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Technical analysis of the fifth biennial update report of Chile submitted on 26 December 2022

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 fifth biennial update report of Chile, conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AD	activity data
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CDM	clean development mechanism
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EF	emission factor
ETF	enhanced transparency framework under the Paris Agreement
GEF	Global Environment Facility
GHG	greenhouse gas
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
MPGs	modalities, procedures and guidelines
MRV	measurement, reporting and verification
N_2O	nitrous oxide
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
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
SO_2	sulfur dioxide
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"

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 a 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. Chile submitted its fourth BUR on 18 January 2021, which was analysed by a TTE in the nineteenth round of technical analysis of BURs from non-Annex I Parties, conducted from 28 June to 2 July 2021. After the publication of its summary report, Chile participated in the twelfth workshop for the facilitative sharing of views, convened in Bonn on 7 June 2022.

5. This summary report presents the results of the technical analysis of the fifth BUR of Chile, 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, Chile submitted its fifth BUR on 26 December 2022 as a stand-alone update report. The submission was made within two years from the submission of the fourth BUR.

7. The technical analysis of Chile's BUR was conducted from 23 to 27 October 2023 in Panama City 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: Donnie Boodlal (Trinidad and Tobago), Roberto Lucero (Ecuador), Cecilia Penengo (Uruguay), José Manuel Ramirez Garcia (Spain), Orlando Ernesto Rey Santos (former member of the Consultative Group of Experts from Cuba), Marcelo Theoto Rocha (member of the Consultative Group of Experts from Brazil) and Alexander Valencia (Colombia). José Manuel Ramirez Garcia and Marcelo Theoto Rocha were the co-leads. The technical analysis was coordinated by Pedro Torres, Jeeyoon Jung and Gopal Joshi (secretariat).

8. During the technical analysis, in addition to the written exchange, in the virtual team room, to provide technical clarifications on the information reported in the BUR, the TTE and Chile 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 Chile's fifth BUR, the TTE prepared and shared a draft summary report with Chile on 1 March 2024 for its review and comment. Chile, in turn, provided its feedback on the draft summary report on 21 March 2024.

9. The TTE responded to and incorporated Chile's comments referred to in paragraph 8 above and finalized the summary report in consultation with the Party on 19 July 2024.

[1] The consultation was conducted in person with the option to join via videoconferencing.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

10. 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 chap. 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 chap. 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 chap. II.D below).

11. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Chile's BUR outlined in paragraph 10 above.

B. Extent of the information reported

12. The elements of information referred to in paragraph 10(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 information on progress in their implementation; information on domestic MRV; and information on support needed and received.

13. 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 11 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 the tables included in annex I.

14. The current TTE noted improvements in the reporting in Chile's fifth BUR compared with that in its previous BUR. Information on institutional arrangements, the GHG inventory, mitigation actions and their effects, and needs and support reported in the Party's fifth BUR demonstrates that it has taken into consideration the areas for enhancing the transparency of the extent of the information reported noted by the previous TTE in the summary report on the technical analysis of the Party's previous BUR.

C. Technical analysis of the information reported

15. The technical analysis referred to in paragraph 10(b) above aims to increase the transparency of information reported by the Parties on 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.

16. 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. Chile submitted an NIR as a stand-alone document and, further to

consultations with the TTE, requested a more detailed analysis and documentation of the findings contained in the NIR to be undertaken using the agreed GHG inventory tool.

17. 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

18. 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 NC, 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.

19. In its fifth BUR, Chile provided an update on its national circumstances, including a description of features of geography and territorial morphology, as well as information on its administrative organization; environmental aspects, including pollution sources and ocean pollution; the state of biodiversity; drought and precipitation; social context, including demographics and human development; and economic profile, including trends in the main economic activities and indicators.

20. In addition, Chile provided a summary of relevant information regarding its national circumstances in tabular format.

21. Chile transparently reported in its fifth BUR an update on its 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, including the scope of the Climate Change Framework Law, which was adopted in 2022 and constitutes the legal framework for ensuring the provision of AD for the preparation of NCs and BURs. The Climate Change Division of the Ministry of the Environment is responsible for preparing and submitting NCs and BURs. The Party reported that its institutional arrangements reflect the evolution of its main strategies for tackling climate change, such as its NDC and long-term climate strategy,[2] and provided detailed information on the roles and areas of responsibility of the decision-making councils and technical committees for each sector. The TTE noted improvements to the information reported in the BUR, namely a more detailed and comprehensive description of its institutional arrangements.

22. In paragraph 26 of the summary report on the technical analysis of Chile's fourth BUR, the previous TTE noted an area where the transparency of the reporting on institutional arrangements could be enhanced. The current TTE noted the improvements referred to in paragraph 21 above and commends the Party for enhancing the transparency of its reporting.

23. Chile reported in its fifth BUR an update on its domestic MRV arrangements. The description covers key aspects of the institutional arrangements, including the Climate Change Framework Law, which establishes the legal framework for mitigation and adaptation action over the long term and for Chile's compliance with its international commitments under the Convention and the Paris Agreement. The Law requires the Ministry of the Environment to report periodically to the National Congress of Chile on progress in implementing climate action. It encompasses the country's NDC and long-term climate strategy, from which sectoral mitigation and adaptation plans are developed, and establishes a national information system comprising the emissions inventory system, the emissions projection system, the Climate Risk Atlas and the National Climate Change Action Report.

