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Technical analysis of the second biennial update report of Mexico submitted on 28 November 2018

Summary report by the team of technical experts

Summary

According to decision 2/CP.17, paragraph 41(a), Parties not included in Annex I to the Convention, consistently with their capabilities and the level of support provided for reporting, were to submit their first biennial update report by December 2014. Further, paragraph 41(f) of that decision states that Parties not included in Annex I to the Convention shall submit a biennial update report every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report. As mandated, the least developed country Parties and small island developing States may submit biennial update reports at their discretion. This summary report presents the results of the technical analysis of the second biennial update report of Mexico, conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

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Abbreviations and acronyms

AD	activity data
AFOLU	agriculture, forestry and other land use
BUR	biennial update report
CDM	clean development mechanism
CGE	Consultative Group of Experts
CH_4	methane
CO	carbon monoxide
COP	Conference of the Parties
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EF	emission factor
GEF	Global Environment Facility
GHG	greenhouse gas
GIZ	German Agency for International Cooperation
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
NA	not applicable
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NIR	national inventory report
NMVOC	non-methane volatile organic compound
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
NO_X	nitrogen oxides
N_2O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
Revised 1996 IPCC Guidelines	*Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*
SF_6	sulfur hexafluoride
TTE	team of technical experts
UNFCCC guidelines for the preparation of NCs from non-Annex I Parties	"Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention"
UNFCCC reporting guidelines on BURs	"UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention"
2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*

I. Introduction and process overview

A. Introduction

1. The process of ICA consists of two steps: a technical analysis of the submitted BUR and a facilitative sharing of views under the Subsidiary Body for Implementation, resulting in a summary report and record, respectively.

2. According to decision 2/CP.17, paragraph 41(a), non-Annex I Parties, consistently with their capabilities and the level of support provided for reporting, were to submit their first BUR by December 2014. In addition, paragraph 41(f) of that decision states that non-Annex I Parties shall submit a BUR every two years, either as a summary of parts of their NC in the year in which the NC is submitted or as a stand-alone update report.

3. Further, according to paragraph 58(a) of the same decision, the first round of ICA is to commence for non-Annex I Parties within six months of the submission of the Parties' first BUR. The frequency of developing country Parties' participation in subsequent rounds of ICA, depending on their respective capabilities and national circumstances, and the special flexibility for small island developing States and the least developed country Parties, will be determined by the frequency of the submission of BURs.

4. Mexico submitted its first BUR on 23 October 2015, which was analysed by a TTE in the first round of technical analysis of BURs from non-Annex I Parties, conducted from 29 February to 4 March 2016. After the publication of its summary report, Mexico participated in the first workshop for the facilitative sharing of views, convened in Marrakech on 10 November 2016.

5. This summary report presents the results of the technical analysis of the second BUR of Mexico, undertaken by a TTE in accordance with the provisions on the composition, modalities and procedures of the TTE under ICA contained in the annex to decision 20/CP.19.

B. Process overview

6. In accordance with the mandate referred to in paragraph 2 above, Mexico submitted its second BUR on 28 November 2018 as a summary of parts of its NC6. The submission was made more than two years after the submission of the first BUR.

7. During the technical analysis, the Party clarified that the submission of the second BUR was delayed as a result of administrative issues related to accessing GEF funding and the additional burden of preparing the NC6.

8. The technical analysis of the BUR took place from 27 to 31 May 2019 in Bonn and was undertaken by the following TTE, drawn from the UNFCCC roster of experts on the basis of the criteria defined in decision 20/CP.19, annex, paragraphs 2–6: Maria Ana Gonzalez Casartelli (Argentina), Carlos Fuller (former member of the CGE from Belize), Renata Patricia Soares Grisoli (Brazil), Agustín José Inthamoussu (Uruguay), Naofumi Kosaka (Japan), Kakhaberi Mdivani (Georgia), Lilian Portillo (former member of the CGE from Paraguay), Marcelo Theoto Rocha (Brazil), Christoph Streissler (Austria) and Silke Christina Wartmann (Germany). Mr. Rocha and Ms. Wartmann were the co-leads. The technical analysis was coordinated by Sohel Pasha, Nalin Srivastava and Pedro Torres (secretariat).

9. During the technical analysis, in addition to the written exchange, through the secretariat, to provide technical clarifications on the information reported in the BUR, the TTE and Mexico engaged in consultation[1] on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Mexico's second BUR, the TTE prepared and shared a draft summary report with Mexico on 29 July 2019 for its review and comment. Mexico, in turn, provided its feedback on the draft summary report on 6 November 2019.

[1] The consultation was conducted via teleconferencing.

10. The TTE responded to and incorporated Mexico's comments referred to in paragraph 9 above and finalized the summary report in consultation with the Party on 13 November 2019.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

11. The scope of the technical analysis is outlined in decision 20/CP.19, annex, paragraph 15, according to which the technical analysis aims to, without engaging in a discussion on the appropriateness of the actions, increase the transparency of mitigation actions and their effects and shall entail the following:

(a) The identification of the extent to which the elements of information listed in paragraph 3(a) of the ICA modalities and guidelines (decision 2/CP.17, annex IV) have been included in the BUR of the Party concerned (see chapter II.B below);

(b) A technical analysis of the information reported in the BUR, specified in the UNFCCC reporting guidelines on BURs (decision 2/CP.17, annex III), and any additional technical information provided by the Party concerned (see chapter II.C below);

(c) The identification, in consultation with the Party concerned, of capacity-building needs related to the facilitation of reporting in accordance with the UNFCCC reporting guidelines on BURs and to participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention (see chapter II.D below).

12. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Mexico's BUR outlined in paragraph 11 above.

B. Extent of the information reported

13. The elements of information referred to in paragraph 11(a) above include the national GHG inventory report; information on mitigation actions, including a description of such actions, an analysis of their impacts and the associated methodologies and assumptions, and the progress made in their implementation; information on domestic MRV; and information on support needed and received.

14. According to decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE is to identify the extent to which the elements of information listed in paragraph 13 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs. Specific details on the extent of the information reported for each of the required elements are provided in annex I.

15. The current TTE noted improvements in reporting in the Party's second BUR compared with that in the first BUR. Information on GHG inventories and on mitigation actions and their effects reported in the second BUR demonstrates that the Party has taken into consideration the areas for enhancing transparency noted by the previous TTE in the summary report on the technical analysis of the Party's first BUR. With regard to GHG inventories, the main areas of improvement are the full transition to the use of the 2006 IPCC Guidelines for all categories reported, the reporting of a consistent time series, and the reporting of a key category analysis and an uncertainty analysis. With regard to mitigation actions, the detailed reporting in tabular format of some mitigation actions and their effects is the main improvement in Mexico's second BUR.

