 NDCs, the total cost of implementation of the unconditional pledges would be US\$126 billion,¹¹ spent over the course of a 17-year implementation period (2014-2030). The report does not specify the contemplated sources of funding for this amount. We assume that funding for the specified GHG-reduction activities for the 30 sectoral measures could be provided from a range of sources, including direct government expenditures, funding from development banks and multilateral financial institutions, and private sector investment and loans.

⁹ <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Mexico%20First/NDC-Eng-Dec30.pdf>

¹⁰ INECC (2018). *Costos de las Contribuciones Nacionalmente Determinadas de México. Medidas Sectoriales No Condicionadas. Informe final.* Instituto Nacional de Ecología y Cambio Climático (INECC), México. [Costos de las contribuciones nacionalmente determinadas de México dobles p ginas .pdf \(www.gob.mx\)](https://www.gob.mx/documentos/134444-costos-de-las-contribuciones-nacionalmente-determinadas-de-mexico-dobles-p-ginas-pdf)

¹¹ 2017 US Dollars

Assuming the costs of mitigation were linear and distributed equally throughout the 17-year NDC period of 2014-2030, Mexico would need to invest around US\$7.4 billion /year to implement the needed actions to achieve its unconditional NDCs. This represents approximately 2.4% of Mexico’s 2021 national budget.

When evaluating these figures, it is important to consider that a Business as Usual (BAU) scenario would bring reduced economic growth and consumption patterns, together with degradation of ecosystems and natural capital, that in the aggregate would effectively cost Mexico on the order of US\$143 billion. In that sense, achieving the stated unconditional climate commitments would bring Mexico a net positive saving of US\$14 billion¹². Table 1 below, based on a Bank of Mexico analysis,¹³ highlights the economic opportunities associated with the transition to a low-carbon economy in the country. These are precisely the opportunities that would be lost in a BAU scenario. As noted above, INECC values the opportunities that would be lost in a BAU scenario at US\$143 billion.¹⁴

Table 1. ECONOMIC OPPORTUNITIES ASSOCIATED WITH THE TRANSITION TO A LOW-CARBON ECONOMY	
Electricity generation	<ul style="list-style-type: none"> • Clean energy generation • Reduction of transmission losses • Energy efficiency
Oil and gas	<ul style="list-style-type: none"> • Mitigation of methane emissions in oil refining process • Energy efficiency
Transport	<ul style="list-style-type: none"> • Transport efficiency plan • Energy efficiency for cargo transport • Biofuel development for air transport • Electromobility
Manufacturing	<ul style="list-style-type: none"> • Focus on cement, iron, steel industries and chemical • Energy efficiency • Cogeneration • Recycling
Residential and commerce	<ul style="list-style-type: none"> • Energy efficiency/high performance buildings/green mortgages

¹² US\$126 billion in expenditures compared to US\$143 billion of avoided losses, yields a net savings for Mexico of \$14 billion.

¹³ BANXICO (2020). Climate And Environmental Risks and Opportunities in Mexico’s Financial System From Diagnosis To Action.

¹⁴ The most cost-efficient sectors in terms of NDC implementation are electricity, transportation, residential and commercial, and agriculture—which have negative costs, i.e. benefits as outlined above exceed costs. The least cost-efficient are oil and gas and the land-use sector, which have positive costs, i.e. costs that exceed benefits. (See Annex for detailed actions and cost-effectiveness per sector).

Waste management	<ul style="list-style-type: none"> • Compliance with stricter standards • Investment in municipal infrastructure • Cogeneration
Agriculture and livestock/land use changes	<ul style="list-style-type: none"> • Payment for environmental services in the forestry sector • Renewable energy investments • Adoption of sustainable agriculture practices

The US\$14 billion net benefit to Mexico related to carrying out its 2020 NDC unconditional commitments argues strongly for implementing those commitments. At the same, the US\$126 billion in forecast expenditures required to implement the unconditional commitments must be funded upfront before the net benefit can be realized. Nevertheless, the potential US\$14 billion net benefit establishes that the US\$126 billion that Mexico will need to raise to fund its unconditional commitments is an *investment in the future* that will reap benefits for Mexico over the long term.

Although not included in INECC’s analysis to date, there is basis for estimation of the costs of mitigation to attain the conditional targets. The INECC cost study, pertaining only to unconditional commitments estimates that the average cost of mitigation from 2014-2030 will gradually go down from US\$55.6 /ton in 2014 to -US\$22.7 /ton in 2030, based on economies of scale.¹⁵ Notwithstanding this decline over time, If Mexico is to abate the additional 137 MtCO₂e by 2030, using the **total** implementation costs derived by INECC for the unconditional target, total implementation costs for the conditional commitments would be US\$81 billion over the implementation period 2014-2030, or US\$4.7 billion/year over the 17-year period.

To determine Mexico’s **current** funding needs for implementation of its unconditional and conditional mitigation commitments, it would be necessary to determine what has been spent to date and how much GHG reduction has been attained. The INECC cost study was predicated on expenditures over the period 2014-2030. But we are now in 2021. The “ballpark” figures of US\$7.4 billion per year for the unconditional commitments and US\$4.7 billion per year for the conditional commitments assume expenditures of these amounts **each year** of the 2014-2030 period. To the extent that such amounts were **not** spent over the period 2014-2020, with a corresponding loss of GHG reduction, the unspent amounts would necessarily be added to the 2021-2030 funding requirement.

ii. Funding Gap

The Mexican government created a Climate Change Fund (FCC) in 2012 to attract, manage and channel public, private, national, and international financial resources to support climate action. Unfortunately, the FCC was dissolved by the current administration in October 2020,¹⁶

¹⁵ See Annex for the actual cost distribution per year set out by INECC’s report.

¹⁶ Ethos (n.d). ¿Cómo impulsar una recuperación justa y resiliente a partir del financiamiento climático en México? <https://www.ethos.org.mx/ethos-publications/financiamiento-climatico-en-mexico/>

on the theory that the government needed to redirect public resources to address the COVID-19 crisis. As such, at the time of writing, the only guaranteed allocated source of national climate finance in Mexico's national budget is Annex 16. Since 2013, the Federal Expenditure Budget (*Presupuesto de Egresos de la Federación*, or PEF) includes a Cross-Sectional Annex—known as Annex 16—with public resources for adaptation and mitigation of climate change. Annex 16 has changed in terms of the amount and form in which it is distributed among public entities.

The *2019 Sustainable Finance Index* for Mexico¹⁷ developed by the *Grupo de Financiamiento Climático de América Latina y el Caribe* (GFLAC) with information from the PEF and Annex 16, discovered that the country tagged a total of only US\$151.6 million in 2019 year for green and sustainable expenditures (which represents about 0.05% of the country's total budget). From those US\$151.6 million, 80% was earmarked for renewable energy and a bit more than 6% for energy efficiency, assigned to the Energy Ministry; another 6% was assigned to the Ministry of Interior (*Gobernación*) for natural disaster mitigation; and another 6% for direct climate change measures, assigned to SEMARNAT under Annex 16.

According to a more recent analysis of the PEF 2021 by the International Climate Initiative (IKI), Mexico assigned up to US\$3.5 bn to national climate financing for 2021, the highest amount in the history of Annex 16. However, more than 75% of this money was assigned to a program labelled "Transportation of Natural Gas" that falls under Mexico's public utility, *Comisión Federal de Electricidad* (CFE).¹⁸ Leaving that aside, the effective sustainable funding would be US\$878 million (representing 0.27% of the total national budget). It is still a long way to go to reach the 2.4% needed—yet is it at least on the rise.

Assuming that the amount earmarked by the federal government for this purpose remained fairly constant over time, this puts Mexico about US\$6.4 billion short of what it should be spending each year to realize its unconditional NDCs (assuming no adjustment to 2021-2030 expenditures due to insufficient spending in 2014-2020). Significantly increasing green investments and targeting the cost-efficient measures pointed out by INECC's analysis would put Mexico on a closer path to fulfilling its international commitments not only domestically (for the necessary institutions to get the bandwidth to deploy resources and implement the strategies defined in the Paris Agreements) but also externally, to be able to make a successful case to international funders. Without putting skin in the game, Mexico will have a hard time attracting external funding at the UN's upcoming COP-26 meeting in Glasgow.

¹⁷ https://fd31067a-8e9b-4ab4-a7be-d30689ad3aa1.filesusr.com/ugd/32948d_71f6f09bf084494a8dbdac6a8377a4d3.pdf?index=true

¹⁸ <https://iki-alliance.mx/analisis-del-presupuesto-destinado-a-medio-ambiente-y-cambio-climatico-en-el-pef-2021/>

Average Unconditional NDC Implementation Costs per Year	Mexico's (average) Yearly Green/Climate Budget	Yearly NDCs Finance Gap	Conditional Intl. Funding Needed per Year
US\$7.4 billion	US\$878 million	≅ US\$6.4 billion	≅ US\$4.7 billion

The Mexican Ministry of Finance (*Hacienda*) has moved aggressively to provide funding for its climate change agenda (and other ESG projects) by issuing sovereign sustainability-linked bonds both in 2020 and 2021 that will allow the government to tap a wider range of investors interested in financing ESG-related projects. The first round issued by *Hacienda* in 2020 was for a total of 750 million euros with a 7-year term, and a second round in July 2021 for a total of 1,250 million euros with a 15-year term. Both rounds were extremely successful, showcasing the investors' appetite for sustainable projects and its overall increasing demand.