24. Chile reported in its BUR (chap. 4, sections 1–2, and chap. 5, section 1) information on its current initiatives for enhancing its existing MRV system for compliance with requirements under the ETF, namely that it took into account the MPGs in preparing its BUR, thus gaining experience relevant to preparing its first biennial transparency report. The Party also reported information necessary for the monitoring of progress in implementing its updated NDC and for compliance with the provisions in the MPGs. The TTE commends the

[2] https://unfccc.int/process/the-paris-agreement/long-term-strategies.

Party for the clear and comprehensive reporting on its proactive approach to preparing for ETF implementation.

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

25. As indicated in table I.1, Chile 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. Chile submitted its fifth BUR in 2022 and the GHG inventory reported is for 1990–2020. The GHG inventory is consistent with the requirements for the reporting time frame.

27. Chile submitted an NIR in conjunction with its fifth BUR. The relevant sections of the NIR were not referenced in the BUR but the document was made publicly available on the UNFCCC website.[3]

28. GHG emissions and removals for the BUR covering the 1990–2020 inventories were estimated using mainly tier 1 and 2 methodologies from the 2006 IPCC Guidelines for all sectors of the inventory. The TTE commends the Party for using the 2006 IPCC Guidelines.

29. Information on AD and EFs used and their sources was reported in the NIR, including the methodology and tier level used for each category and subcategory.

30. Some AD for the agriculture sector were not reported in Chile's BUR or NIR and the reason for this was not clear to TTE. During the technical analysis, the Party provided relevant clarification (see para. 42 below).

31. Information on the Party's total GHG emissions by gas for 2020 is outlined in table 1 in Gg CO_2 eq. It shows an increase in emissions of 428.5 and 116.2 per cent with and without LULUCF respectively since 1990.

Table 1
Greenhouse gas emissions by gas of Chile for 2020

Gas	*GHG emissions (Gg CO_2 eq) including LULUCF*	*% change 1990–2020*	*GHG emissions (Gg CO_2 eq) excluding LULUCF*	*% change 1990–2020*
CO_2	29 543.01	185.9	79 792.51	152.3
CH_4	15 255.53	28.3	14 946.08	27.1
N_2O	6 444.79	17.0	6 232.13	15.0
HFCs[a]	4 389.87	9 543 095.7	4 389.87	9 543 095.7
PFCs	0.51	NA	0.51	NA
SF_6	190.81	1 011.9	190.81	1 011.9
Other	NO	NA	NO	NA
Total	**55 824.52**	**428.5**	**105 551.91**	**116.2**

[a] HFC emissions amounted to only 0.05 Gg CO_2 eq in 1990, hence the large percentage change between 1990 and 2020.

32. Information on other emissions was clearly reported, including 262.6 Gg NO_X, 1,050.9 Gg CO and 351.8 Gg NMVOCs. Chile also reported SO_2 emissions (317.8 Gg) and black carbon emissions (19.80 Gg) for 2020.

33. Chile applied notation keys in tables where numerical data were not provided. The use of notation keys was consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. The Party provided reasons for its use of "NE", namely a lack of AD or appropriate methodologies, consistently with the 2006 IPCC Guidelines. The categories for which "NE" was reported owing to a lack of AD were specified in an appendix to the BUR and are being addressed as part of the Party's continuous improvement plan.

34. 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

[3] https://unfccc.int/BURs.

1996 IPCC Guidelines was not reported in Chile's BUR. During the technical analysis, the Party presented tables containing comparable information and explained that it is working towards using the new agreed format for sectoral reporting tables, noting that, while some of the new tables do not pose a challenge, the background tables for the agriculture and LULUCF sectors may do so because Chile estimates GHG emissions and removals for these sectors at the regional (subnational) level.

35. The shares of emissions that different sectors contributed to the Party's total GHG emissions excluding LULUCF, as reported by the Party, in 2020 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector of Chile for 2020

Sector	*GHG emissions (Gg CO_2 eq)*	*% share*[a]	*% change 1990–2020*
Energy	79 724.33	75.5	139.2
IPPU	6 930.22	6.6	266.7
Agriculture	11 237.74	10.6	–6.4
LULUCF	–49 727.38	NA	24.4
Waste	7 659.63	7.3	383.4

[a] Share of total emissions without LULUCF.

36. Chile reported information on its use of GWP values consistent with those provided by the IPCC in its AR4 based on the effects over a 100-year time-horizon of GHGs.

37. For the energy sector, information was clearly reported on GHG emissions, methodological tier levels, AD and their sources, EFs, key categories and notation keys used. While Chile generally used tier 1 methodologies with default EFs from the 2006 IPCC Guidelines, tier 2 methodologies were applied for some key categories, such as CO_2 emissions from fuel combustion in energy industries, CH_4 and N_2O emissions from fuel combustion in road transportation and CO_2 emissions from coal with country-specific EF. The energy sector accounted for 75.5 per cent of total national emissions in 2020 and those emissions were largely attributable to energy industries (category 1.A.1) and transport (category 1.A.3). Since 2018, emissions from the energy sector have decreased by 5.3 per cent, mainly owing to declines in emissions from road transportation (category 1.A.3.b) and commercial/institutional sources (category 1.A.4.a), on which the coronavirus disease 2019 pandemic had an impact.