C. Technical analysis of the information reported

16. The technical analysis referred to in paragraph 11(b) above aims to increase the transparency of mitigation actions and their effects, without engaging in a discussion on the appropriateness of those actions. Accordingly, the focus of the technical analysis was on the transparency of the information reported in the BUR.

17. For information reported on national GHG inventories, the technical analysis also focused on the consistency of the methods used for preparing those inventories with the appropriate methods developed by the IPCC and referred to in the UNFCCC reporting guidelines on BURs.

18. The results of the technical analysis are presented in the remainder of this chapter.

1. Information on national circumstances and institutional arrangements relevant to the preparation of national communications on a continuous basis

19. As per the scope defined in paragraph 2 of the UNFCCC reporting guidelines on BURs, the BUR should provide an update to the information contained in the most recently submitted NCs, including information on national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis. In their NCs, non-Annex I Parties report on their national circumstances following the reporting guidance contained in decision 17/CP.8, annex, paragraphs 3–5, and they could report similar information in their BUR, which is an update of their most recently submitted NC.

20. In its second BUR, the Party provided an update on its national circumstances, including a description of national and regional development priorities, objectives and circumstances, information on features of geography, climate and economy that might affect the ability to deal with mitigating and adapting to climate change, as well as information regarding national circumstances and constraints on the specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as referred to in Article 4, paragraph 8, and, as appropriate, in Article 4, paragraphs 9 and 10, of the Convention. The information provided covered, more specifically, extreme events such as tropical cyclones, droughts and forest fires, as well as vulnerability, ecosystems, demography, energy, transport, industry, forestry, agriculture, waste management, socioeconomic issues and gender issues.

21. As in its first BUR, Mexico included in its second BUR several maps and tables that help summarize and illustrate its national circumstances, including the country's geographical location, orography, climatic zones, exclusive economic zones, incidence of extreme events, ecosystems, protected areas, demographic trends, principal economic sectors and energy use by sector.

22. Mexico transparently described in its BUR an update to the existing institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, such as legal status and roles and responsibilities of the overall coordinating entity, the involvement and roles of other institutions and experts, mechanisms for information and data exchange, QA/QC procedures, provisions for public consultation and other forms of stakeholder engagement and future improvement plans.

23. The institutional arrangements are supported by legal instruments, including the General Law on Climate Change, which was implemented in 2012 and has been modified several times since, most recently in 2018 (see para. 52 below), the National System for Climate Change, which was implemented in 2014, the Inter-Secretariat Commission on Climate Change, which held its first session in 2013, and the National Institute of Ecology and Climate Change, the Climate Change Council and the National Climate Change Strategy 10-20-40, which were all implemented in 2013. These institutional arrangements are implemented at the federal, state and municipal level, and are assessed and updated regularly.

24. Mexico reported on its domestic MRV system, which it continues to strengthen. It is designed at the national and state level and covers the GHG inventory system, the national GHG registry and mitigation actions. Information was reported on the institutions engaged

in the MRV process, including the Secretariat of Environment and Natural Resources, the National Institute of Ecology and Climate Change and the National Institute of Statistics and Geography for the preparation of the GHG inventory and third-party entities accredited by the Mexican Accreditation Entity for the verification of emissions reported by major industrial facilities. The TTE commends Mexico for its progress in strengthening the MRV system and noted that the planned improvement of the overall MRV system of GHG emissions and reductions, as outlined in the BUR, would contribute to achieving sustainable reporting to the secretariat.

2. National greenhouse gas emissions by sources and removals by sinks

25. As indicated in table 1 in annex I, Mexico reported information on its GHG inventory in its BUR mostly in accordance with paragraphs 3–10 of the UNFCCC reporting guidelines on BURs and paragraphs 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8.

26. Mexico submitted an NIR in conjunction with its second BUR. The relevant sections of the NIR were referenced in the BUR and the document was also made publicly available on the UNFCCC website.[2] The GHG inventory reported by Mexico is for the period 1990–2015, which is consistent with the requirements for the reporting time frame.

27. GHG emissions and removals for the BUR covering the 1990–2015 inventories were estimated using a combination of tier 1 and tier 2 methodologies from the 2006 IPCC Guidelines. All CO_2 emissions from fuel combustion in the energy sector were estimated using country-specific EFs. A number of key categories in the IPPU, AFOLU and waste sectors were estimated using tier 1 methodologies. During the technical analysis, Mexico provided the TTE with information on its prioritization for collecting AD and moving towards tier 2 methodologies for the key categories that are currently estimated using tier 1 methodologies. The TTE commends Mexico for its plans to improve the estimates by using tier 2 methodologies for those key categories that are currently estimated using tier 1 methodologies.

28. Information on the Party's total GHG emissions by gas for 2015 is outlined in table 1 in Gg CO_2 eq. It shows an increase in emissions of 57.3 per cent since 1990 (254,822.79 Gg CO_2 eq) excluding the land category (3.B) and an increase of 85.9 per cent (254,742.94 Gg CO_2 eq) including the land category (3.B).

Table 1
Greenhouse gas emissions and removals by gas of Mexico for 2015

Gas	*GHG emissions (Gg CO_2 eq) excluding LULUCF*[a]	*% change 1990–2015*
CO_2	503 473.80	59.8
CH_4	142 143.76	55.5
N_2O	41 134.72	10.9
HFCs	12 616.74	1 558.7
PFCs	NO	NA
SF_6	195.25	502.4
Total	**699 564.27**	**57.3**

[a] For this table, LULUCF is considered to be CO_2 net emissions from the land category (3.B).

29. Mexico provided information on its black carbon emissions in its BUR. Emissions were reported for the years 1990 to 2015 for the energy, AFOLU and waste sectors in line with the 2006 IPCC Guidelines category structure. Emissions from black carbon amounted to 131.56 Gg in 2015, which is an increase of 44.0 per cent from the 1990 level. Black carbon emissions from the energy sector accounted for 95.6 per cent of total black carbon emissions in 2015. Mexico reported transparently on methodologies, AD and EFs used for the estimation of black carbon emissions. Mexico did not report on CO, NO_X and NMVOC

[2] https://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php.

emissions in its BUR. During the technical analysis, the Party provided information on an air pollutant inventory in which such information is reported (SEMARNAT, 2019).