The proceeds of such bonds are linked to the UN's 2030 Agenda and the Sustainable Development Goals (SDGs). Even though *Hacienda* did not specifically state that it would fund NDC-related activities with such debt, it did speak to its desire to expand sustainable public finance.¹⁹ In addition, it drafted an *SDG Sovereign Bond Framework*²⁰ that marks the path forward, including clear criteria for Selection and Evaluation of Eligible Expenditures and Use and Management of Proceeds, and a Reporting Mechanism, which seeks to promote sustainable financing and “a shift in investors sentiment towards environmentally and socially conscious investing”.

c. Budgetary Challenges

Article 2.1.c of the Paris Agreements aims to “strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”. In that sense, developing nations should marshal private and international funds to shorten the resource gap, but should also align their own income and expenditures to their climate goals.²¹ Aside from the aforementioned funding gap, Mexico faces two challenges going forward that it should pro-actively confront to avoid lagging on the climate transition and failing to fulfill its NDCs:

¹⁹ Hacienda's public announcement: <https://www.gob.mx/shcp/prensa/comunicado-no-041-mexico-consolidacion-de-rendimientos-sostenible-con-nuevo-bono-alineado-a-objetivos-de-desarrollo-sostenible-de-la-onu-276495>

²⁰ https://www.finanzaspublicas.hacienda.gob.mx/work/models/Finanzas_Publicas/docs/ori/Espanol/SDG/PRESS_SDG_Sovereign_Bond.pdf

²¹ For instance, in 2019, as mentioned above, the budget tagged for environment and climate change in Mexico was 0.05% of the national budget, versus 2019's budget tagged for hydrocarbons, which was 11.07% (equivalent to over US\$33 billion).

i. Covid-19 Impacts:

Mexico's economy suffered last year its largest annual contraction since the 1930s, although it recovered more quickly than expected. A strong performance from the external sector, including both remittances and exports to the U.S., has, in part, countered the weakness of the domestic market. Domestic consumption remains substantially below pre-pandemic levels, and gross fixed investment was down by 19.5% in 2020 compared to 2019. On the other hand, according to the UN Environmental Program (UNEP) Covid-19 tracker for Latin America and the Caribbean²² that tracks fiscal expenditure policies weekly for the LAC region, out of US\$25 billion that Mexico has spent so far on the recovery, nothing has gone towards green measures. If this scenario continues, as Mexico's economy re-emerges from the pandemic, the window of opportunity to *build back greener* will be lost.

ii. Fossil Fuel Dependence and the Future of Oil:

Like other countries in Latin America and the Caribbean (in particular, Argentina, Brazil, Ecuador, Guyana and Venezuela), Mexico is betting big on oil and gas as part of its economic recovery, since hydrocarbons provide an "easy" fix to fiscal woes through revenues from royalties and taxes. However, such reliance poses a two-sided problem. On the one hand, it directly jeopardizes Mexico's climate targets as GHG emissions are poised to increase with investments in the oil and gas sector. On the other hand, Mexico will increasingly struggle to finance hydrocarbon projects moving forward as international funding sources become more hesitant to fund new fossil fuel ventures based on ESG standards and net zero commitments that, over time, could negatively impact Mexico's sovereign risk rating, potentially resulting in a higher cost of capital.²³

Furthermore, according to GFLAC's analysis, 23.5% of the government's income in 2019 came from oil and gas royalties and taxes on fossil fuels. As economies transition away from fossil fuels, and demand fades out slowly but surely, this reliance on revenues from hydrocarbons will undoubtedly pose an increasing fiscal and transitional risk for Mexico that will only put further pressure on its public finances. This could hinder even further the government's ability to properly finance its international climate commitments.

d. Mexico's Biodiversity and Natural Assets as a Source of Increased Funding

In accordance with Article 4, paragraph 7 of the Paris Agreement, Mexico's NDCs include an adaptation component consisting of 5 axes and action items for each axis, with 27 action items altogether. Key strategies include protection of strategic infrastructure; integrated water resources management; soil restoration; restoration and conservation of blue carbon

²² <https://recuperacionverde.com/es/tracker/>

²³ "Sovereigns-Global: Explanatory Comment: New scores depict varied and largely credit -negative impact of ESG factors," Moody's Investor Service, January 18, 2021. <https://www.politico.com/f/?id=00000177-1fc7-da54-a9ff-ffd7fe530000>

ecosystems and coral reefs; as well as actions to strengthen management and conservation of forests and rainforests. It should be underscored, however, that Mexico has not published any cost assessment regarding the implementation of the adaptation components of its NDCs. Mexico should perform that analysis to better understand the resources it will need both internally and from external sources to achieve its targets.

Mexico's forest cover in 2020 was around 50 million hectares (MHa), which represent 1.62% of total global forest cover. Regarding blue carbon,²⁴ Mexico has 741,917 hectares of mangrove cover (not including seagrass, salt marshes and other coastal ecosystems that sequester CO₂), which is about 5.4% of the world's total cover. Mexico is, in fact, the country with the 4th largest mangrove cover in the world after Indonesia, Australia, and Brazil. These natural endowments provide a potential source for mitigation strategies too. According to a recent study by University of Oxford, nature-based solutions (NBS) "*could provide around 30% of the cost-effective mitigation that is needed by 2030 to stabilize warming to below 2°C*".²⁵

It is worth noting that Mexico is one of only 12 countries that have acknowledged synergies between adaptation and mitigation components of marine and coastal ecosystems in their NDCs, and it is, to date, the only nation within the top 10 countries in terms of restorable area of mangroves that included this ecosystem in its NDCs.²⁶ This gives Mexico a unique opportunity to attract potential investment from outside sources towards these projects which, could in fact, become highly profitable as the price of carbon increases.

According to an *Earth Security* paper from December 2020,²⁷ the financial return of mangrove restoration in Mexico at a carbon price of US\$60/tCO₂ would be as high as US\$1.19 billion.²⁸ The United States, on the other hand, is the country that stands to benefit the most from the flood protection benefits provided by mangroves, but, as of yet, has not included these ecosystems in its NDCs.²⁹ In that sense, a U.S.-Mexico binational technical working group dedicated to advancing this area of adaptation could prove beneficial for both countries.

The financial mechanisms developed for scaling NBS projects are in their early stages. The true value of ecosystem services is largely unknown, and thus nature-based projects are still at any early stage of development. Funding for these projects accounts for merely 1% of total climate finance for adaptation from both private and public sectors. In times when most governments are making hefty infrastructure expenditures as a way to tackle the pandemic-caused economic recession, nations should be looking towards these possibilities. Coastal ecosystems and forests

²⁴ Blue carbon ecosystems are relevant as they contribute over 3% of global carbon sequestration, with soil carbon stocks triple than those in tropical forests (Donato et. Al 2011). In addition, they provide a multiplicity of ecosystem services, such as flood management, fisheries, tourism, water quality improvement, amongst others.

²⁵ <https://portals.iucn.org/library/sites/library/files/documents/2019-030-En.pdf>

²⁶ https://earthsecurity.org/report/financing-the-earths-assets-the-case-for-mangroves/2128_ESG_mangrove_22.pdf (earthsecurity.org).

²⁸ Ibid at Table 3, p. 17.

²⁹ Ibid.

– of which Mexico is richly endowed – can help communities adapt to climate change and build more resilient livelihoods.

Furthermore, as the price of carbon mitigation starts to rise around the world, natural assets could become an important source of funding for biodiverse countries like Mexico. In this regard, the main challenges for Mexico will be the need for technical capacity, but most importantly, financial resources. This is an area where the support of the United States, private equity (notably impact investors), and multilateral development banks (MDBs) will prove critical in helping overcome the gap and in ensuring the available financial mechanisms scale quickly enough. Furthermore, areas of mutual interest abound, such as ecosystem conservation, benefits to migratory species, protection of water bodies, and other issues of cross-border interest.

e. Mexican Access to International Climate Finance

Mexico has had, over several decades, a strong interest in pursuing international financing to help it face its climate challenges, both in terms of mitigation and adaptation. Knowing the importance of international climate finance, Mexico has sought and obtained the support of various multilateral funds and international development agencies. According to research by Transparencia Mexicana, the following are key findings as to the international resources that Mexico has received to address climate change:³⁰

- In the 2015-2017 period, the amount of international financing for climate change projects in Mexico amounted to US\$5.25 billion.
- The research identified 8 main donors and 115 total activities. Some projects have the participation of two or more actors or implementers.
- The main funders in Mexico are the Inter-American Development Bank (IDB) with 39.45%, the World Bank (WB) with 28.74% and the French Development Agency (AFD) with 19.93% participation
- The sectors with the most financing are forestry with 23%, energy and renewables with 22% and energy efficiency with 13%.
- The sectors with the least financing are agriculture, water, and climate financing, with 3% each.
- Based on the research carried out, it is not possible to know the existence of transparency and accountability mechanisms for the implementation of the projects.

³⁰ Transparencia Mexicana (2018). Origen y destino del financiamiento climático en México, una ruta por trazar. <https://www.tm.org.mx/origen-y-destino-del-financiamiento-climatico-en-mexico-una-ruta-por-trazar/>

The most relevant funding sources are described below. Mexico will need to continue to seek funding from these sources at an even greater level than before – probably much greater – in order to meet the financial obligations related to its NDCs.

i. Global Environment Facility (GEF)

From 1994, when the GEF began operations, to the present, Mexico has obtained US\$575 million in total GEF financing, with US\$3.85 billion in co-financing for 76 national projects. Additionally, Mexico has received approximately US\$1 billion for 43 regional or global projects in which it participates.³¹ The following are representative transactions:

- Special Climate Change Fund: Focused on the Adaptation to Climate Change Impacts on the Coastal Wetlands project. “The objective of the project is to promote adaptation to the consequences of climate impacts in the coastal wetlands of the Gulf of Mexico, through the implementation of pilot measures that would provide information on the costs and benefits of alternative approaches to reduce their vulnerability. The project also seeks to assess the overall impacts of climate change on national water resource planning, including the identification of potential response options, with a focus on coastal wetlands and associated watersheds.”³² The project is implemented by the World Bank and executed by SEMARNAT through the National Institute of Ecology (INE), Mexican Institute of Water Technology (IMTA). Financing included a US\$4.5 million GEF Project Grant and US\$19 million in co-financing.³³
- Connecting Watershed Health with Sustainable Livestock and Agroforestry Production: This most recent project was approved in April 2021, with a total cost of US\$112.8 million, including a US\$13.8 million GEF Project Grant and US\$99 million in co-financing. The project was implemented by the World Bank and carried out by the Mexican National Institute of Ecology and Climate Change (INECC) and the Mexican Fund for the Conservation of Nature (FMCN).

ii. Green Climate Fund

During the COP16 negotiations held in Cancun in 2010, Mexico, in alliance with South Korea and several delegations of the G77 + China, achieved approval to establish the Green Climate Fund (GCF), which a year later would be recognized as a Financial Mechanism of the Convention.³⁴ Representative transactions to date include the following:

³¹ Fondo para el Medio Ambiente Mundial. <https://www.thegef.org/country/mexico>

³² Global Environment Facility (2021). Adaptation to Climate Change Impacts on the Coastal Wetlands. <https://www.thegef.org/project/adaptation-climate-change-impacts-coastal-wetlands>

³³ Ibid.