38. The reason for the selection of assumptions applied in estimating GHG emissions from road transportation was not clearly reported in Chile's BUR. For example, motorcycles were assumed to use diesel instead of gasoline, and AD, including on fuel efficiency, for motorcycles and trucks were used for off-road vehicles and agricultural machinery. During the technical analysis, the Party stated that the assumptions applied in the BUR need to be re-examined and that the QC procedures for certain sectors of the GHG inventory need to be enhanced.

39. For the IPPU sector, information was clearly reported on GHG emissions, methodological tier levels, AD and their sources, EFs, key categories and notation keys used. Chile used tier 1 methodologies for some categories, with tier 2 methodologies applied for estimating CO_2 emissions for the mineral (categories 2.A.1, 2.A.2, and 2.A.3), chemical (2.B.8) and metal industry (categories 2.C.1 and 2.C.5) categories and tier 3 methodologies for N_2O emissions for the chemical industry (category 2.B.2). Chile used default EFs from the 2006 IPCC Guidelines for all categories with one exception: a country-specific EF was used for estimating CO_2 emissions for the metal industry category. Emissions in the IPPU sector were mostly attributable to the use of products as substitutes for ozone-depleting substances (category 2.F) and the mineral industry (category 2.A). Sectoral emissions increased by 266.7 per cent between 1990 and 2020, with emissions in 2020 being 11.4 per cent higher than the 2018 level. The main driver of the trend and the inter-annual variation in emissions was the increased use of HFCs in refrigeration coupled with sustained, albeit uneven, growth in emissions from the cement, lime and glass industries.

40. Information on the share of clinker in cement production, in particular, the reason reported inter-annual variations in the AD for cement production were not in line with expected patterns given global trends towards a reduction in the amount of clinker in cement, was not clearly reported in Chile's BUR. During the technical analysis, the Party clarified that the clinker factor was determined by analysing company-reported clinker production AD, customs data on clinker imports and exports, and national statistics on cement production. The clinker factor was then derived by comparing the company-reported AD and clinker imports with the national cement production statistics. The Party indicated that, for its next submission, it will further assess the national statistics on cement production to determine potential factors influencing the clinker factor.

41. For the agriculture sector, CH_4 emissions from enteric fermentation in dairy cattle (category 3.A.1.a), CH_4 emissions from enteric fermentation in other cattle (category 3.A.1.b), N_2O emissions from inorganic nitrogen fertilizers (category 3.D.a.1) and N_2O emissions from urine and dung deposited by grazing animals (category 3.D.a.3) were identified as key categories and the most relevant emissions sources in the sector. Chile used country-specific EFs for those key categories and default EFs from the 2006 IPCC Guidelines for non-key categories.

42. Some AD for the agriculture sector (e.g. the amount of fertilizer used) were not reported in Chile's BUR and the reason for this was not clear to the TTE. During the technical analysis, Chile provided sectoral tables containing the information used for estimating GHG emissions from the agriculture sector, including all relevant AD.

43. For the LULUCF sector, Chile reported annual GHG emissions and removals for 1990–2020. Overall, the net emissions/removals from the LULUCF sector fluctuated between –69,395.77 kt CO_2 eq in 2003 and 14,874.29 kt CO_2 eq in 2017. Emissions peaked in 2017 owing to forest fires. For estimating emissions/removals, Chile used country-specific EFs or default EFs from the 2006 IPCC Guidelines, depending on the category and/or tree species.

44. For the waste sector, information was clearly reported on GHG emissions, methodological tier levels, AD and their sources, EFs, key categories and notation keys used. Chile used tier 1 methodologies for some categories, with tier 2 methodologies being applied for estimating CH_4 emissions from solid waste disposal (category 5.A) and wastewater treatment and discharge (category 5.D.1), which were identified as key categories. The waste sector accounted for 7.3 per cent of total national emissions in 2020. Sectoral emissions increased by 383.4 per cent between 1990 and 2020, and were up 3.7 per cent on the 2018 level in 2020, largely owing to increases in population and waste generated, both liquid and solid, and changes in waste treatment systems.

45. The TTE noted a decrease in the AD for solid waste disposal (category 5.A) and biological treatment of solid waste (category 5.B) between 2018 and 2020, which was not in line with the expected increase. During the technical analysis, the Party clarified that, in 2019, riots in the country led to several municipalities not reporting waste disposal data for the last quarter of that year, while in 2020 the pandemic affected both the quantity of waste generated and the reporting thereof. Despite the Party applying QC procedures using data on waste per capita for each municipality, the total waste reported was still lower than expected. The Party indicated that it plans to include this explanation in its next NIR.

46. The NIR and the BUR provide an update to all GHG inventories reported in the Party's previous NCs and BURs. The information reported provides an update of the Party's NC4 and fourth BUR, which address anthropogenic emissions and removals for 1990–2018. The update was carried out for 1990–2020 using the methodologies contained in the 2006 IPCC Guidelines, thus generating a consistent 31-year time series. The Party reported that it recalculated emissions for all sectors for 1990–2018 owing to changes in sources of AD and refinement of methodologies used for all sectors, and to the development of country-specific EFs for the energy and IPPU sectors. Chile reported that recalculations were performed using updated data sources and resulted in a 55.4 per cent decrease in estimated emissions for 1990 and a 19.8 per cent increase in estimated emissions for 2018. The GHG inventories for 1990–2020 reported in the BUR are consistent.