30. In table 2.3 of the NIR, Mexico applied notation keys to report information on GHG emissions in 2015 for some gases and subcategories for which numerical data were not available. However, when reporting on GHG emissions by sector and by gas for the whole time series (NIR, annex G, tables 2–26), the Party left blank cells where numerical data were not available. During the technical analysis, Mexico indicated that for CO_2 from spontaneous combustion and burning coal dumps (1.B.1.b) and CH_4 from camels (3.A.1.e), the notation key "NE" was incorrectly reported, as such emissions are not occurring and should, therefore, be reported as "NO". The TTE noted that using notation keys in a consistent manner throughout the time series would enhance understanding of the information reported.

31. Mexico reported comparable information addressing the tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF and the sectoral reporting tables annexed to the Revised 1996 IPCC Guidelines.

32. The shares of emissions that different sectors contributed to the total GHG emissions as reported by the Party in 2015 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector of Mexico in 2015

Sector	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*Change (%) 1990–2015*
Energy	497 483.99	71.11	65.0
IPPU	54 111.76	7.74	65.9
AFOLU	–46 286.57	NA	NA
Livestock (3.A)	70 567.60	10.09	6.1
Land (3.B)	–148 346.07	NA	NA
Aggregate sources and non-CO_2 emissions sources on land (3.C)	31 491.90	4.50	–0.3
Waste	45 909.01	6.56	265.8

[a] Share to total without emissions/removals from the land category (3.B).

33. Mexico reported information on its use of GWP values consistent with those provided by the IPCC in its Fifth Assessment Report based on the effects over a 100-year time-horizon of GHGs.

34. In the energy sector, key categories include CO_2 from heat and power generation (1.A.1.a) and CO_2 from road transport (1.A.3.b). Mexico has developed country-specific EFs for all fossil fuels, allowing the use of tier 2 methodologies for CO_2 emissions from all subcategories under fuel combustion (1.A). AD for these subcategories stem mostly from Mexico's national energy balance.

35. For the IPPU sector, tier 1 methodologies were used for all categories, with the exception of pulp and paper production (2.H.1), where a tier 2 methodology was applied. Key IPPU categories include CO_2 emissions from cement production (2.B.1) and from iron and steel production (2.C.1), as well as HFCs from refrigeration and air conditioning (2.F.1). AD for cement production were provided by the National Institute of Statistics and Geography and the Mexican Geological Survey. The same source was used for AD from iron and steel production. For refrigeration and air conditioning, AD were from studies by GIZ (2014) and the United Nations Industrial Development Organization,[3] and EFs were developed through expert judgment and expert consultation at the Secretariat of Environment and Natural Resources. The TTE commends Mexico for its plans to improve the estimates for the key categories in the IPPU sector by using tier 2 methodologies.

36. A number of categories in the IPPU sector were not estimated owing to a lack of AD, namely, emissions of all gases from other carbonate use (2.A.4) and the electronics industry

[3] Available at https://open.unido.org/projects/MX/projects/150211.

(2.E), SF_6 emissions from other product use (2.G.2), N_2O emissions from other product use (2.G.3) and SF_6 emissions from the category other (2.G.4). In the case of CO_2 emissions from magnesium production (2.C.4), Mexico reported that consistent information throughout the time series was not available, as the methodology for obtaining a relevant statistic had recently been changed. During the technical analysis, Mexico indicated that it is facing capacity-related constraints in collecting AD for categories 2.E, 2.G.2, 2.G.3 and 2.G.4, and in ensuring time-series consistency through gap-filling approaches for category 2.A.4.

37. For the AFOLU sector, enteric fermentation (3.A.1) and manure management (3.A.2) were identified as key categories. CH_4 emissions from enteric fermentation and CH_4 and N_2O emissions from manure management were estimated using tier 1 methodologies, with the exception of manure management for swine in biodigesters for which a country-specific EF was used. AD, including the number of animals per type of livestock, milk production and average weights, were obtained from the Agrifood and Fisheries Information Service under the Secretariat for Agriculture, Livestock, Rural Development, Fisheries and Food, and were disaggregated to the state level. During the technical analysis, Mexico indicated that it is facing capacity-related constraints in developing EFs for dairy cattle (3.A.1.a), which are specific to livestock production systems in various regions.

38. Also in the AFOLU sector, for the land category (3.B), Mexico reported GHG emissions and removals for the period 1990–2015. Overall, the net removals from the LULUCF sector fluctuated between a minimum of 146,576.59 Gg CO_2 eq in 2010 and a maximum of 151,111.58 Gg CO_2 eq in 2005. The Party applied the stock-change method for all of the six main land-use categories from the 2006 IPCC Guidelines, using AD and EFs obtained mainly from the National Institute of Statistics and Geography (e.g. land-use series) and the National Forestry Commission (e.g. national forest and soil inventory). A combination of tier 1 and tier 2 approaches was used to estimate emissions and removals resulting from different land-use changes in different carbon pools. For the land-use change matrix, Mexico applied approach 3 (spatially explicit land-use conversion data). The TTE commends Mexico for the improvements made in these estimates in the second BUR as compared with the first, in particular for including additional carbon pools (i.e. deadwood and litter), estimating AD uncertainties and enhancing the methodologies for estimating soil carbon.

39. Finally, in the AFOLU sector, non-CO_2 emissions from the land category (3.C) are dominated by the key categories direct N_2O emissions from managed soils (3.C.4) and indirect N_2O emissions from managed soils (3.C.5), which produce 73.0 and 18.5 per cent, respectively, of GHG emissions for 3.C. Emissions from both subcategories were estimated using a tier 1 method. The amounts of nitrogen fertilizer applied to soils were obtained from FAOSTAT.[4] During the technical analysis, Mexico indicated a need for capacity-building in collecting better AD for synthetic nitrogen fertilizers applied to major crops and for the amount of nitrogen excreted by grazing livestock.

40. For the waste sector, CH_4 from solid waste disposal sites (4.A), domestic wastewater treatment and discharge (4.D.1) and industrial wastewater treatment and discharge (4.D.2) are the key categories. Emissions were estimated using tier 1 methodologies, except for 4.D.2, for which a combination of tier 1 and tier 2 approaches was applied. AD on solid waste disposal were collected from state authorities and information on wastewater discharge was mostly obtained from the National Water Commission. During the technical analysis, Mexico indicated that it is facing capacity-related constraints in (1) collecting more specific landfill and waste composition data related to solid waste and the treatment and disposal of sludge related to domestic and industrial wastewater, (2) developing country-specific EFs for CH_4 emissions from domestic and industrial wastewater and (3) estimating N_2O emissions from industrial wastewater.