³⁴ INECC – PNUD México (2018). Identificación y análisis del financiamiento para las acciones de mitigación y adaptación del cambio climático aplicado en México durante el período 2012-2017. Proyecto 85488. “Sexta Comunicación Nacional de México ante la Convención Marco de las Naciones Unidas sobre el Cambio Climático”, Roberto Cabral Bowling, México, pp. 67

- Green Bond Project for Energy Efficiency in Latin America and the Caribbean: The amount of US\$20 million was approved as Partial Credit Guarantees for Mexico, for the pilot phase of an energy efficiency project, and US\$2 million was approved as a grant for the development of the program to facilitate its reproduction in Latin America and the Caribbean under phase II of the program.
- Risk Sharing Financing for Climate Resilience in Low Emission Agriculture for MSMEs (Mexico-Guatemala): This project was focused on facilitating financing for small and medium agricultural producers so that they can carry out resilience actions against climate change. The total investment of the project is estimated at US\$158 million.

iii. Interamerican Development Bank

The portfolio of projects financed by the IDB is diverse and covers a number of subject areas, including programs to promote sustainable housing, energy saving, energy efficiency, preparation of state action plans against climate change, clean technologies, reforestation, and strengthening of institutional capacities, among other topics.

Regarding actions to confront climate change, the following can be identified:

- Credit for US\$600 million in support to the Mexican federal government for territorial management in housing development and in the forestry sector.
- Technical Cooperation for US\$1 million for Institutional Strengthening as to implementation of the transparency arrangements for Mexico's NDCs.

iv. North American Development Bank (NADB).

In connection with the signing of the North American Free Trade Agreement (NAFTA), the governments of Mexico and the United States signed an agreement to create the Border Environment Cooperation Commission and the North American Development Bank, now merged together and jointly identified as the North American Development Bank, to finance border environmental projects. Its main areas of financing are drinking water supply, municipal solid waste and sewage treatment, air quality, clean energy, and management of hazardous waste. The initial commitment of both countries was to contribute in equal parts a total amount of US\$1 billion. NADB is discussed in greater detail below in connection with potential U.S. climate finance for Mexico.

v. International Development Agencies

Mexico has received help from various governments.³⁵ Representative transactions include the following:

- French Development Agency: From 2009 to 2018, the French Development Agency had provided Mexico 1.4 billion euros of support³⁶ for forest preservation projects; ecological planning of the territory; economics of climate change; adaptation of agriculture to climate change. The form of support included loans, grants and technical assistance.
- United States Agency for International Development (US AID): From 2012 to 2018, US AID granted Mexico around US\$22 million to support Mexico's National Forestry Commission (CONAFOR) in strengthening the institutional and technical capacities of indigenous and peasant communities in small-scale projects and projects linked to the REDD + strategy. In addition, in 2011 it gave a financing of US\$3.7 million to support the Development Strategy with Low Emissions of Mexico. US AID is also discussed below in connection with potential U.S. climate finance for Mexico.

2. U.S. International Climate Finance under President Joe Biden's Administration

The United States is the second largest emitter of greenhouse gases in the world after China, accounting for over 20% of total global emissions.³⁷ With an annual GDP exceeding US\$22.675 trillion,³⁸ representing 27% of the world's economy, the United States has a critical leadership role to play in the global fight against climate change.

Strong U.S. leadership will be necessary to encourage the developed countries of the world to help developing countries fund their NDCs, since few countries in the developing world will be able to provide such funding themselves. This is particularly the case given the economic setbacks they have collectively suffered from the COVID-19 pandemic.

Mexico stands apart as a nation of strategic importance to the United States, and this should bear upon U.S. willingness to assist Mexico with climate finance. The U.S. and Mexico have a bilateral trade in goods (exports plus imports) in excess of US\$530 billion per year,³⁹ and

³⁵ INECC – PNUD México (2018). Identificación y análisis del financiamiento para las acciones de mitigación y adaptación del cambio climático aplicado en México durante el período 2012-2017. Proyecto 85488. "Sexta Comunicación Nacional de México ante la Convención Marco de las Naciones Unidas sobre el Cambio Climático", Roberto Cabral Bowling, México, pp. 67. [860 2018 Financiamiento Cabral.pdf \(cambioclimatico.gob.mx\)](#).

³⁶ [México | AFD - Agence Française de Développement](#).

³⁷ *6,558 million metric tons (14.5 trillion pounds) of carbon dioxide equivalents in 2019 according to U.S. EPA.* <https://www.epa.gov/climate-indicators/climate-change-indicators-us-greenhouse-gas-emissions>

³⁸ World Economic database: April 2021 Edition, International Monetary Fund (IMF), 2021

³⁹ U.S. Bureau of the Census, Trade in Goods with Mexico, [Foreign Trade - U.S. Trade with Mexico \(census.gov\)](#).

Total trade in goods between the two countries was US\$537 billion in 2020. This was down from US\$612 billion in 2019 and US\$619 billion in 2018. Ibid.

growing inter-dependencies related to food, energy, and water security. With this strategic relationship, expanded US-Mexico cooperation on climate change will be of critical importance to both countries, with national security implications. Yet, given Mexico's current post-COVID economic recovery priorities, any meaningful progress on climate change cooperation between the United States and Mexico will be predicated on stepped up foreign direct assistance and public/private financing from U.S. sources, together with financing from the multilateral financial institutions and other international funding sources with U.S. support.

To better assess the potential for expanded U.S. climate financing to Mexico, this white paper examines the following topics:

- U.S. international climate finance policy;
- U.S. climate-related direct foreign assistance and financing commitments to Mexico;
- The role of U.S. private financing, including but not limited to impact investors and philanthropic interests in providing blended financing;

a. History of U.S. Climate Finance Commitments

The United States has historically resisted attempts at a top-down imposition of emission cuts, insisting on national sovereignty in setting limits⁴⁰. As President George H.W. Bush stated in his remarks at the 1992 Earth Summit, where the United Nations Framework Convention on Climate Change (UNFCCC) was signed, *"The American way of life is not up for negotiation."*⁴¹ That said, under President Bush Sr, the United States did, in the end, sign the UNFCCC and approve the creation of the Global Environment Facility, the first international fund to support climate change assistance to developing countries.⁴² The U.S. also committed to *"increase environment aid by 66% above 1990 levels as well as providing more than US\$2.5 billion to the world's development banks for Agenda 21 projects"*.⁴³

In 1997 President Bill Clinton signed the Kyoto Protocol to the UNFCCC⁴⁴ and committed to establish voluntary targets under the UNFCCC for the reduction of GHG emissions to 1990 levels by 2000. However, President Clinton's team of negotiators for the protocol were unable to gain approval for rules and procedures to establish a structure and market for limiting and trading emissions, a top U.S. priority. Also, the U.S. Congress subsequently refused to ratify the Kyoto

⁴⁰ Mariette Le Roux, In Climate Talks, it's always been America First, Phys.org. May 18 2017 <https://phys.org/news/2017-05-climate-america.html>

⁴¹ "A Greener Bush, Economist, February 13, 2003, <https://www.economist.com/leaders/2003/02/13/a-greener-bush>.

⁴² Matthew J. Kotchen, Gilbert E. Metcalf and William A. Pizer, *The case for the Green Climate Fund*, The Hill, June 3, 2015, [The case for the Green Climate Fund | TheHill](https://www.thehill.com/policy/energy-environment/2015/06/03/case-for-green-climate-fund/).