47. Chile described in its BUR the institutional framework for the preparation of its 2020 GHG inventory. The Party reported that the Climate Change Division of the Ministry of the Environment is the governmental body responsible for its climate change policy and GHG inventory. The Climate Change Division has been responsible for updating, implementing and coordinating the national GHG inventory since 2012, as well as for taking the institutional, legal and procedural steps necessary for the biennial update of Chile's GHG inventory with a view to ensuring the sustainability of and consistency in the country's reporting under the UNFCCC.

48. Chile clearly reported that a key category analysis was performed for both the level of and the trend in emissions using approaches 1 and 2 from the 2006 IPCC Guidelines. The analysis identified 36 key categories.

49. The NIR submitted with the BUR provides information on QA/QC measures for all sectors. The information reported covers, for example, QA/QC measures pertaining to verification of data collected, estimation of emissions and documentation of the GHG inventory. The Party reported on improvements to its GHG inventory, including reviewing significant changes (i.e. of more than 10 per cent) in annual estimates, determining country-specific EFs for key categories, accounting for losses of emissions of fluorinated gases, identifying N_2O production and SF_6 uses, and accounting for CH_4 recovery in the waste sector. The TTE commends Chile for providing information in accordance with the IPCC good practice guidance.

50. Chile clearly reported information on CO_2 fuel combustion emissions using both the sectoral and the reference approach for all years. The information reported indicates that for 2020 the combustion emissions estimated under the sectoral and the reference approach are 77,133.1 and 75,730.1 kt CO_2 eq respectively. The difference between the estimates calculated using the two approaches was reported as 1.8 per cent for 2020. The Party also calculated the differences between the estimates calculated using the two approaches for the rest of the time series, which range from +0.1 per cent for 1994 to –10.7 per cent for 2013. The Party provided explanations for all calculated differences above 5 per cent; these differences are mainly due to historical corrections to particular cases in each of these years, which are not reflected in the benchmarking method that directly uses the national energy balance data.

51. Information was reported on international aviation and marine bunker fuels. The Party identified areas for improvement in its reporting, including in relation to comparability of information from the National Customs Service and the national energy balance.

52. Information on GHG emissions from international aviation was not clearly reported in Chile's BUR, with inconsistencies identified across different tables and figures. During the technical analysis, the Party clarified that the correct information is in NIR table 3-15 and that it will report the correct information in its next NIR.

53. Chile reported information on the uncertainty assessment (level and trend) of its national GHG inventory. The uncertainty analysis was based on the tier 1 error propagation approach and covers all source categories and all direct GHGs. The results obtained, as reported in the BUR, reveal that the level uncertainty for emissions including LULUCF ranges from –41.1 to +44.9 per cent and the trend uncertainty from –348.1 to +368.3 per cent.

54. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 34, 38, 40, 42 and 52 above, which could facilitate a better understanding of the information reported on GHG inventories.

55. In paragraph 66 of the summary report on the technical analysis of Chile's fourth BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be further enhanced. The current TTE noted the improvements referred to in paragraphs 36 and 39 above and commends the Party for enhancing the transparency of its reporting.

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

56. As indicated in table I.2, Chile 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.

57. The information reported provides a comprehensive overview of the Party's mitigation actions and their effects. In its BUR, Chile reported information on its goal to become carbon neutral by 2050, which is reflected in its Climate Change Framework Law. Chile also has a long-term climate strategy in place that acts as a road map towards achieving the goal of carbon neutrality by 2050 and defines the national GHG emission budget for 2030 and 2050 as well as sectoral mitigation goals, including sectoral emission budgets. The strategy has a provision that requires it to be updated in full every 10 years as well as in abbreviated form every five years to enable any new NDC commitments to be promptly incorporated. Chile reported that climate change has been mainstreamed in and integrated into its development plans. Most of the mitigation actions are in the energy sector and fall under the responsibility of the Ministry of Energy. In 2007, Chile made a voluntary commitment to reduce its emissions including emissions and removals from LULUCF by 20 per cent by 2020 compared with the 'business as usual' level, which is considered by the Party to have been met given the 23 per cent reduction in emissions for 2020 reported in the GHG inventory.

58. Chile's NDC submitted in 2020 comprehensively sets out mitigation, adaptation, and integrated mitigation and adaptation targets, as well as including a social component focused on just transition and sustainable development. Chile's mitigation target consists of an unconditional commitment, excluding emissions and removals from LULUCF, to not exceed an accumulated GHG emission budget of 1,100 Mt CO_2 eq between 2020 and 2030, with GHG emissions to peak in 2025, and reduce emissions to a level of 95 Mt CO_2 eq in 2030. The NDC also considers public climate and clean air policies, which have the objective of mitigating the effects of short-lived climate pollutants, specifically black carbon. In this context, the other mitigation goal of Chile's NDC is to reduce the total emissions of black carbon by at least 25 per cent by 2030 compared with the 2016 level. In November 2022, Chile submitted an updated NDC in which it included plans to establish the Interministerial Committee on Fair Socioecological Transition as an advisory committee reporting to the President of Chile and committed to reversing the upward trend in CH_4 emissions excluding LULUCF by 2025 by strengthening national-level measures targeting relevant sources of CH_4 emissions.