41. The NIR provides a recalculation of all GHG emissions reported in previous NCs and the first BUR. The recalculation was carried out for all years in the period 1990–2013 using the methodologies contained in the 2006 IPCC Guidelines. Further, Mexico estimated GHG emissions for 2014 and 2015, thus generating a consistent 26-year time series. The previous national inventory was prepared using the Revised 1996 IPCC Guidelines for the energy,

[4] http://www.fao.org/faostat/en/#home.

IPPU and agriculture sectors, the IPCC good practice guidance for LULUCF for the LULUCF sector, and the IPCC good practice guidance as well as the 2006 IPCC Guidelines for the waste sector. The TTE commends the Party for using the more recent 2006 IPCC Guidelines for the whole time series.

42. Mexico described in its BUR the institutional framework for the preparation of its 2015 GHG inventory. The National Institute of Ecology and Climate Change is responsible for the Party's GHG inventory.

43. Mexico reported a key category analysis performed for the level of emissions and the trend in emissions using both tier 1 and tier 2 approaches. The Party reported transparently and in line with the 2006 IPCC Guidelines on the results assessment for each approach in the NIR (annex A, tables 1–4). An overview of the results, indicating which categories are key according to each of the approaches used, is also presented in the NIR (annex A, table 5).

44. Mexico reported that QC was carried out for all sectors both by staff at the National Institute of Ecology and Climate Change while they were compiling the GHG inventory, and by external experts, who cross-checked the reported data with internally available data sets. QA was carried out by experts from the UNFCCC roster of experts between December 2018 and February 2019 with funding allocated to the preparation of Mexico's NC6. Mexico reported that at the time of compiling its second BUR, a quality management system was under development and would be used for the forthcoming GHG inventory compilation. During the technical analysis, the Party provided information on the finalized quality management system. The TTE commends Mexico for reporting on QC/QA and encourages the Party to report on the use of its quality management system in its national GHG inventory.

45. Mexico reported information on CO_2 fuel combustion using both the sectoral and the reference approach. The greatest difference in GHG estimates obtained from the approaches is 7.2 per cent, but the difference remains below 6.0 per cent for most of the time series. From 1990 to 2004, using the sectoral approach leads to higher emission estimates than using the reference approach, while this is reversed for most years between 2005 and 2015. Mexico provided potential reasons for the differences in estimates between the two approaches, such as the use of different data sets for fuel consumption and the averaging of net calorific values for domestic and imported natural gas.

46. Information was reported separately on international aviation and marine bunker fuels.

47. Mexico reported information on the uncertainty assessment (level) of its national GHG inventory. The uncertainty analysis was based on the tier 1 approach and covers all source categories and all direct GHGs, except for PFCs, as such emissions ceased to occur in Mexico after 2003. The results obtained, as reported in the BUR, reveal that the level uncertainty for emissions in 2015 is 10.9 per cent (7.5 per cent excluding the land category (3.B)) and the trend uncertainty is 9.7 per cent (a trend uncertainty excluding the land category (3.B) was not reported). The NIR states that the trend assessment includes only categories with emissions estimated for both years 1990 and 2015.

48. The TTE noted that the transparency of reporting on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 27, 30, 35–37, 39 and 40 above.

49. In paragraphs 28–48 of the summary report on the technical analysis of Mexico's first BUR, the previous TTE noted a number of areas where the transparency of reporting could be enhanced. These include reporting fully in line with the 2006 IPCC Guidelines, reporting a consistent time series, reporting information on the tier levels used for all categories, and reporting on the key category analysis and the uncertainty analysis. The current TTE noted that Mexico took into consideration these areas for improvement in its second BUR and commends the Party for enhancing the transparency of the information reported.

3. Mitigation actions and their effects, including associated methodologies and assumptions

50. As indicated in table 2 in annex I, Mexico reported in its BUR, mostly in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.

51. The information reported provides a clear overview of the Party's mitigation actions, and for most mitigation actions, their effects. In its BUR, which includes information on national context and changes thereto, Mexico frames its national mitigation planning and actions in the context of the General Law on Climate Change of 2012. This law serves as the basis for strengthening national institutions and for creating public policy instruments such as the National Climate Change Strategy 10-20-40 and the Special Program for Climate Change 2013–2018. The law has been through several changes, the most recent of which was in April 2018 when it was adjusted to comply with the Paris Agreement and to take into account Mexico's NDC.

52. Mexico has introduced an unconditional commitment to reducing its GHG emissions and its black carbon emissions by 22.0 and 51.0 per cent, respectively, in 2030, below the level of emissions under the 'business as usual' scenario and considering only policies implemented since 2013 as new. Further, the Party has committed to reducing its GHG emissions and its black carbon emissions by 36.0 and 70.0 per cent, respectively, in 2030, subject to a global agreement addressing topics such as international carbon price, carbon border adjustments, technical cooperation and access to low-cost financial resources and technology transfer at a scale commensurate with the challenge of global climate change.

53. Given the relevance of the energy sector in Mexico, the Party has a goal to produce at least 35.0 per cent of its electricity from clean sources by 2024 and 50.0 per cent by 2050, and an energy efficiency goal to reduce the total final energy consumption per unit of gross domestic product by 1.9 per cent per year in the period 2016–2030 and by 3.7 per cent per year in the period 2031–2050.

54. Mexico reported that in the period 2013–2017 (since its previous NC) the emission reductions achieved as a result of the mitigation actions included in tabular format in the BUR, considering actions of both the central government and federal entities, amounted to 72.09 Mt CO_2 eq. Most of the mitigation actions are in the electricity generation sector, which contributed 49.6 per cent of the emission reductions. Energy efficiency actions were responsible for 15.4 per cent of the reductions, and transport sector actions for 10.0 per cent. Actions to reduce deforestation and forest degradation contributed to 12.4 per cent of the emission reductions. During the technical analysis, Mexico clarified that the reduction estimates do not include all mitigation actions implemented by the country as the impacts of some measures, such as the carbon tax, were not quantified owing to a lack of information.