⁴³ U.S. President George H. W. Bush, *Address to the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil*, June 12, 1992 <https://www.presidency.ucsb.edu/documents/address-the-united-nations-conference-environment-and-development-rio-de-janeiro-brazil>

⁴⁴ United States signs the Kyoto Protocol, Fact Sheet released by the Bureau of Oceans and International Environmental and Scientific Affairs, U.S. State Department, November 12, 1998. https://1997-2001.state.gov/global/global_issues/climate/fs-us_sign_kyoto_981112.html

Protocol, instead adopting a resolution to the effect that the United States should not be a signatory to any protocol that mandated the reduction of greenhouse gas emissions unless it also required reductions from developing countries during the same time period.⁴⁵

Still, between 1993 and 2000 the United States, through the US Agency for International Development (US AID), invested over US\$1.4 billion for climate related mitigation activities internationally.⁴⁶ In 1993 funding was also committed to support a cooperative pilot program with industry focused on emissions reductions overseas.⁴⁷

President George W. Bush withdrew the U.S. from the Kyoto Protocol in 2001⁴⁸ and defunded various climate focused programs of the Clinton Administration. Nevertheless, his Administration did pledge US\$2 billion in climate funding in 2008, including support for the Climate Investment Funds, as a transitional measure to finance efforts to help developing countries address climate change.⁴⁹

Under President Obama, the United States sought to normalize relations with the international climate community, stepping up its climate finance efforts. This included a 2014 pledge of US\$3 billion in support of the Green Climate Fund (GCF) established at the COP 16 meeting in Cancun, Mexico.⁵⁰ President Obama's pledge followed a U.S. commitment at the COP 15 meeting in Copenhagen to jointly work with other developed countries to mobilize US\$100 billion annually by 2020 to support developing country emissions reduction targets and climate adaptation needs.⁵¹

In 2015 President Obama formally accepted the Paris Agreement, adopted by the Conference of the Parties in Paris at COP 21,⁵² which incorporated a resolution strongly urging the developed countries to meet the US\$100 billion per year commitment.⁵³ Prior to leaving office,

⁴⁵ Christie Aschwaden, *A Lesson From Kyoto's Failure: Don't Let Congress Touch a Climate Deal*, December 4, 2015 <https://fivethirtyeight.com/features/a-lesson-from-kyotos-failure-dont-let-congress-touch-a-climate-deal/>

⁴⁶ Amy Royden, *U.S. Climate Change Policy Under President Clinton: A Look Back*, Golden Gate University Law Review, Vol. 32, Issue 3, Article 3, January 2002. Page 417, fn.3. [U.S. Climate Change Policy Under President Clinton: A Look Back \(ggu.edu\)](https://www.ggu.edu/~lawreview/vol32/issue3/article3.html).

⁴⁷ *Ibid*, page 420

⁴⁸ Julian Borger, *Bush Kills Global Warming Treaty*, The Guardian, March 29, 2001 <https://www.theguardian.com/environment/2001/mar/29/globalwarming.usnews>

⁴⁹ [FACT SHEET: United States Support for Global Efforts to Combat Carbon Pollution and Build Resilience | whitehouse.gov \(archives.gov\)](https://www.whitehouse.gov/the-press-office/2008/02/28/08-02-28-climate-investment-funds).

⁵⁰ *Ibid*.

⁵¹ Suzanne Goldenberg, *US bids to break Copenhagen deadlock with support for US\$100bn climate fund*, The Guardian, December 17, 2009, [US bids to break Copenhagen deadlock with support for US\\$100bn climate fund | COP 15: Copenhagen climate change conference 2009 | The Guardian](https://www.theguardian.com/environment/2009/dec/17/copenhagen-climate-conference-2009).

⁵² The White House, *President Obama: The United States Formally Enters the Paris Agreement*, September 3, 2016, <https://obamawhitehouse.archives.gov/blog/2016/09/03/president-obama-united-states-formally-enters-paris-agreement>

⁵³ [Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 11 December 2015. Addendum. Part two: Action taken by the Conference of the Parties at its twenty-first session. \(unfccc.int\)](https://unfccc.int/paris_agreement/items/9444), Decision 1/CP.21 paragraph 114 (The Conference of the Parties “strongly urges developed country

the Obama Administration won an appropriation of US\$1 billion towards U.S. GCF commitments, leaving US\$2 billion owed.⁵⁴ President Obama also succeeded in obtaining US\$2.695 billion in funding for other multilateral climate related commitments between the period 2010 and 2015.

The progress made by the U.S. towards fulfilling its UNFCCC commitments during the Obama presidency was quickly reversed with the inauguration of President Donald Trump in 2017. Under President Trump, the United States withdrew from the Paris Agreement.⁵⁵ It also backtracked on prior emissions reduction commitments, lapsed in its payments to the GCF and other climate focused multilateral institutions, and generally abdicated U.S. climate leadership both domestically and internationally.⁵⁶

The inauguration of President Biden in early 2021 led to the signing of Executive Order 14008, which committed the United States to re-join the Paris Agreement and to begin the process of developing its nationally determined contributions (NDCs) under that agreement.⁵⁷ This Executive Order also:

- established the National Climate Task Force, assembling leaders from across 21 U.S. federal agencies and departments to tackle climate change issues on an inter-agency basis;
- created the new position of special presidential envoy for climate, with a position on the National Security Council;
- committed the U.S. to support environmental justice and new, clean infrastructure projects; and
- instructed the Director of National Intelligence to prepare a national intelligence estimate on the security implications of the climate crisis, directing agencies to develop strategies for integrating climate considerations into their international work.⁵⁸

Parties to scale up their level of financial support, with a concrete road map to achieve the goal of jointly providing 100 billion annually by 2020 for mitigation and adaptation while significantly increasing adaptation finance from current levels and to further provide appropriate technology and capacity-building support”)

⁵⁴ Eric Wolf, *Obama Administration cuts second US\$500M check to Green Climate Fund*, Politico, January 17, 2017 <https://www.politico.com/story/2017/01/green-climate-fund-obama-administration-233708>

⁵⁵ [Climate change: US formally withdraws from Paris agreement - BBC News](https://www.bbc.com/news/health-55888888).

⁵⁶ Nathan Huffman and Samantha Gross, *How the United States can return to credible climate leadership*, Brookings Institution, March 1, 2021 <https://www.brookings.edu/research/us-action-is-the-lynchpin-for-successful-international-climate-policy-in-2021/>

⁵⁷ *Executive Order on Tackling the Climate Crisis at Home and Abroad*, The White House, January 27, 2021 <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

⁵⁸ Ibid

On Earth Day 2021 (April 21, 2021), the Biden Administration's released its U.S. International Climate Finance Plan.⁵⁹ This was in connection with President Biden's two-day Leaders' Summit on Climate,⁶⁰ attended virtually by 40 world leaders including Mexican President Lopez Obrador. The U.S. International Climate Finance Plan covered, among other things, scaling up public climate finance by the U.S. and the multilateral banks in which the U.S. is a shareholder, and mobilizing private finance internationally to meet the climate change challenge. In terms of the U.S. government's own commitments, the Plan stated:

The United States intends to double, by 2024, our annual public climate financing to developing countries relative to what we were providing during the second half of the Obama-Biden Administration (FY2013-16). As part of this goal, the United States intends to triple our adaptation finance by 2024. The Biden-Harris Administration will work closely with Congress to meet these goals.

According to climate finance expert Leonardo Martinez-Diaz, total U.S. international public climate finance during the Obama Administration "averaged around US\$2.8 billion a year, with around US\$500 million of this going towards adaptation."⁶¹ Assuming a doubling of the larger figure, the World Resource Institute calculated that this would imply roughly US\$5.7 billion per year in international climate financing by the Biden Administration by 2024.⁶²

In support of the U.S. International Climate Finance Plan, the Biden Administration on May 28, 2021 published its FY-2022 multi-agency Congressional funding proposal, which provided US\$2.5 billion for international climate programs across all U.S. agencies, more than four times the 2021 enacted level.⁶³ This included:

- a US\$1.25 billion contribution to the Green Climate Fund, with funding split between the U.S. State Department and the U.S. Department of Treasury;
- US\$485 million to support other multilateral climate initiatives including US\$100 million for international climate adaptation programs; and

⁵⁹ U.S. International Climate Finance Plan, The White House, April 21, 2021 <https://www.whitehouse.gov/wp-content/uploads/2021/04/U.S.-International-Climate-Finance-Plan-4.22.21-Updated-Spacing.pdf?source=email>

⁶⁰ Leaders' Summit on Climate, April 22-23, 2021 <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/23/leaders-summit-on-climate-summary-of-proceedings/>

⁶¹ Michael Igoe, Biden announces U.S. will double climate finance by 2024, DevEX, April 22, 2021 <https://www.devex.com/news/biden-announces-us-will-double-climate-finance-by-2024-99729>

⁶² Ibid.

⁶³ State Department and U.S. Agency for International Development (US AID) FY-2022 Budget Request, May 28, 2021. <https://www.state.gov/state-department-and-u-s-agency-for-international-development-usaid-fy-2022-budget-request/>

- an additional US\$700 million for the U.S. State Department and U.S. Agency for International Development (US AID) for bilateral, regional, and global climate-related assistance.⁶⁴

At a more detailed level, the State Department/US AID budget for fiscal year 2022 includes bilateral climate aid to developing and middle-income countries totaling US\$491.4 million.⁶⁵ Of this amount, US\$133.2 million is for the Western Hemisphere, including US\$13 million earmarked for Mexico with US\$2 million for clean energy and US\$11 million for sustainable landscapes.

While President Biden’s international climate finance plan has been embraced by the global climate community, much of its success will be predicated on U.S. politics, depending on Congressional appropriations and the related political process. Given the mixed history of America’s partisan climate politics,⁶⁶ the continuity of current commitments is uncertain. In recent years, and particularly under President Trump, Republicans have expressed skepticism about climate change and government spending related to climate change. Accordingly, the U.S. government expenditures contemplated under the U.S. International Climate Finance Plan are more likely to occur if Democrats retain control of the House and Senate in the 2022 midterm elections and retain the Presidency in 2024.

b. U.S. Climate Related Direct Foreign Assistance & Other Financing Support for Mexico

Under President Biden, bilateral cooperation between the U.S. and Mexico on climate change is an important priority. As such, it was among the top three issues raised during President Biden’s first virtual bilateral meeting with Mexican President Lopez Obrador on March 1, 2021, where the two leaders discussed the mutual benefits of addressing short lived climate pollutants and promoting energy efficiency.⁶⁷ Nevertheless, there are other significant issues on the table between the U.S. and Mexico. A key question is whether climate change can be moved higher on the U.S.-Mexico negotiating agenda, with a corresponding increase in U.S. financial support.

i. Direct Foreign Assistance.

⁶⁴ Ibid.