59. The Party reported a summary of its sectoral mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. The Party also reported information on its mitigation actions in narrative format. Information on mitigation actions is presented by ministry responsible for those actions, namely the Ministry of Energy, the Ministry of Transport and Communication, the Ministry of Mining, the Ministry of Agriculture, the Ministry of Housing and Urban Planning, the Ministry of Health and the Ministry of Public Works. All ministries have goals related to the national carbon budget (BUR, chap. 3, table 2). Information on mitigation actions implemented by public entities at the regional and local level and by the private sector was also reported.

60. Information on mitigation actions undertaken by the Ministry of Health and the Ministry of Public Works was not reported in tabular format in Chile's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that when collecting information for the BUR, the Climate Change Division of the Ministry of the Environment requested the relevant sectoral ministries to provide such information in both narrative and tabular format, but the Ministry of Health and the Ministry of Public Works were unable to provide such information in tabular format because they did not have any mitigation actions to report.

61. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Chile reported the names of mitigation actions or groups of actions and sectoral coverage in the BUR. A clear description of mitigation actions was provided in the BUR.

62. Information on gases covered and quantitative goals was not reported for most mitigation actions, and information on progress indicators was not provided for any action, though the TTE was able to deduce progress indicators from the descriptions of some of the actions. The reason for not providing this information was not clear to the TTE. During the technical analysis, the Party clarified that it had limited technical capacity to determine the gases covered, quantitative goals and progress indicators for actions in some sectors.

63. Chile clearly reported information on the objectives of the actions and steps taken or envisaged to achieve those actions.

64. The BUR provides information on mitigation actions in the energy sector (chap. 3, section 6.1.1). The Ministry of Energy is responsible for the normative and regulatory aspects of energy policies and measures. The Party reported in tabular format (BUR, annex 1, table A.1.1) detailed information on 30 mitigation actions under the responsibility of the Ministry of Energy, encompassing a residential heating matrix transition plan, financial and marketing measures and energy performance certification, as well as actions in areas such as renewable energy and energy efficiency technology, energy labelling and solar energy. The private sector plays a key role in implementing the mitigation actions. Chile's National Energy Policy 2050 is estimated to have the highest impact, with estimated emission reductions of 54,000 kt CO_2 eq by 2050 compared with the 2018 level.

65. In the mining sector, Chile reported 20 mitigation actions (BUR, chap. 3, section 6.1.3, and annex 1, table A.1.3) under the responsibility of the Ministry of Mining, of which 5 are implemented, 14 are under implementation and 1 is planned, focused on reducing electricity consumption and fuel combustion in extraction and production processes and promoting use of renewable energy sources. The Party reported estimated emission reductions for four of those mitigation actions. The action "2030 goals for sustainability at National Copper Corporation of Chile (CODELCO)", aimed at reducing emissions from copper production by incorporating new technologies, implementing renewable electricity supply contracts and supporting the reduction of indirect emissions, is estimated to have the largest mitigation impact (2,990 kt CO_2 eq/year).

66. In the agriculture sector, the Party reported three mitigation actions (BUR, chap. 3, section 6.1.5, and annex 1, table A.1.4) under the responsibility of the Ministry of Agriculture, which is in charge of promoting, guiding and coordinating forestry and agricultural activities. Regarding forests, Chile has committed to reducing emissions relating to degradation and deforestation of native forests by 25 per cent by 2030 compared with the average level of emissions for 2001–2013. The mitigation actions, which have all been implemented, include several projects under the National Strategy on Climate Change and Vegetation Resources: for example, the "+ Forests" project for reducing emissions from forests in the regions of Maule and Los Lagos (total intervention area of 25,000 ha), which is expected to achieve emission reductions of 256 kt CO_2/year by 2030; the Sustainable Land Management Project, which has achieved emission reductions of 2,619.9 kt CO_2; and the National Programme in Chile under the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, which has achieved emission reductions of 9.7 kt CO_2.

67. The Party reported 15 mitigation actions (annex 1, table A.1.5) under the responsibility of the Ministry of Housing and Urban Planning, focused on reducing emissions from residential housing by increasing the energy efficiency of buildings, reducing and capturing emissions through measures and programmes of investment in urban design and management, establishing thermal efficiency and sustainable construction standards, creating green areas and urban parks, enhancing construction waste management, working towards a circular economy and reducing carbon footprints.

68. Chile also reported on a set of actions under the responsibility of public entities additional to those ministries already mentioned above, including the Ministry of the Environment, the Production Promotion Corporation (a Government agency under the Ministry of Economy), the Ministry of Social Development and Family, the Ministry of National Assets, the Undersecretary of Regional and Administrative Development and branches of the Chilean Armed Forces. These actions, which are additional and

complementary to those already mentioned above, include developing a road map for the circular economy, reducing the use of HFCs and promoting green hydrogen production.

69. Information on methodologies and assumptions was not reported for most mitigation actions in Chile's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it faced challenges in developing methodologies and determining assumptions for some actions.