55. The Party reported a summary of some of its mitigation actions in tabular format, in accordance with decision 2/CP.17, annex III, paragraph 11. In the BUR, Mexico included information on eight mitigation actions in tabular format, which are those that the Party considered relevant and for which it had sufficient information to quantify the emission reductions. During the technical analysis, Mexico clarified that the mitigation actions included in the BUR were selected on the basis of their mitigation potential and GHG contribution, as well as the availability of information at the national level – some mitigation actions, such as those of local governments, were not fully described because of a lack of information. In addition, the Party did not include mitigation actions related to SF_6 and HFC emissions given that the overall contribution of these gases to total emissions is only about 1.88 per cent. However, Mexico mentioned that it is working on a strategy for HFC reduction and the related actions would be reported in future BUR submissions. The TTE noted that the transparency of reporting could be further enhanced if all relevant mitigation actions were fully described in the BUR.

56. Mexico correctly identified situations of potential double counting, such as the emission reductions reported by the federal entities and those accounted for in the energy sector at the national level, and correctly considered those emission reductions only in the energy sector. Potential double counting was also avoided when considering emission reductions in the LULUCF sector, for which an adjustment factor was applied.

57. Consistent with decision 2/CP.17, annex III, paragraph 12(a), Mexico clearly reported the names of mitigation actions or groups of actions, coverage (sector and gases) and progress indicators in tables 2 to 9 of the BUR.

58. The information reported for the energy sector includes the methodologies used for estimating the impacts of the mitigation actions. For those actions aimed at reducing

emissions from electricity generation, Mexico presented two methodologies: one using 2013 as the base year, thus only considering the emission reductions attributable to the increase in clean energy generation sources since 2013, and the other considering the emission reductions from all installed clean electricity generation sources.

59. The mitigation actions in the energy sector mainly relate to promoting renewable energy sources, improvements in energy efficiency and clean transport. The objectives of the mitigation actions were reported and additional detailed information was provided during the technical analysis. Information on the steps taken to implement the mitigation actions and on the implementation period was clearly reported. The TTE noted that the understanding of the information reported for some mitigation actions could be facilitated by including additional information on the base year and the units used to quantify the targets described in the objectives. During the technical analysis, Mexico indicated that it is facing capacity-related constraints in developing methodologies for MRV systems in the area of mitigation and identified priority areas for such systems, including road transportation, electricity production from renewable sources, energy efficiency and fugitive emissions.

60. The mitigation actions in the electricity generation sector accounted for 35.74 Mt CO_2 eq emission reductions in the period 2013–2017, of which 21.69 Mt CO_2 eq was achieved by increasing the share of clean electricity generation, considering only the additional electricity generation from clean sources that were installed from 2013 onward. Mexico reported that the share of renewable energy was 19.0 per cent in 2017. The Party clarified during the technical analysis that further efforts would be made in order to achieve the goal of 35.0 per cent clean energy by 2024. In the energy efficiency sector, Mexico reported that mitigation actions achieved emission reductions of 11.12 Mt CO_2 eq in the period 2013–2017, and in the transport sector, for the same period, the Party reported a total reduction in emissions due to its mitigation actions of 7.20 Mt CO_2 eq.

61. Consistently with decision 2/CP.17, annex III, paragraph 12(b–d), in the agriculture, LULUCF and waste sectors, Mexico clearly reported the calculation methodologies, assumptions, objectives for the actions, steps taken or envisaged to achieve the actions, information on the progress of implementation of the mitigation actions, information on the progress and the underlying steps taken or envisaged and information on the results achieved, such as estimated outcomes and estimated emission reductions, to the extent possible.

62. For the waste sector, Mexico included in the BUR, in tabular format, a description of the mitigation action aimed at reducing emissions from wastewater by extending the coverage area of wastewater treatment plants. This action required a total investment of 74.8 million Mexican pesos (approximately USD 3.9 million). The CDM methodology used for the estimation of the associated emission reduction was clearly reported.[5] Mexico reported that as a result of this programme, the percentage of the population with access to wastewater treatment increased from 50.2 to 58.2 per cent, and emissions were reduced by about 2.01 Mt CO_2 eq in the period 2013–2016. The objective is an emission reduction of 2.88 Mt CO_2 eq in the period 2013–2018.

63. For the agriculture sector, Mexico described two actions related to land management: the Livestock Promotion Program and the Agriculture Promotion Program. These two programmes aim at promoting sustainable practices in the farming and livestock sectors, including the installation of biodigesters. The emission reduction calculation methodology was clearly described in the BUR, as were the assumptions used. Mexico estimates that the emission reduction achieved in the period 2013–2016 was 0.76 Mt CO_2 eq, which is 29.0 per cent of the objective of these two programmes – a 12.27 Mt CO_2 eq reduction by the end of 2018.

64. For the LULUCF sector, the mitigation actions aim at reducing emissions from deforestation and forestry degradation by applying a system of payment for forestry environmental services (where the forest area subject to such system is planned to increase by 10.2 per cent between 2013 and 2018), increasing the area of sustainable managed forest

[5] AM0080: “Mitigation of greenhouse gases emissions with treatment of wastewater in aerobic wastewater treatment plants”, version 1. For details, see https://cdm.unfccc.int/methodologies/DB/6DITU9V0SFOR7EUYEBBVRHCAO2RD3Q.

by 4.6 million ha, and increasing the area of forest with sustainability certification by 2.5 million ha between 2014 and 2018.

65. Mexico reported information on the co-benefits of the results achieved from the implementation of its mitigation actions, including the establishment of soft loans for the purchase of 101,739 sustainable houses benefiting 572,056 people. The Party reported the co-benefit of improvement in air quality as a result of the reduction of black carbon emissions.

66. Mexico provided clear and comprehensive information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. Mexico documented 16 CDM projects that had been registered since the first BUR, bringing the total number of projects under the UNFCCC CDM process to 201. The Party reported that the emission reductions resulting from the CDM from 2005 to 2014 were 23,868,978 certified emission reductions, which were achieved mostly in the industry and landfill sectors. Under Article 89 of the General Law on Climate Change, Mexico is in the process of establishing a national carbon emission market in order to obtain emission reductions at the lowest possible cost.

67. Mexico is in the process of developing and designing a domestic MRV system to enable the monitoring of the implementation of mitigation actions and of emission reductions from various sources and sectors, especially those related to the NDC. The Party also reported that recent changes to the General Law on Climate Change include the tracking of emission reductions by establishing the Inter-Secretariat Commission on Climate Change to revise and assess progress of the National Climate Change Strategy 10-20-40 and the NDC. The Special Program for Climate Change stipulates that the programmes of federal entities should include the MRV of their mitigation actions; however, Mexico noted that the number of federal entities with an MRV system in place is limited.

68. The guidelines for procedures of the MRV system are yet to be approved but include the calculation methodologies and the certification of activities included in the mitigation action registry. Mexico reported that the MRV system is being designed on the basis of the existing systems, and it will improve the quality and frequency of collection of the data.