⁶⁵ Congressional Budget Justification, Department of State, Foreign Operations and Related Programs, Supplementary Tables, Fiscal Year 2022, Final, June 25, 2021. <https://www.state.gov/wp-content/uploads/2021/06/FY-2022-CBJ-Supplementary-Tables-Final-6-25-2021.pdf>. The US\$491.3 million is the sum of the amounts specified for the regions identified as Africa, East Asia and Pacific, Europe and Eurasia, Near East, South and Central Asia and Western Hemisphere in the table identified as Climate – FY 2022, pp 19-21.

⁶⁶ A Brief timeline of U.S. climate pledges made, and discarded, *Los Angeles Times*, April 22, 2021 <https://www.latimes.com/environment/story/2021-04-22/three-decades-of-us-climate-pledges-and-inaction>

⁶⁷ US-Mexico Joint Declaration, The White House, March 1, 2021 <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/01/u-s-mexico-joint-declaration/>

The U.S. has provided substantial direct support to Mexico over multiple Administrations, much of that through the U.S. State Department and US AID. Over the period between 2010-2020, U.S. direct foreign assistance to Mexico totaled US\$2.67 billion. However, very little of that sum was tied to climate change issues. Programs supporting democracy, human rights and governance, as well as for peace and security, accounted for 89% of the total. Environmental expenditures, including for climate change, accounted for only 4% of total, or US\$114 million. This indicates the relatively low priority that environmental and climate change issues have had in the U.S.-Mexico relationship.

As noted above, for fiscal year 2022 a total of US\$13 million in total climate funding has been requested by the Biden Administration for Mexico including US\$2 million for clean energy initiatives and US\$11 million for sustainable landscape programs. These numbers are obviously very modest compared to Mexico's total financing needs to fund its NDC obligations.

The U.S. will need to consider whether it should increase its ambition with respect to direct financial support to Mexico, since the numbers to date are quite small in comparison to Mexico's needs.

ii. **Other Financial Support.**

Beyond the direct foreign assistance provided through Department of State/US AID, the U.S. has provided financial support to Mexico for climate-related matters through various U.S. Federal agencies as well as through the International Boundary & Water Commission (IBWC/CILA), the Border Environmental Cooperation Commission (BECC),⁶⁸ and the North American Development Bank (NADB), in which the U.S. and Mexico are co-owners and co-funding partners. This support comes in various forms, including without limitation:

- U.S. Agency programs for the benefit of Mexico, involving U.S. government expenditures in Mexico;
- U.S. Agency credit support for private sector expenditures in Mexico;
- U.S. Agency grants to private sector parties for expenditure in Mexico, sometimes with matching funds;
- Loans by the NADB for projects in Mexico undertaken by private parties.

All of this should be taken into account as U.S. financial support for Mexico's NDC (limited in the case of NADB to 50% of the loan amount, corresponding to the U.S.'s ownership percentage in the bank), consistent with the Copenhagen Accord, whereby funding for the US\$100 billion

⁶⁸ The BECC and NADB merged in 2017, [NADB and BECC merge | NADB: North American Development Bank](#). The merged institution is now generally referred to as the North American Development Bank, referenced in this paper as NADB.

annual commitment from developed countries “will come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance.”⁶⁹

In the following section of this paper, we will examine how the U.S. has provided financial support for Mexican climate action in many different areas. We will first look at matters focused on mitigation of climate change, and then at matters focused on adaptation, since Mexico’s NDC covers both mitigation and adaptation.

c. U.S. Funding Support for Climate Mitigation in Mexico

Key components of Mexico’s mitigation strategy include reduction of short-lived climate pollutants (methane, hydrofluorocarbons, and carbon black particulate matter); reduction of CO₂ emissions in the energy and industrial sectors; and improved energy efficiency, since less use of energy means fewer emissions. A number of U.S. government financing activities bear on these matters.

i. The U.S. Environmental Protection Agency (EPA).

Funding by EPA for environmental projects and programs in Mexico dates to 1983 with the signing of the La Paz Agreement for the Protection and Improvement of the Environment in the Border Area.⁷⁰ This breakthrough agreement established a framework for environmental cooperation between Mexico’s Environmental Ministry (SEMARNAT) and the EPA to solve problems related to air, water and land-based pollution in the border region.

Pursuant to the La Paz Agreement, EPA and SEMARNAT most recently established the Border 2025 program, which includes a commitment for the two agencies to develop strategies and measures to reduce emissions on conventional air pollutants that “may contribute to emissions of greenhouse gases.”⁷¹ Additionally, both agencies have jointly committed to support the update and/or completion of climate action plans in each of the six northern Mexican States and build the necessary capacity to guarantee sustained implementation.⁷²

In spite of these joint commitments, it is worth noting that the U.S. EPA’s proposed FY-2022 budget for environmental programs and management in the border region, in support of Border 2025, is limited to US\$3.192 million. This is a very small amount compared to Mexico’s

⁶⁹ Decisions adopted by the Conference of the Parties at COP 15 in Copenhagen, Decision 2/CP.15 Copenhagen Accord. <https://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf>. See also UFGCC, Roadmap to US US\$100 billion, <https://unfccc.int/sites/default/files/resource/climate-finance-roadmap-to-us100-billion.pdf>

⁷⁰ 1983 La Paz Agreement, Agreement between the United States and Mexico on Cooperation for the Protection and Improvement of the Environment in the Border Area, <https://www.epa.gov/sites/default/files/2015-09/documents/lapazagreement.pdf>

⁷¹ EPA/SEMARNAT, *Border 2025: United States-Mexico Environmental Program*, 2021

⁷² *Ibid*, page 15

funding requirements for its NDCs considering the growing environmental and climate change related priorities in our shared border region.

ii. Energy Matters

Renewable Energy. A shift from electricity generated with fossil fuels to electricity from renewable energy sources is key to reduction of emissions. The U.S. has various programs, directly and through NADB, that could assist with this shift to renewable energy.

The United States International Development Finance Corporation (DFC) is a development finance agency of the U.S. government. According to its website, DFC “partners with the private sector to finance solutions to the most critical challenges facing the developing world today.”⁷³ On March 11, 2020, its Board approved financing in the principal amount of up to US\$241 million (plus interest) to Infraestructura Energetica Nova, S.A.B. de C.V. (IENOVA) for the purpose of developing and constructing solar power assets in Mexico.⁷⁴ The financing was in the form of a loan guaranty, where the total cost of the project was US\$441 million.⁷⁵ This transaction could be a model for the financing by DFC of additional renewable energy projects in Mexico.

NADB is a binational financial institution established by the United States and Mexico⁷⁶ to provide financing for “the development and implementation of infrastructure projects, as well as to provide technical and other assistance for projects and actions that preserve, protect or enhance the environment in order to advance the well-being of the people of the United States and Mexico.”⁷⁷ The projects NADB finances must be located in the “border region,” i.e., within 100 kilometers (about 62 miles) north of the international boundary and within 300 kilometers (about 186 miles) south of the border.⁷⁸ NADB has provided financing for a number of renewable energy projects in Mexico over the years. Active projects as of March 31, 2021 include wind energy projects in Mina, Nuevo Leon and Reynosa, Tamaulipas, where NADB will provide US\$74.1 million and US\$50 million in loan financing, respectively.⁷⁹ Even though NADB can provide financing for renewable energy projects in Mexico only within 300 kilometers of the U.S. border, this would still be helpful as one component of Mexico’s overall financing plan for renewable energy within the country as a whole.

⁷³ [Who We Are | dfc.gov](https://www.dfc.gov/about/who-we-are).

⁷⁴ [BDR\(20\)12 Infraestructura Energetica Nova IEnova \(dfc.gov\)](https://www.dfc.gov/press-releases/2020/03/11/bdr2012-infraestructura-energetica-nova-ienova).

⁷⁵ [Public Information Summary - IEnova 9000093572 \(dfc.gov\)](https://www.dfc.gov/press-releases/2020/03/11/bdr2012-infraestructura-energetica-nova-ienova).

⁷⁶ See <https://www.nadb.org/about/overview>.

⁷⁷ See <https://www.nadb.org/about/overview>. As of March 31, 2021, “NADB is participating in 280 certified environmental infrastructure projects with close to US\$3.41 billion in loans and grants, of which 95% has been disbursed for project implementation. NADB participation represents roughly 33% of the total investment in these projects, with approximately 59% going to projects in Mexico and 41% to projects in the United States.” NADB Summary Status Report, https://www.nadb.org/uploads/files/summary_financing_charts.pdf.

⁷⁸ The restriction on financing solely in the border region and the definition of border region are set forth in the NADB Charter, https://www.nadb.org/uploads/content/files/Policies/Charter_Eng.pdf.

⁷⁹ NADB, Summary Of Project Implementation Activities, Active Projects, March 31, 2021, https://www.nadb.org/uploads/files/active_project_report.pdf.

Another U.S. program that could be of assistance to development of renewable energy in Mexico is the joint venture between the National Renewable Energy Laboratory (NREL),⁸⁰ a national research laboratory within the U.S. Department of Energy (DOE), and US AID.⁸¹ The joint venture is founded in a multi-year, US\$28 million interagency agreement that spans multiple projects to assist over 40 countries around the world with policy, planning, and renewable energy deployment support.⁸² In essence, NREL-US AID provides technical assistance, which is explicitly excluded from Mexico's specifications for conditional commitment funding. Still, the NREL-US AID technical expertise can support funding requests for renewable energy and related projects from other sources, and Mexico could find it beneficial to take advantage of this expertise.

The U.S. Department of Interior (DOI) also has an engagement with Mexico, through Mexico's Ministry of Energy (*Secretaría de Energía*, or SENER), which potentially supports development of renewable energy. One element of that engagement is a 2016 memorandum of understanding (MOU) focused on the assessment, exploration, development and production of energy resources (oil and gas, solar, wind, hydropower, and other renewable energy such as ocean, geothermal or biomass resources) with attention to environment protection and climate change impacts.⁸³ While much of the MOU is focused on oil and gas, premised on DOI's jurisdiction over oil, gas and minerals leases on federal lands through the Bureau of Land Management (BLM), the MOU also provides the basis for exchange of information and best practices on potential renewable energy projects. Once again, this is not funding, but the engagement with DOI could support funding requests from other sources.

iii. Energy Efficiency.