70. Information on results achieved, such as estimated outcomes and estimated emission reductions, was not reported for most mitigation actions in Chile's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party explained its ongoing efforts to establish guidelines for MRV for mitigation actions carried out by the public sector, noting that, while institutional arrangements for this have been proposed, specific methodologies for estimating associated emission reductions have not yet been established. The Party has contracted a consultancy to establish methodologies for estimating emission reductions from mitigation actions carried out by public sector entities and to define clear roles and assign responsibilities in regard to performing this task.

71. Chile provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. Chile documented that it actively participates in the CDM and its designated national authority has approved 193 CDM projects, of which 115 have been successfully registered under the CDM, including 15 in the validation stage. The BUR (chap. 6, section 6.7.1) includes details on the projects, sectors covered, quantity of certified emission reductions issued, and installed capacity of projects registered and under validation, as well as information on Chile's participation in the Partnership for Market Readiness, which has been fundamental in generating broad knowledge about carbon pricing instruments in Chile and their role in the decarbonization of the country's energy mix.

72. Chile reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that various MRV arrangements have been operationalized at the national level, each of which has a corresponding structure and methodology that responds to specific objectives, from GHG emissions and removals in general to GHG emission reductions arising from specific mitigation actions. Some MRV arrangements include information at the level of specific projects and others at the level of policies and actions; and some apply an ex ante approach and others an ex post approach to estimating emission reductions. The BUR (chap. 9, tables 42–44, and annex 4 to chap. 3) provides detailed information on MRV arrangements in tabular format. Chile recognized the need to revise its MRV arrangements in such a way as to ensure MRV is conducted in a systematic manner. As such, it is in the process of developing a national MRV system for its mitigation actions that will have a clear structure and encompass the definitions and objectives of mitigation actions.

73. The TTE noted that the transparency of the information reported on mitigation actions could be further enhanced by addressing the areas noted in paragraphs 60, 62, 69 and 70 above, which could facilitate a better understanding of the information reported on mitigation actions.

74. In paragraph 107 of the summary report on the technical analysis of Chile's fourth BUR, the previous TTE noted areas where the transparency of the reporting on mitigation actions could be further enhanced. The current TTE noted the improvements referred to in paragraph 59 above and commends the Party for enhancing the transparency of its reporting.

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

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

76. Chile clearly 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, Chile identified a lack of availability of financial resources, institutional knowledge and technical resources as constraints, which are detailed in tabular

format for each relevant ministry and institution, with the respective level of prioritization, and identified by area, namely, reporting and international negotiations under the Convention, mitigation, adaptation, preparation of the national GHG inventory or cross-cutting need. Chile reported that its financial, technical and capacity-building needs relate primarily to implementing MRV arrangements of adaptation and mitigation actions and preparing the GHG inventory, and technical training in this regard; improving analytical capacity of regional governments to assess mitigation actions; and gathering information related to tracking the progress of implementation of its mitigation actions.

77. Chile 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, Chile reported that in 2020–2022 it received USD 36,166,716, of which 75.7 per cent was allocated to financing policies, programmes and projects; 23.2 per cent to capacity-building and technical assistance; and 1 per cent to technology transfer and the preparation of its submissions under the Convention. Of that amount, USD 352,000 was received from the GEF for preparing and publishing the fifth BUR. The information reported indicates that Chile received capacity-building and technical support from the United Nations Development Programme to facilitate its use of the 2006 IPCC Guidelines for preparing its GHG inventory. The Party also reported information on technology transfer support received, referring to a project focused on geothermal energy applications.

78. Chile 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, Chile reported that the technology needs assessment was nationally determined. The approach to collecting and analysing information on needs included arranging meetings between the Interministerial Technical Team on Climate Change and focal points of the relevant ministries, collecting information on technology needs from relevant public sector entities, engaging with the private sector and consolidating information collected on technology transfer.

79. In paragraph 119 of the summary report on the technical analysis of the Party's fourth BUR, the previous TTE noted areas where the transparency of the reporting on constraints, gaps, needs and support needed and received could be enhanced. The current TTE noted the improvements in paragraphs 76–78 above and commends the Party for enhancing the transparency of its reporting.

5. Any other information

80. Chile reported that it took into account some of the reporting provisions of the MPGs in preparing its fifth BUR with a view to preparing for meeting the reporting requirements under the ETF. Chile enquired as to whether it would be possible for the TTE, within the context of the technical analysis of its fifth BUR, to assess its adherence to the MPGs, in particular the information relating to the GHG inventory, description of the NDC targets, information necessary to track progress in implementing and achieving its NDC, information on mitigation policies and measures, and projections of GHG emissions and removals. The TTE voluntarily committed to undertaking this supplementary task.

81. To facilitate the work of the TTE and to ensure a systematic assessment of Chile's BUR, the secretariat developed a checklist incorporating provisions from the UNFCCC reporting guidelines on BURs and the MPGs. The TTE communicated detailed findings regarding adherence to the MPGs to Chile via the checklist.

82. The findings demonstrate that Chile reported a description of its NDC, including the goal, target year, reference point, period of implementation, scope and coverage, and information on arrangements for the use of cooperative approaches. Chile also reported information on indicators selected to track progress towards the implementation and achievement of its NDC in tabular format, including quantitative information on progress. Information on the methodology for tracking progress for each indicator was also reported. Chile further reported, for the first time, information on projections of GHG emissions and removals, including different scenarios ('with measures', 'with additional measures' and 'with limited measures'). All scenarios covered 2021–2050 and were reported by sector and by gas.