69. Regarding the monitoring of the LULUCF sector, Mexico passed a new version of the Law on Sustainable Forestry Development on 5 June 2018 that requires the establishment of an MRV system for actions to prevent deforestation and forest degradation.

70. The TTE noted that the transparency of the information reported on mitigation actions and their effects could be further enhanced by addressing the areas noted in paragraphs 55 and 59 above.

71. In paragraph 59 of the summary report on the technical analysis of Mexico´s first BUR, the previous TTE noted that the transparency of reporting on the climate change programmes developed at the federal, state and municipal level could be further enhanced, and in paragraph 55, it noted that information on the methodologies and assumptions used for the estimation and description of gases covered and progress indicators was not reported. The current TTE noted that Mexico took into consideration these areas for improvement in tables 2 to 8 of its second BUR.

72. Mexico also included in its second BUR information on the proposed nationally appropriate mitigation action initiatives, as suggested by the previous TTE in the summary report on the technical analysis of Mexico´s first BUR, paragraph 68. In paragraph 56 of the summary report, it noted that the transparency of reporting could be enhanced by reporting on the measures taken to overcome possible problems such as double counting. These measures were included by the Party under the energy and LULUCF sectors in the second BUR. Finally, in paragraph 60 of the summary report, the previous TTE noted that the transparency of reporting could be enhanced by addressing the quantification of GHG impacts, which was taken into consideration by Mexico in tables 2 to 8 of the second BUR. The TTE commends the Party for enhancing the transparency of the information reported.

4. Constraints and gaps, and related technology, financial, technical and capacity-building needs, including a description of support needed and received

73. As indicated in table 3 in annex I, Mexico reported in its BUR, completely in accordance with paragraphs 14–16 of the UNFCCC reporting guidelines on BURs, information on finance, technology and capacity-building needs and support received.

74. Mexico reported information on constraints and gaps, and related financial, technical and capacity-building needs, in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR Mexico identified the following barriers to opportunities for mitigation: (1) the need to develop a regulatory framework for implementing more advanced technologies; (2) the lack of inter-institutional coordination of the various ministries and institutions; (3) the need for joint work among the municipal, state and federal governments; (4) insufficient financial resources to enhance research into implementing technologies to reduce emissions in sectors with strong mitigation potential; (5) outdated regulations for the disposal, transport and use of waste at the municipal and federal level; (6) the need for approval of national and municipal regulations for the promotion of new transport technologies and modernization of the vehicle fleet; (7) the need for policies to address short-lived climate pollutants; (8) the lack of livestock data for the GHG inventory; and (9) insufficient use of geographic information systems in the AFOLU sector.

75. The Party reported its financial, technical and capacity-building needs as being to design, organize and manage databases and statistical packages for its GHG inventory; develop GHG emission trends and projections; train internal auditors to implement and maintain the ISO 9001:2015 quality system; strengthen the communication system for disseminating the results of the GHG emission inventory; and strengthen the capacity of local governments to estimate their own GHG emissions.

76. Mexico reported information on financial resources, technology transfer, capacity-building and technical support received in accordance with decision 2/CP.17, annex III, paragraph 15. In its BUR Mexico reported that it received USD 3,636,364 from the GEF for the preparation of its NC6 and second BUR. Mexico supplemented this financial support with USD 4 million from national sources. The information reported also indicates that Mexico received support from the United Nations Development Programme to prepare these reports. Information on financial support received from multilateral, regional, bilateral and national sources was reported.

77. Mexico reported information on nationally determined technology needs with regard to the development and transfer of technology in accordance with decision 2/CP.17, annex III, paragraph 16. In its BUR Mexico reported that the technology needs assessment was nationally determined. The assessment highlighted technology needs in renewable energy identified by the Ministry of Energy in collaboration with the Mexican Institute of Petroleum and the elaboration of road maps to develop initiatives for strengthening the technological capacities of the renewable energy industry. Mexico also reported that it did not undertake the technology needs assessment as recommended by the ICA process as it was advised by the GEF during informal consultations that it was not eligible for funding to undertake such an assessment.

78. Mexico reported in its BUR that it is executing a project funded by the GEF and implemented by the Inter-American Development Bank on promoting the development and transfer of technology in Latin America and the Caribbean in the renewable energy, energy efficiency, transport, forestry and agriculture sectors.

5. Any other information

79. Mexico reported on its initiatives for gender inclusiveness in its national response to climate change. It noted that women are powerful agents of change and must be engaged in both adaptation and mitigation projects.

D. Identification of capacity-building needs

80. In consultation with Mexico, the TTE identified the following needs for capacity-building that could facilitate the preparation of subsequent BURs and participation in ICA:

(a) Develop the capacity to use the CRF Reporter software with the aim of reporting tables consistent with those in the 2006 IPCC Guidelines, including the use of notation keys;

(b) Enhance the capacity to ensure time-series consistency through gap-filling approaches (e.g. for CO_2 emissions from other process uses of carbonates (2.A.4));

(c) Enhance the capacity to collect AD for estimating CH_4 emissions from ferroalloys production (2.C.2), emissions of all gases from the electronics industry (2.E), SF_6 emissions from other product use (2.G.2), N_2O emissions from other product use (2.G.3), direct N_2O emissions from managed soils (3.C.4) stemming from synthetic nitrogen fertilizer use in major crops and from excreta of grazing livestock, CH_4 emissions from solid waste disposal in managed waste disposal sites (4.A.1), and CH_4 and N_2O emissions from domestic wastewater treatment and discharge (4.D.1) and from industrial wastewater treatment and discharge (4.D.2);

(d) Enhance the capacity to collect and process AD and parameters related to land-use categories and land-use change from various institutions (e.g. National Forestry Commission, Agrifood and Fisheries Information Service, National Commission of Natural Protected Areas, National Commission for the Knowledge and Use of Biodiversity, Secretariat for Agriculture, Livestock, Rural Development, Fisheries and Food);

(e) Enhance the capacity to develop country-specific EFs such as CH_4 EFs by region for enteric fermentation from cattle (3.A.1), N_2O EFs by region for direct N_2O emissions from managed soils (3.C.4), a CH_4 EF for managed solid waste disposal sites, and CH_4 and N_2O EFs for sludge treated and deposited in unmanaged solid waste disposal sites (4.A.2);

(f) Enhance the capacity to develop and apply methodologies for estimating the impact of mitigation actions at all levels of government, in areas including road transportation, electricity production from renewable sources, energy efficiency and fugitive emissions;

(g) Continue to enhance the capacity at all levels of government to develop new MRV systems and integrate existing MRV systems that help track emission reductions related to a certain policy instrument, notably in the areas of transportation, energy efficiency and renewable energy sources, forests, fugitive emissions, agriculture, public lightning, water pumping and indoor lightning;

(h) Enhance the capacity of key actors from various institutions to facilitate the exchange of information, calculation of results and development of progress indicators for mitigation actions;

(i) Develop the capacity to identify synergies and establish linkages among public policy instruments in order to incorporate climate change considerations in national regulations.