Improved energy efficiency is another critical component of Mexico's mitigation strategy. Once again, U.S. government agencies and NADB can provide assistance to Mexico.

NADB could be a source of funding on certain efficiency projects in Mexico. In 2020, it provided funding to a program to lease or finance up to 223 natural gas-fueled vehicles for public and private personnel transportation services within the Mexican border region. One objective of the project was to encourage more people to use public transportation instead of other less efficient means of transportation, such as taxis or private vehicles.⁸⁴ Since one of the principles set forth in Mexico's Road Map for Energy Efficiency is "Increased use of public transport," this funding was in support of Mexico's energy efficiency strategy. Other efficiency projects in the

⁸⁰ [National Renewable Energy Laboratory \(NREL\) Home Page | NREL](#)

⁸¹ [USAID-NREL Partnership | NREL](#).

⁸² [Q&A with Alexandra Aznar: USAID-NREL Partnership Readies for Rapid Expansion To Help Meet Needs of Global Community | News | NREL](#).

⁸³ Memorandum of Understanding between the U.S. Department of Interior and Ministry of Energy of Mexico, [Microsoft Word - DOI - SENER MOU Final Formatted US text - English.docx](#).

⁸⁴ [Value Arrendadora Border-Wide Vehicle Program for Public Transportation in Mexico | NADB: North American Development Bank](#).

border region with a source of income that could be used to repay loans would also be able to seeking funding from NADB.

Within DOE, the Lawrence Berkeley National Laboratory (LBNL), another national research laboratory, is an advisor to Mexico on energy efficiency issues, among other matters. LBNL spearheaded the Mexico Energy Initiative⁸⁵ with additional funding from US AID and support from NREL, which “seeks to foster increased high impact, collaborative clean energy research between the U.S. and Mexico that will benefit the U.S., California, Mexico and the world.”⁸⁶

Among the tangible projects undertaken through the Mexico Energy Initiative is the Cooling Initiative, focused on catalyzing innovation, increased efficiency and emissions reductions in cooling energy systems in Mexico, and the Energy Pathway Initiative, focused on Mexican innovations in energy efficiency.⁸⁷ These initiatives involve research and technical assistance, and, as such, cannot be viewed as part of U.S. financial support to Mexico. At the same time, such research and technical assistance, e.g. for more efficient air conditioning, provides a foundation to seek funding for widespread deployment of increased efficiency technologies.

d. U.S. Funding Support for Climate Adaptation in Mexico (including Mitigation Crossovers)

Mexico’s adaptation strategy, discussed above, has four major themes – protection of population, protection of the water supply and water infrastructure, protection of the food supply, and protection of biodiversity and the oceans. A number of U.S. government programs and financing activities bear on these matters. Here, opportunities exist for expanded cross-border Federal agency collaboration.

Already some collaboration is occurring through the National Oceanic and Atmospheric Administration’s (NOAA) National Hurricane Center (NHC), which provides storm surge forecasts which are of increasing interest to Mexican communities along the Pacific, Gulf of Mexico and Caribbean regions⁸⁸. For example, the director of NHC and other NHC personnel carried out a hurricane preparedness mission to Mexico and Caribbean in 2019, including public visits to Veracruz and Cozumel.⁸⁹ Additionally, NOAA provides support to the North American Drought Monitor, a cooperative Canadian, Mexican, and US effort to monitor drought conditions across the continent.

In response to growing drought conditions in the US-Mexico border region, the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) has

⁸⁵ Berkeley Lab, Mexico Energy Initiative <https://mexico.lbl.gov/partners-and-sponsors>

⁸⁶ [Home | Mexico Energy Initiative \(lbl.gov\)](#).

⁸⁷ Berkeley Lab, Mexico Energy Initiative, Cooling Initiative, <https://mexico.lbl.gov/cooling-initiative>

⁸⁸ GNEB, p. 20

⁸⁹ [U.S. hurricane forecasters embark on preparedness mission to Mexico and Caribbean | National Oceanic and Atmospheric Administration \(noaa.gov\)](#).

supported private landowners along the Texas border with Mexico focused climate change mitigation strategies related to soil health, nitrogen management, livestock partnership grazing and pasture, energy efficiency. A case in point was their Rio Grande project, just downstream from El Paso focused on carbon sequestration of cropland.⁹⁰ Here, the potential exists for expanded cross-border technical assistance for private landowners, ranchers and farmers in Mexico. In fact, EPA’s Good Neighbor Environmental Board made a specific recommendation to the Obama Administration to allocate funds through NRDC to “*rehabilitate aging stormwater infrastructure and complete watershed plans in the U.S.-Mexico border region to prevent and mitigate flooding...including providing financial assistance for water conservation projects that target shared resources (e.g., the Colorado River, ground water) in such areas as California-Baja California, where people and ecosystems are already experiencing negative climate-related impacts.*”⁹¹

Recognizing that the U.S-Mexico border region is a contiguous landscape where vectors and zoonotic pathogens thrive and circulate without respecting political boundaries, the GNEB also recommended a more pro-active cross-border “One Health” approach public health issues with the U.S. Center for Disease Control (CDC) leveraging its existing public health infrastructure to support the sharing of surveillance strategies and data that can help to facilitate timely detection of cross-border outbreaks as well as to assist trans-boundary vector prevention and control efforts^{92 93}

In a terms of US-Mexico-Canada trilateral cooperation, a declaration of intent for the conservation of North American birds and their habitats was signed between the U.S, Mexico and Canada in 2005⁹⁴ that has provided annual funding to support wetlands protection through the North American Wetlands Conservation Act (NAWCA). Since 1991, NAWCA funding has provided Mexican conservation organizations with over US\$64.6 million supporting 333 projects in 11 Mexican States. In 2020, NAWCA Mexico-focused funding totaled \$3.14 million, supporting 13 projects.⁹⁵ A similar program, the Neotropical Migratory Bird Conservation Act (NMBCA), supports migratory bird programs throughout the Americas including Mexico. In 2021, NMBCA provided \$4.8 million in federal funds. Of this total, \$1.31 million benefited Mexican conservation nonprofits or conservation projects based in Mexico.⁹⁶

Another important trilateral cooperation vehicle of climate related importance is the *Security and Prosperity Partnership of North America* (SPP)⁹⁷, an initiative between the United States,

⁹⁰ Ibid, p. 18

⁹¹ Ibid, p. 38

⁹² Ibid, p. 64

⁹³ Ibid, p. 72

⁹⁴ Declaration of Intent for Conservation of North American Birds and Their Habitat between the U.S. Department of the Environment Canada, U.S. Department of Interior, and the Mexican Secretariat of Environment and Natural Resources, signed May 31st, 2005. https://www.doi.gov/sites/doi.gov/files/uploads/2005_nabci_english.pdf

⁹⁵ <https://www.fws.gov/migratorybirds/pdf/grants/nawca-mexico.pdf>

⁹⁶ <https://www.fws.gov/birds/news/210518press-release.php>

⁹⁷ Security and Prosperity Partnership of North America

<https://www.phe.gov/Preparedness/international/spp/Pages/default.aspx>

Canada and Mexico focused on increased security on emerging health focused priorities including management of pandemics, emergency management and food and product safety.

Other US Federal Agency supported adaptation mechanisms for Mexico include DOI bilateral cooperation initiatives with Mexico that have a specific climate change focus. Among those initiatives are: a bilateral agreement on wildfire protection signed in 1999⁹⁸; a 2016 mutual cooperation MOU signed by DOI and SEMARNAT focused on strengthening binational cooperation in the areas of biodiversity and ecosystems, natural protected areas, water resources, climate change and environmental protection and industrial safety in the hydrocarbon sector⁹⁹; a joint declaration on Colorado River issues signed on January 13, 2009 that specifically recognizes “the potential adverse impacts of climate change” on Colorado River allotments between both nations¹⁰⁰; and a 2016 MOU between DOI’s U.S. Geological Survey and Mexico’s Institute of Statistics and Geography (INEGI) focused on cooperation in the use of U.S. land remote sensing satellite data to support, among other things, binationally focused climate change research¹⁰¹.

e. The Role of Public Private Partnerships in Climate Finance

While U.S. Federal Agency support of binational climate change initiatives do have the potential to help Mexico achieve its NDCs, as noted, given current funding levels this support will not be enough. Here, potential exists for expanded public private partnerships (PPP) in support of U.S-Mexico binational goals and objectives.

In 2016, the Obama Administration launched an innovative Public-Private Partnership focused on promoting open data to promote global climate change resilience known as the Partnership for Resilience and Preparedness (PREP) that led to a joint declaration signed by 13 other nations including Mexico and included the collaboration of DOI, NASA, NOAA and the following non-Federal contributors: Amazon Web Services (AWS), ESRI, Google, Microsoft, IBM, the World Bank, World Resources Institute among other partners.¹⁰²

⁹⁸ Wildfire Protection Agreement between the U.S. Department of Agriculture, U.S. Department of Interior, Mexico’s Secretariat of Environment and Natural Resources (SEMARNAT) and the Mexican Forestry Commission signed on April 8, 2015.

https://www.doi.gov/sites/doi.gov/files/uploads/2015_usmx_fire_agreement_10april15_english_1.pdf

⁹⁹ Memorandum of Understanding between the U.S. Department of Interior and the Mexican Secretary of the Environment and Natural Resources, signed February 25, 2016.