D. Identification of capacity-building needs

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

(a) Enhancing technical capacity to collect and compile AD and formulate assumptions for estimating emissions for the energy sector, while reinforcing QA/QC procedures to ensure data consistency;

(b) Enhancing technical capacity to reinforce QA/QC procedures in order to maintain data consistency and completeness;

(c) Enhancing technical capacity to collect and compile AD and formulate assumptions for estimating emissions for the waste sector, while reinforcing QA/QC procedures to maintain data consistency;

(d) Enhancing technical capacity to apply the natural disturbance provisions for the LULUCF sector, in particular in the context of conditions that exacerbate wildfires, such as strong winds, high temperatures and drought;

(e) Enhancing ministerial-level capacity to identify supplementary mitigation actions aimed at achieving sector-specific carbon budget goals;

(f) Enhancing ministerial-level capacity to estimate ex ante and ex post GHG emission reductions, with the objective of monitoring and demonstrating progress towards quantitative sector-specific goals;

(g) Enhancing capacity to identify specific indicators for tracking the progress of implementation of each mitigation action, including aligning them with the indicators selected by Chile for tracking NDC progress;

(h) Strengthening capacity to identify and use methodologies for monitoring GHG emission reductions from specific mitigation actions, including establishing key assumptions and undertaking cost analyses.

III. Conclusions

84. The TTE conducted a technical analysis of the information reported in the fifth BUR of Chile in accordance with the UNFCCC reporting guidelines on BURs and concludes that the information reported is mostly consistent. It 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 removals by sinks of all GHGs not controlled by the Montreal Protocol, including an NIR; 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; and domestic MRV. During the technical analysis, additional information was provided by Chile, namely the background reporting tables for the national GHG inventory. The TTE concluded that the information analysed is mostly transparent.

85. Chile reported an update on the institutional arrangements relevant to the preparation of its BURs. The Climate Change Division of the Ministry of the Environment is responsible for coordinating the preparation of national reports and submitting them to the UNFCCC. The Climate Change Framework Law, which was adopted in 2022, provides the legal foundation for Chile's long-term climate goals, is aligned with the country's international commitments under the Convention and the Paris Agreement, and ensures reporting to the UNFCCC on a continuous basis. The Law encompasses the country's NDC and long-term climate strategy and establishes the national information system.

86. In its fifth BUR, submitted in 2022, Chile reported information on its national GHG inventory for 1990–2020. This included GHG emissions and removals of CO_2, CH_4 and N_2O, as well as emissions of HFCs, PFCs and SF_6, for all relevant sources and sinks as well as the precursor gases. The inventory was developed on the basis of the 2006 IPCC Guidelines for

all sectors. Most key categories were estimated using tier 1 methodologies. The total GHG emissions for 2020 were reported as 105,551.91 Gg CO_2 eq (excluding LULUCF) and 55,824.52 Gg CO_2 eq (including LULUCF). A total of 36 key categories and main gases were identified.

87. Chile reported information on mitigation actions and their effects in both tabular and narrative format, including a comprehensive overview of its mitigation actions. The Party's long-term climate strategy is a road map to achieving carbon neutrality by 2050 and defines the national GHG emission budget for 2030 and 2050 as well as sectoral mitigation goals, including sectoral emission budgets. Chile's mitigation target consists of an unconditional commitment, excluding emissions and removals from LULUCF, to not exceed an accumulated GHG emission budget of 1,100 Mt CO_2 eq between 2020 and 2030, with GHG emissions to peak in 2025, and reduce emissions to a level of 95 Mt CO_2 eq in 2030. The other mitigation goal of Chile's NDC is to reduce the total emissions of black carbon by at least 25 per cent by 2030 compared with the 2016 level. In November 2022, Chile strengthened its NDC, which included new commitments for CH_4 emission reductions. The Party reported a summary of its sectoral mitigation actions in narrative and, in most cases, tabular format, with actions categorized by relevant ministry. Mitigation actions in the energy sector play a pivotal role in Chile's climate change efforts. The Party also reported information on its involvement in international market mechanisms and on MRV arrangements. Information on progress indicators was not reported for all mitigation actions, while information on methodologies, assumptions, gases covered and quantitative goals was not reported for most actions.

88. Chile reported information on key constraints, gaps and related needs, including a lack of availability of financial resources, institutional knowledge and technical resources. Information was reported on technical, technology transfer, capacity-building and financial support received. The Party reported that, in 2020–2022, it received a total of USD 36,166,716 in international support for activities related to climate change. This support was allocated to financing policies, programmes and projects, capacity-building and technical assistance, and technology transfer initiatives. Of the total amount received, USD 352,000 was from the GEF for the preparation and publication of the fifth BUR. The Party further reported information on the transfer of technology received, referring to a project focused on geothermal energy applications.

89. The current TTE noted improvements in the reporting in the Party's fifth BUR compared with that in its previous BUR. The information reported demonstrates that the Party has taken into consideration the areas for enhancing the transparency of the information reported noted by the TTE in the summary report on the technical analysis of the fourth BUR. However, improvements are ongoing, and the Party has taken note of outstanding areas for future improvements.