81. The TTE noted that, in addition to those identified during the technical analysis, Mexico reported the following capacity-building needs in its BUR:

(a) Strengthening the Special Program of Climate Change, to be implemented during the period 2019–2024, such that it aligns with sectoral planning instruments;

(b) Strengthening the capacities of the various institutions involved in the MRV system for quantifying emissions and the effects of mitigation actions;

(c) Strengthening the capacities of specialists in renewable energy to meet the targets identified in the NDC;

(d) Developing the national capacity to identify emission reduction potential and sources of funding for mitigation actions;

(e) Enhancing the national technical capacity to assess and develop low-carbon technologies and the capacity to identify financing opportunities for climate change mitigation.

82. In paragraph 84 of the summary report on the technical analysis of Mexico's first BUR, the previous TTE, in consultation with Mexico, identified and prioritized capacity-building needs. In its second BUR, Mexico reflected that some of those capacity-building needs have been addressed.

III. Conclusions

83. The TTE conducted a technical analysis of the information reported in the second BUR of Mexico in accordance with the UNFCCC reporting guidelines on BURs. The TTE concludes that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs and provides an overview of national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis; the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol, including an NIR; the most relevant mitigation actions and their effects, including associated methodologies and assumptions; constraints and gaps and related financial, technical and capacity-building needs, including a description of support needed and received; the level of support received to enable the preparation and submission of BURs; domestic MRV; and other information relevant to the achievement of the objective of the Convention. During the technical analysis, additional information was provided by Mexico on (1) GHG inventories, including the reporting tables for GHG emissions and information on the GHG inventory quality management system, (2) methodologies, assumptions, objectives and the MRV system for mitigation actions and (3) technology needs assessments. The TTE concluded that the information analysed is mostly transparent.

84. Mexico reported information on the institutional arrangements relevant to the preparation of its BURs, which is framed in the context of the General Law on Climate Change (of 2012 and updated in 2018). This law serves as the basis for strengthening the national arrangements that enable the sustainable preparation of the Party's BURs, such as the establishment of the National Institute of Ecology and Climate Change, which is in charge of the preparation of the GHG inventory, and the National System for Climate Change, which is in charge of public policies on mitigation and adaptation to climate change.

85. In its second BUR, submitted in 2018, Mexico reported information on its national GHG inventory for the period 1990–2015. This included GHG emissions and removals of CO_2, CH_4 and N_2O for all relevant sources and sinks as well as emissions of black carbon. The inventory was developed on the basis of the 2006 IPCC Guidelines. The total GHG emissions for 2015 were reported as 699,564.27 Gg CO_2 eq (excluding the land category (3.B)) and 551,218.20 Gg CO_2 eq (including the land category (3.B)). Mexico conducted a key category analysis using method 1 and method 2 for both level and trend. Considering all four assessments, the following stand out as key categories: CO_2 emissions from road transport and CO_2 emissions from heat and power generation (energy sector), CO_2 emissions from forest land remaining forest land (AFOLU sector) and CH_4 emissions from wastewater treatment (waste sector).

86. Mexico reported information on mitigation actions, and for some actions, their effects, including the baseline and expected mitigation outcomes. Mexico frames its national mitigation planning and actions in the context of the General Law on Climate Change, which was passed in 2012 and updated in 2018 to align with the Paris Agreement. Mexico reported actions that are planned, ongoing and completed, which occur within several sectors, including waste, energy and agriculture. The key mitigation actions are in the energy sector, mainly in electricity generation, which contributed 35.74 Mt CO_2 eq emission reductions in the period 2013–2017, and energy efficiency, which contributed 11.12 Mt CO_2 eq in the same period. In the LULUCF sector, the key mitigation action was reducing CO_2 emissions by avoiding deforestation and forest degradation, which achieved a reduction of 8.92 Mt CO_2 eq in the period 2012–2017. Mexico reported that the cumulative GHG emission reduction

achieved in the period 2013–2017 for those actions included in the BUR was 72.09 Mt CO_2 eq.

87. Mexico reported information on key constraints, gaps and related needs. The NIR, presented as an annex to the BUR, clearly identifies the needs related to the enhancement of the national GHG inventory. Information on support received and needed was reported.

88. The TTE, in consultation with Mexico, identified the capacity-building needs listed in chapter II.D above and needs for capacity-building that aim to facilitate reporting in accordance with the UNFCCC reporting guidelines on BURs and participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention. Mexico further identified the capacity-building needs described in paragraph 79(a), (c), (d) and (g) above as the priorities.

Annex I

Extent of the information reported by Mexico in its second biennial update report

Table 1
Identification of the extent to which the elements of information on greenhouse gases are included in the second biennial update report of Mexico

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
Decision 2/CP.17, paragraph 41(g)	The first BUR shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available, and subsequent BURs shall cover a calendar year that does not precede the submission date by more than four years.	Yes	Mexico submitted its second BUR in November 2018; the GHG inventory reported is for the period 1990–2015.
Decision 2/CP.17, annex III, paragraph 4	Non-Annex I Parties should use the methodologies established in the latest UNFCCC guidelines for the preparation of NCs from non-Annex I Parties approved by the COP or those determined by any future decision of the COP on this matter.	Yes	Mexico used the 2006 IPCC Guidelines.
Decision 2/CP.17, annex III, paragraph 5	The updates of the section on national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF; any change to the EF may be made in the subsequent full NC.	Yes	
Decision 2/CP.17, annex III, paragraph 6	Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the BUR:		
	(a) The tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF;	Yes	The tables included in annex 3.A.2 to the IPCC good practice guidance for LULUCF were not presented in the BUR. Comparable information was reported in the NIR (annex E, table 84).
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	The sectoral report tables annexed to the Revised 1996 IPCC Guidelines were not included in the BUR. Comparable information was reported in the NIR (annex G, tables 1–26).
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	Yes	
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their NCs are encouraged to submit summary information tables of inventories for	Yes	This information was reported for the period 1990–2015.