¹⁰⁰ Joint Declaration on Colorado River Issues, signed on January 13, 2009.

https://www.doi.gov/sites/doi.gov/files/uploads/2009_col_riv_decl_jan_14_09_eng.pdf

¹⁰¹ Memorandum of Understanding between the U.S. Geological Survey and the National Institute of Statistics and Geography of Mexico for Cooperation in the use of U.S. Land Remote Sensing Satellite Data, signed on November 13, 2016. https://www.doi.gov/sites/doi.gov/files/uploads/2015_mou_usgs-mexico_inegi_remote_sensing_english_final_0.pdf

¹⁰² The Fact Sheet: Launching New Public-Private Partnership and Announcing Joint Declaration on Leveraging Open Data for Climate Resilience, September 22, 2016. <https://obamawhitehouse.archives.gov/the-press-office/2016/09/22/fact-sheet-launching-new-public-private-partnership-and-announcing-joint>

Building on the success of PREP, the Biden Administration could promote expanded cross-border PPPs to leverage U.S. Federal Agency technical assistance and funding, working collaboratively with U.S. companies with an operational presence in Mexico as well as private U.S. foundations with a prior commitment and track record of supporting environmental and climate change focused causes in Mexico.

Between 2011-2015, U.S. foundations contributed USD\$1.3 billion to climate change related causes with 63.5% (US\$835.6 million) of this funding benefiting international charities.¹⁰³ During this same timeframe, a total of US\$782.8 million was provided by U.S. foundations to Mexican nonprofit organizations for all causes accounting for 29% of all U.S. funding to Latin America charities¹⁰⁴. Leading U.S. foundations with a climate change focus and a commitment to Mexico that could be potential collaborative partners with US Federal Agencies in Mexico include: the Bill & Melinda Gates Foundation, the Walton Family Foundation, the W.K Kellogg Foundation, The David & Lucile Packard Foundation, The William & Flora Hewlett Foundation and the Open Society Foundation.

A good example of the potential of cross-border philanthropic collaborations in partnership with U.S. and Mexican Federal agencies is **Raise the River**, a binational initiative that seeks to return water and life to the Colorado River Delta. Raise the Rivera – a collaborative of Pronatura Noroeste, The Sonora Institute, The Redford Center, Audubon, the Nature Conservancy and Restaremos El Colorado – has worked closely with the IBWC/CILA, DOI, SEMARNAT and CONANP and was instrumental in the signing of IWBC Minute 323 with provisions to share Colorado River water surpluses and shortages, and to incentivize water conservation (especially keeping more water in Lake Mead). These measures look more important than ever as we approach the first ever declared shortage¹⁰⁵ on the Lower Colorado.¹⁰⁶ Key U.S. funders for Raise the River include the Walton Family Foundation, the National Fish & Wildlife Foundation, The David & Lucille Packard Foundation, the Arizona Community Foundation, the Anne & Gordon Getty Foundation. Key Mexican foundations supporting this binational initiative include: The Carlos Slim Foundation, The Carlos Slim Foundation, Fundación Gonzalo Río Arrote, and Fundación Tiche Muñoz.

Another existing example of U.S. Federal Agency led PPPs is U.S AID’s Global Development Alliance (GDA)¹⁰⁷, that has in the past supported other climate focused projects in other overseas locations in Africa and South America in collaboration with US private sector funders.

3. Conclusion

¹⁰³ “The State of Global Giving by U.S. Foundations: 2011-2015, Foundation Center and Council of Foundation, 2016

¹⁰⁴ The State of Global Giving, pg. 26

¹⁰⁵ [Shortage on the Colorado River is Imminent, but a Catastrophic One is Not | Audubon.](#)

¹⁰⁶ <https://raisetheriver.org/category/blog/>

¹⁰⁷ <https://www.usaid.gov/gda/gda-resources>

According to the U.S. National Office of Intelligence’s *2021 annual threat assessment*, “the effects of a changing climate and environmental degradation will create a mix of direct and indirect threats, including risks to the economy, heightened political volatility, human displacement... that will play out during the next decade and beyond”¹⁰⁸. Yet the threats are becoming ever more real, and closer to home. A July 2021 scientific study published in *The Lancet*¹⁰⁹ found that extreme weather accounted for 9.4% of all deaths globally between 2000 and 2019, and while most deaths have been caused by exposure to cold, the trend is likely to reverse as the planet warms. In North America, the study found, excess heat and cold is responsible for almost 200,000 deaths every year, from which 173,000 are only in the United States.

This is only one of the multiple health-related consequences of climate change, in addition to water pollution and acidification, air pollution related to particular matter emissions, air borne diseases and many others that are particularly latent in the border region and other strategic areas of binational interest that will most certainly benefit from shared, coordinated action. As pointed out by the COVID-19 pandemic, in fact, coordinated action is the *only* way if we are to tackle this emergent situation successfully.

On the other hand, the U.S. and Mexico are the third and fourth most megadiverse countries in the world, and as such, opportunities to leverage natural assets jointly abound. Protecting these ecosystems is necessary if we are to avoid a climate catastrophe because of the carbon sinks they hold, yet they provide low-hanging fruits for climate mitigation and adaptation actions that should be taken advantage of jointly.

In response to the challenges posed by climate change, opportunities also exist for the U.S. and Mexico to work with Canada to leverage their unique trade relationship through the USMCA to not only promote greater “near sourcing” of electric vehicles, solar panels, and manufacturing products that are more energy efficient but also work to bolster the North American food supply chain to reduce supply shocks that could arise due to adverse weather events or infectious disease outbreaks as recently experienced with COVID-19 pandemic. Not only would such a strategy make the U.S, Mexico and Canada more climate resilient but also help promote a skilled workforce focused on the “green economy” and best-in-class ESG standards, making North America more competitive globally.

Historically, the United States and Mexico have had competing domestic political agendas that have not always aligned. This is exasperated by the asynchronous nature of US Presidential terms and Mexican *sexenios* that can further complicate opportunities to reach consensus on bilateral issues of common strategic interest such as climate change. A case in point is Mexican President Lopez Obrador’s current focus on expanding investment and production of fossil fuel

¹⁰⁸ *Annual Threat Assessment of the U.S. Intelligence Community*, Office of the Director of National Intelligence, April 9, 2021, page 18. <https://www.dni.gov/files/ODNI/documents/assessments/ATA-2021-Unclassified-Report.pdf>

¹⁰⁹ <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2821%2900081-4>

operations in Mexico, including expanded coal mining, given near term budgetary pressures and historic national sentiment that has favored government control for its oil resources. Yet, this comes at a time when U.S. President Biden is championing an effort across the U.S. Government to de-invest in fossil fuel projects and pressing the MDBs to similarly transition away from funding such projects in favor of renewable energy projects in developing countries.

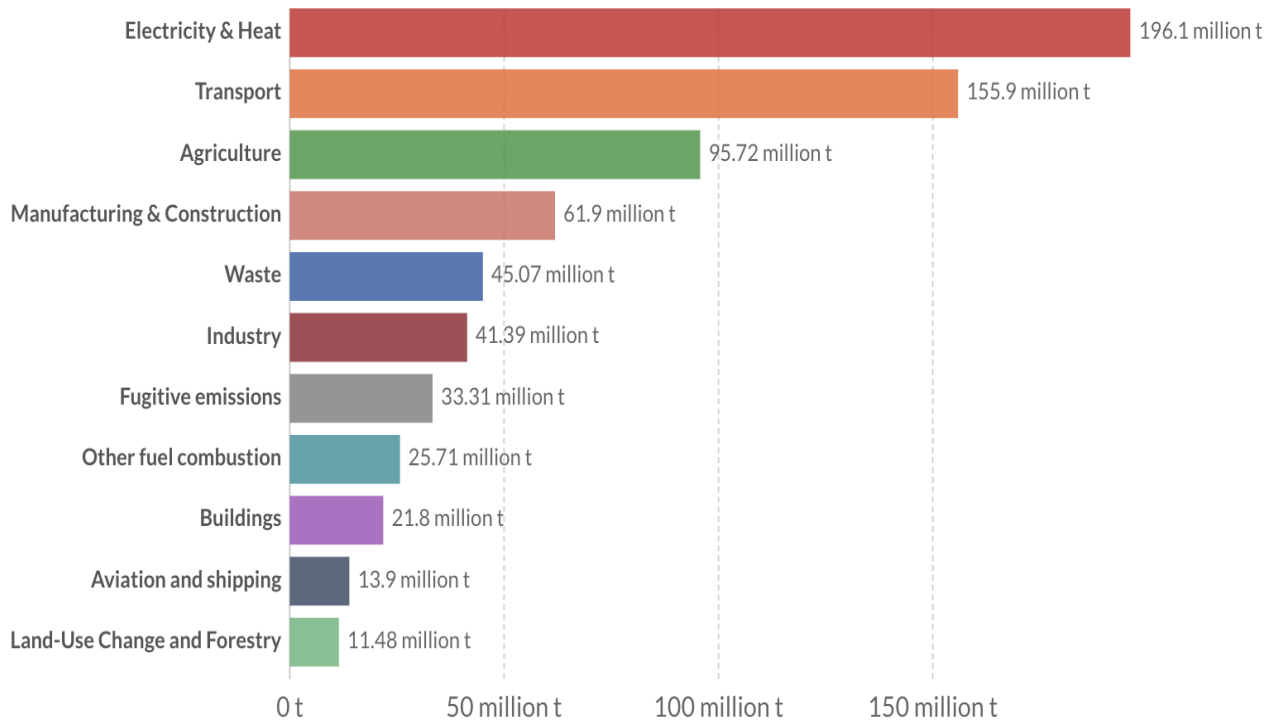
In spite of their current differences on energy policy and NDC priorities, the United States and Mexico have much to gain through expanded bilateral climate change cooperation. Given the emerging cross-border threats of climate change induced extreme weather events including hurricanes, coastal flooding, heat waves as well as the risk of wild fires, severe drought conditions, water shortages and crop failure as well as the growing probability of increased levels of migration from Mexico's most climate-vulnerable communities, the need for expanded bilateral cooperation among U.S. and Mexican federal agencies is paramount.