90. The TTE, in consultation with Chile, identified the eight 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. Chile prioritized the capacity-building needs referred to in paragraph 83(e), (f) and (h) above.

Annex I

Extent of the information reported by Chile in its fifth biennial update report

Table I.1
Identification of the extent to which the elements of information on greenhouse gases are included in the fifth biennial update report of Chile

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*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	Chile submitted its fifth BUR in December 2022; the GHG inventories reported are for 1990–2020.
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 Conference of the Parties or those determined by any future decision of the Conference of the Parties on this matter.	Yes	Chile 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.	Partly	Chile did not provide some AD for the agriculture sector (e.g. the amount of fertilizer used).
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;	No	The Party reported that the 2006 IPCC Guidelines were applied for the LULUCF sector and included a comprehensive description of the AD, parameters, EFs and equations used; however, it did not provide the tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF or similar tables that summarize carbon stock changes in carbon pools or GHG emissions in land-use categories.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	The Party reported that the 2006 IPCC Guidelines were applied for all sectors and included a comprehensive description of the AD, parameters, EFs and equations used. In addition, it provided tables similar to the sectoral report tables annexed to

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
			the Revised 1996 IPCC Guidelines, with a comparable level of detail.
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	Chile presented a consistent time series for 1990–2020.
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 previous submission years (e.g. for 1994 and 2000).	Yes	This information was reported in the NIR for 1990–2020.
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:	Yes	
	(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	Comparable information was reported in the BUR (chap. 2, section 2, table 3).
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Yes	Comparable information was reported in the BUR (chap. 2, section 2, table 3). Chile indicated that NF_3 emissions are not occurring in the country.
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	Information on the procedures and arrangements undertaken to collect and archive data was reported.
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;	Partly	The Party reported "NE" for some subcategories.
	(b) CH_4;	Partly	The Party reported "NE" for some subcategories.
	(c) N_2O.	Partly	The Party reported "NE" for some subcategories.
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of:	Yes	

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(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;	Yes	
	(b) NO_X;	Yes	
	(c) NMVOCs.	Yes	
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	The Party reported on other gases, such as SO_2.
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 AR2 based on the effects of GHGs over a 100-year time-horizon.	Yes	The Party used the GWP provided in the AR4.
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	Chile used the 2006 IPCC Guidelines. Tier 1 and 2 methodologies were mostly used, except for one category in the IPPU sector, for which the tier 3 methodology was used.

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(b) Explanation of the sources of EFs;	Yes	Chile used the 2006 IPCC Guidelines.
	(c) Explanation of the sources of AD;	Yes	Chile used the 2006 IPCC Guidelines.
	(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	Chile used a national methodology for estimating carbon black emissions.
	(i) Source and/or sink categories;		
	(ii) Methodologies;		
	(iii) EFs;		
	(iv) AD;		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	Yes	
Decision 17/CP.8, annex, paragraph 22	Each non-Annex I Party is encouraged to use tables 1–2 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	Notation keys were used.
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, paras. 3–10 and 41(g). Further, as per para. 3 of those guidelines, non-Annex I Parties are to submit updates of their national GHG inventories in accordance with paras. 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 I.2
Identification of the extent to which the elements of information on mitigation actions are included in the fifth biennial update report of Chile

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*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	Partly	Information was provided in tabular format for most mitigation actions, except for those under the responsibility of the Ministry of

	removals by sinks of all GHGs not controlled by the Montreal Protocol.		Health and the Ministry of Public Works, as they did not have any mitigation actions to report.
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:		
	(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;	Partly	Information on gases covered and quantitative goals was not reported for most mitigation actions, and progress indicators were not reported for any action.
	(b) Information on:		
	(i) Methodologies;	Partly	Information on methodologies was not reported for most of the mitigation actions.
	(ii) Assumptions;	Partly	The Party did not report information on the underlying assumptions for most mitigation actions.
	(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;	Partly	The Party did not report on estimated outcomes or estimated emission reductions for some mitigation actions.
	(e) Information on international market mechanisms.	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements.	Yes	

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, paras. 11–13.

Table I.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 fifth biennial update report of Chile

Decision	*Provision of the reporting requirements*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
Decision /CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	

Decision	*Provision of the reporting requirements*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(b) Related financial, technical and capacity-building needs.	Yes	
Decision /CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources, technology transfer and capacity-building received;	Yes	
	(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 /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	
	(b) Technology support received.	Yes	

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, paras. 14–16.

Annex II

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

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IPCC. 2003. *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. J Penman, M Gytarsky, T Hiraishi, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.html.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

B. UNFCCC documents

First, second, third, fourth and fifth BURs of Chile. Available at https://unfccc.int/BURs.

NC1, NC2, NC3 and NC4 of Chile. Available at https://unfccc.int/non-annex-I-NCs.

Summary reports on the technical analysis of the first, second, third and fourth BURs of Chile, contained in documents FCCC/SBI/ICA/2015/TASR.1/CHL, FCCC/SBI/ICA/2017/TASR.2/CHL, FCCC/SBI/ICA/2019/TASR.3/CHL and FCCC/SBI/ICA/2021/TASR.4/CHL respectively. Available at https://unfccc.int/ICA-reports.