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	previous submission years (e.g. for 1994 and 2000).		
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of an NIR as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National greenhouse gas inventories), including:		
	(a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors);	Yes	Table 1 was not reported in the BUR. Comparable information was reported in annex G to the NIR.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Yes	Table 2 was not reported in the BUR. Comparable information was reported in annex G to the NIR.
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	Yes	The Party submitted an NIR as an annex to its BUR.
Decision 17/CP.8, annex, paragraph 12	Non-Annex I Parties are also encouraged, to the extent possible, to undertake any key source analysis as indicated in the IPCC good practice guidance to assist in developing inventories that better reflect their national circumstances.	Yes	
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.	Yes	
Decision 17/CP.8, annex, paragraph 14	Each non-Annex I Party shall, as appropriate and to the extent possible, provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of anthropogenic emissions of:		
	(a) CO_2;	Yes	
	(b) CH_4;	Partly	Information is provided on a gas-by-gas basis but as CO_2 eq, not in units of mass.
	(c) N_2O.	Partly	Information is provided on a gas-by-gas basis but as CO_2 eq, not in units of mass.
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of:		
	(a) HFCs;	Yes	
	(b) PFCs;	Yes	
	(c) SF_6.	Yes	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) CO;	No	See paragraph 29 of this document.
	(b) NO_X;	No	See paragraph 29 of this document.

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	(c) NMVOCs.	No	See paragraph 29 of this document.
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as sulfur oxides, and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties.	Yes	Mexico reported on black carbon emissions. Emissions from air quality pollutants are reported in SEMARNAT (2019) and are not included in the BUR.
Decision 17/CP.8, annex, paragraph 18	Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO_2 fuel combustion emissions using both the sectoral and the reference approach and to explain any large differences between the two approaches.	Yes	
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories:		
	(a) International aviation;	Yes	
	(b) Marine bunker fuels.	Yes	
Decision 17/CP.8, annex, paragraph 20	Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO_2 eq should use the GWP provided by the IPCC in its Second Assessment Report based on the effects of GHGs over a 100-year time-horizon.	NA	The Party used the GWP provided in the IPCC Fifth Assessment Report.
Decision 17/CP.8, annex, paragraph 21	Non-Annex I Parties are encouraged to provide information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol, including a brief explanation of the sources of EFs and AD. If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, EFs and AD used in their estimation of emissions, as appropriate. Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building:		
	(a) Information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol;	Yes	Mexico used the 2006 IPCC Guidelines. Tier 1 or tier 2 methodologies were used for specific sectors.
	(b) Explanation of the sources of EFs;	Yes	
	(c) Explanation of the sources of AD;	Yes	
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	Yes	Mexico used a national methodology for black carbon emissions.
	(i) Source and/or sink categories;	Yes	
	(ii) Methodologies;	Yes	
	(iii) EFs;	Yes	
	(iv) AD;	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	No	
Decision 17/CP.8, annex, paragraph 22	Each non-Annex I Party is encouraged to use tables 1 and 2 of the guidelines annexed to decision 17/CP.8 in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14–17. In preparing those tables, Parties should strive to present information that is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated.	Yes	Comparable information to that required by tables 1 and 2 was provided. Notation keys were used for 2015, but not for other years of the time series.
Decision 17/CP.8, annex, paragraph 24	Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying assumptions, and to describe the methodologies used, if any, for estimating these uncertainties:		
	(a) Level of uncertainty associated with inventory data;	Yes	
	(b) Underlying assumptions;	Yes	
	(c) Methodologies used, if any, for estimating these uncertainties.	Yes	

Note: The parts of the UNFCCC reporting guidelines on BURs on reporting information on GHG emissions by sources and removals by sinks in BURs are contained in decision 2/CP.17, paragraphs 3–10 and 41(g). Further, as per paragraph 3 of those guidelines, non-Annex I Parties are to submit updates of their national GHG inventories in accordance with paragraphs 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8. The scope of such updates should be consistent with the non-Annex I Party's capacity and time constraints and the availability of its data, as well as the level of support provided by developed country Parties for biennial update reporting.

Table 2

Identification of the extent to which the elements of information on mitigation actions are included in the second biennial update report of Mexico

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 11	Non-Annex I Parties should provide information, in tabular format, on actions to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.	Partly	Some mitigation actions for which Mexico did not have enough information to quantify emission reductions were not presented in tabular format.
Decision 2/CP.17, annex III, paragraph 12	For each mitigation action or group of mitigation actions, including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information, to the extent possible:	Yes	
	(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;	Yes	
	(b) Information on:		
	(i) Methodologies;	Yes	
	(ii) Assumptions;	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
	(c) Information on:		
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Yes	
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Yes	
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Yes	
	(e) Information on international market mechanisms.	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements.	Yes	Mexico is in the process of establishing an MRV system to enable the monitoring of the implementation of actions and measures to mitigate GHG emissions.

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on mitigation actions in BURs are contained in decision 2/CP.17, annex III, paragraphs 11–13.

Table 3

Identification of the extent to which the elements of information on finance, technology and capacity-building needs and support received are included in the second biennial update report of Mexico

Decision	*Provision of the reporting requirements*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	
	(b) Related financial, technical and capacity-building needs.	Yes	
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources received, technology transfer and capacity-building received;	Yes	Mexico notes that there is no internationally agreed process to quantify climate finance flows. The Party's figures are estimates.
	(b) Information on technical support received from the GEF, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Yes	
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		
	(a) Nationally determined technology needs;	Yes	

Decision	*Provision of the reporting requirements*	*Yes/partly/no*	*Comments on the extent of the information provided*
	(b) Technology support received.	Yes	Mexico is implementing a regional project to enhance technology development and transfer with the support of the GEF.

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on finance, technology and capacity-building needs and support received in BURs are contained in decision 2/CP.17, annex III, paragraphs 14–16.

Annex II

Documents and information used during the technical analysis

A. Reference documents

Fifth NC of Mexico. Available at http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php.

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B. Additional information provided by the Party

The following documents[1] were provided by the Party in response to requests for technical clarification during the technical analysis:

INECC and SEMARNAT. 2018. *Sistema de Gestión de la Calidad Correspondiente al Inventario Nacional de Emisiones de Gases y Compuestos de Efecto Invernadero, Informe Final*. M León, L Manzanares, Papayanopoulos, et al. (eds.). Available at https://www.gob.mx/cms/uploads/attachment/file/401107/Sistema_Gestion_de_Calidad.pdf.

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