Accordingly, in spite of current differences, the U.S. would be well served to do whatever is possible to expand foreign direct investment to Mexico to support binational climate change initiatives beyond current levels. Additionally, the U.S. should also assert its soft power influence to encourage expanded investment by the MDBs and the private sector towards climate change related initiatives of mutual benefit, some of which have been described in this white paper.

Mexico has a daunting challenge ahead and achieving its international climate commitments is something it cannot do without help. For this reason, Mexico needs to make its case to the United States and the broader international community at COP-26. Yet, first, it needs to commit to these efforts at home too.

ANNEX

Greenhouse Gas Emissions in Mexico by Sector, 2016 Measured in tons of CO₂e.



Source: CAIT Climate Data Explorer via. Climate Watch

OurWorldInData.org/co2-and-other-greenhouse-gas-emissions • CC BY

Source: Our World in Data

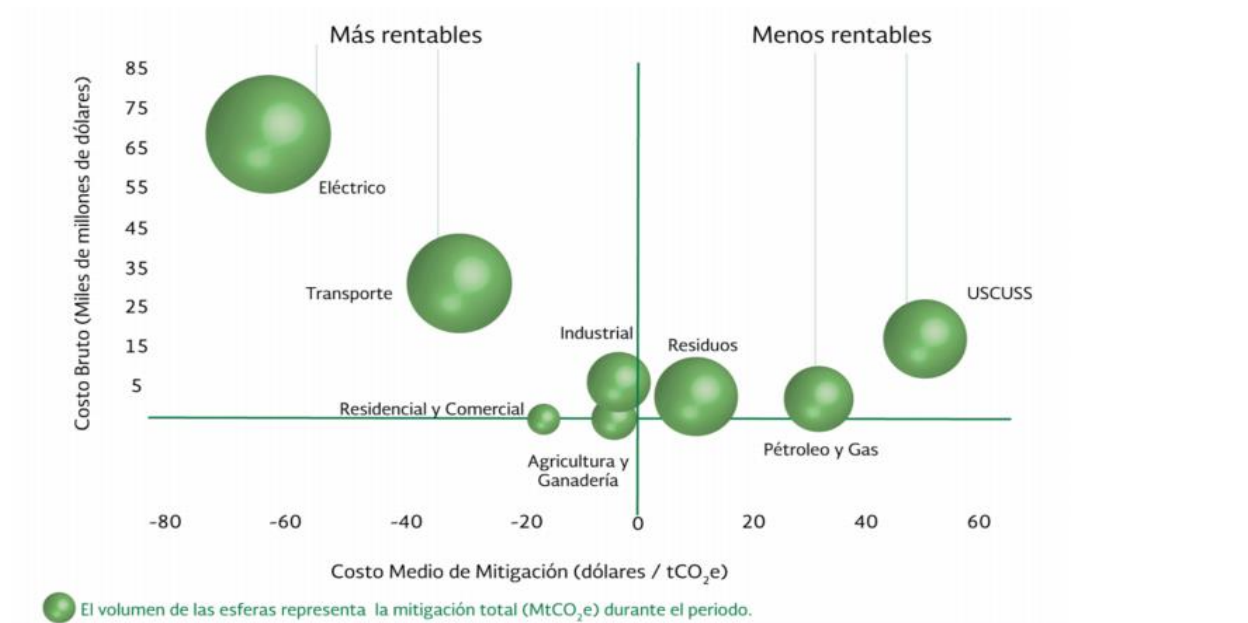
Emission Reductions proposed by sector through 30 actions (INECC 2015).

Sector		30 Medidas
I. Transporte (Fuentes móviles)		I.1 Actualizar la norma de emisiones y eficiencia energética para vehículos ligeros nuevos I.2 Ejecutar programas de densificación de ciudades y acciones para adoptar sistemas de transporte integrado I.3 Realizar un cambio modal en transporte de carga I.4 Publicar una norma de emisiones y eficiencia energética para vehículos pesados nuevos I.5 Restringir la importación de vehículos usados I.6 Construir trenes interurbanos de pasajeros I.7 Acelerar la penetración de tecnologías limpias y eficientes en autotransporte I.8 Aplicar programas de introducción de vehículos de transporte público a gas natural
II. Eléctrico		II.1 Alcanzar 35 por ciento de energía limpia en 2024 y 43 por ciento al 2030 II.2 Modernizar la planta de generación II.3 Reducir las pérdidas técnicas en la red eléctrica II.4 Sustituir el combustóleo por gas natural
III. Residencial y Comercial		III.1 Utilizar equipos ahorradores de agua para disminuir la demanda de energía para calentamiento de agua III.2 Sustituir calentadores convencionales por otros eficientes (instantáneos y solares)
IV. Petróleo y Gas		IV.1 Ejecutar la Iniciativa Global de Reducción de Metano (GM) IV.2 Reducir las emisiones fugitivas por NAMA IV.3 Participar en las metas de generación y autoabasto con energías limpias (cogeneración) IV.4 Instrumentar sistemas de captura, almacenamiento y uso de bióxido de carbono (CCUS) IV.5 Sustituir combustibles pesados por gas natural en el Sistema Nacional de Refinación
V. Industrial		V.1 Ejecutar NAMA del sector cementero V.2 Participar en las metas de generación y auto abasto con energías limpias V.3 Utilizar esquilmos como combustible V.4 Sustituir combustóleo por combustibles más limpios, como el gas natural
VI. Agricultura y Ganadería		VI.1 Disminuir la quema de residuos de cosechas en campo en superficies agrícolas, con asistencia técnica en siete estados del país con mayor generación de residuos VI.2 Instalar y operar biodigestores para las excretas de ganado estabulado VI.3 Sustituir los fertilizantes sintéticos nitrogenados por biofertilizantes
VII. Residuos		VII.1 Alcanzar cero emisiones de metano en rellenos sanitarios en 2030 VII.2 Lograr cero quema a cielo abierto al 2030
VIII. USCUSS		VIII.1 Alcanzar una tasa de deforestación cero para el 2030 mediante la Estrategia Nacional REDD+ (ENAREDD+) VIII.2 Fomentar el manejo forestal sustentable e incremento de la productividad en bosques y selvas con vocación productiva y en terrenos con potencial para establecer plantaciones forestales comerciales

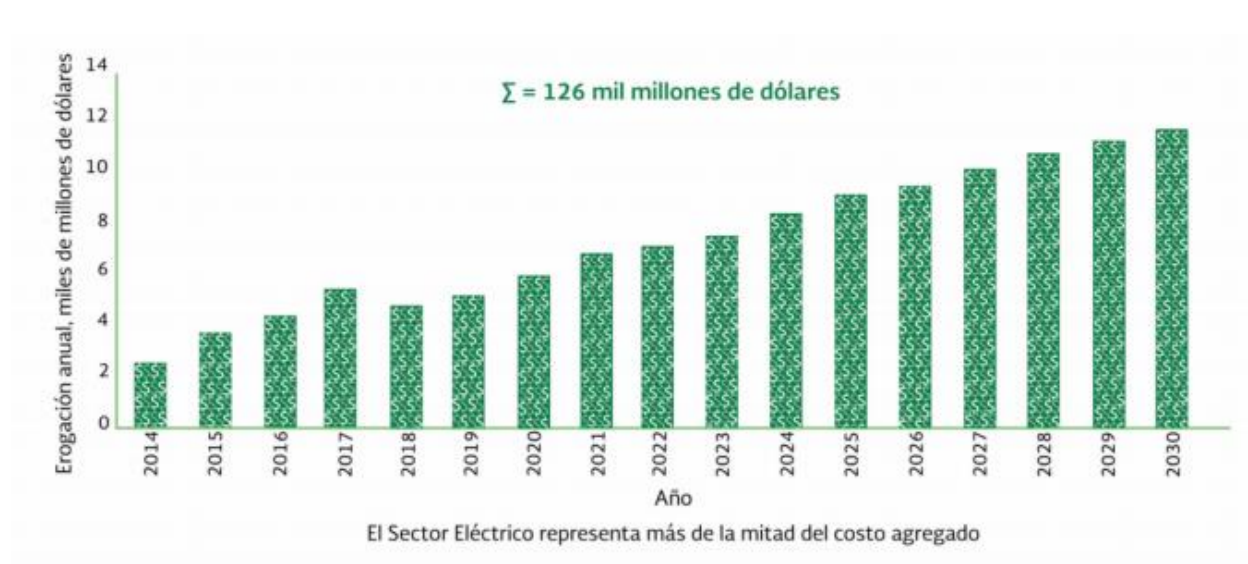
Cuadro A. 2 Medidas de Mitigación Indicativas de las CND No Condicionadas.
Fuente: INECC, 2015.

Source: INECC (2018). Costos de las Contribuciones Nacionalmente Determinadas de México. Medidas Sectoriales No Condicionadas. Informe final. Instituto Nacional de Ecología y Cambio Climático (INECC), México.

Unconditional NDC Implementation Costs per INECC's Analysis



Gráfica C. 3 Costo medio de mitigación y costo bruto sectoriales, 2014-2030. Todas las cantidades monetarias están expresadas en dólares estadounidenses de 2017. Fuente: INECC, 2017



Gráfica C. 1 Erogación anual para instrumentar la CND. Todas las cantidades monetarias están expresadas en dólares estadounidenses de 2017, (inversión inicial, costos de operación y de mantenimiento). Fuente: INECC, 2017

Source: INECC (2018). Costos de las Contribuciones Nacionalmente Determinadas de México. Medidas Sectoriales No Condicionadas. Informe final. Instituto Nacional de Ecología y Cambio Climático (INECC), México.