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Technical analysis of the third biennial update report of Peru submitted on 24 June 2023

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 third biennial update report of Peru, 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*
2019 Refinement to the 2006 IPCC Guidelines	*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AD	activity data
AFOLU	agriculture, forestry and other land use
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EEA	European Environment Agency
EF	emission factor
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ETF	enhanced transparency framework under the Paris Agreement
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
HWP	harvested wood products
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
LPG	liquefied petroleum gas
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
N_2O	nitrous oxide
NA	not applicable
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NMVOC	non-methane volatile organic compound
non-Annex I Party	Party not included in Annex I to the Convention
NO_X	nitrogen oxides
PFC	perfluorocarbon
QA/QC	quality assessment/quality control
RES	renewable energy source(s)
Revised 1996 IPCC Guidelines	*Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*
SF_6	sulfur hexafluoride
SO_X	sulfur oxides
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. Peru submitted its second BUR on 17 December 2019, which was analysed by a TTE in the fifteenth round of technical analysis of BURs from non-Annex I Parties, conducted from 9 to 13 March 2020. After the publication of its summary report, Peru participated in the tenth workshop for the facilitative sharing of views, convened remotely on 11 June 2021.

5. This summary report presents the results of the technical analysis of the third BUR of Peru, 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, Peru submitted its third BUR on 24 June 2023 as a stand-alone update report. The submission was made within three years and six months after the submission of the second BUR. During the technical analysis, the Party explained the reasons for submitting the BUR more than two years after the submission of the previous BUR. Peru explained that it has made progress in enhancing its regulatory and institutional framework in order to submit timely reports, particularly in establishing ministerial focal points. However, challenges persist, and the Party indicated needs to ensure timely availability of information, strengthen institutional capacities and secure additional financing to enable it to meet the reporting requirements under the Convention and the Paris Agreement.

7. The technical analysis of Peru'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), José Ramirez Garcia (Spain), Roberto Lucero (Ecuador), Cecilia Penengo (Uruguay), Marcelo Theoto Rocha (member of the Consultative Group of Experts from Brazil), Orlando Ernesto Rey Santos (former member of the Consultative Group of Experts from Cuba) and Alexander Valencia (Colombia). José 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 Peru 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 Peru's third BUR, the TTE prepared and shared a draft summary report with Peru on 6

[1] The consultation was conducted via videoconferencing.

March 2024 for its review and comment. Peru, in turn, provided its feedback on the draft summary report on 8 May 2024.

9. The TTE responded to and incorporated Peru's comments referred to in paragraph 8 above and finalized the summary report in consultation with the Party on 6 September 2024.

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 Peru'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 12 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 Peru's third BUR compared with that in its previous BUR. Information on the years covered by the inventory in relation to the submission date of the third BUR, indirect emissions of CO, NO_X, NMVOCs and SO_X, updated LULUCF sector information for historical years, and information regarding the comparison between the reference and the sectoral approach reported in the Party's 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.

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 third BUR, Peru provided an update on its national circumstances, including features of geography, climate and economy that might affect the Party's ability to deal with mitigating and adapting to climate change, as well as information on the political, administrative and demographic situation of the country, as referred to in Article 4, paragraph 8, and, as appropriate, paragraphs 9–10, of the Convention.

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

21. Peru transparently reported in its third 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 regulatory and institutional strengthening for the comprehensive management of climate change policy. This includes the enactment in 2018 of the Framework Law on Climate Change, which establishes clear mandates and defines the specific functions and roles within the government at the national, regional and local level, and the interrelations between government branches and non-State actors. The Ministry of Environment is responsible for the preparation of the Party's NCs and BURs. The Party reported details on the National Strategy on Climate Change to 2050 as the main instrument for the comprehensive management of climate change policy in the country and the creation of the High-Level Commission on Climate Change as the national body that proposes climate change adaptation and mitigation measures and is responsible for the country's NDC. The TTE noted improvements to the information reported in the BUR, including on the Party's institutional arrangements at the local level and Indigenous Peoples Platform to Address Climate Change.

22. Peru reported in its third BUR an update on its domestic MRV arrangements. The description covers key aspects of the institutional arrangements, including the implementation of the System for Monitoring Adaptation and Mitigation Measures, which is intended to carry out periodic monitoring and technical verification of information, in particular on GHG emissions and removals. The System encompasses key tools, including a baseline emission tool; INFOCARBONO, the main GHG national inventory system; Carbon Footprint Peru, an online tool used for the official recognition of mitigation efforts of public and private sector organizations; and RENAMI, the national registry system for mitigation actions. The Party reported information on progress with arrangements for monitoring the financial, technical and capacity-building support received. The System for Monitoring Adaptation and Mitigation Measures is being built on existing systems, processes and infrastructure, ensuring a cost-effective approach.

23. Peru reported in its BUR (section 2.4.2) information on progress and good practices in preparing GHG inventories, including the regional GHG inventories for 2016 corresponding to seven regions of the country. Peru also reported information on progress in

meeting the Sustainable Development Goals and its current initiatives for enhancing its institutional arrangements for compliance with requirements under the ETF in its BUR (section 5.2.1). The TTE commends the 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

24. As indicated in table I.1, Peru 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.

25. Peru submitted its third BUR in 2023 and the GHG inventory reported is for 2000–2019. The GHG inventory is consistent with the requirements for the reporting time frame.

26. GHG emissions and removals for the BUR covering the 2000–2019 inventory were estimated using mainly tier 1 methodology from the 2006 IPCC Guidelines. Additionally, tier 2 methodology was used for some categories and tier 3 for estimating emissions from civil aviation. Peru used EFs from the 2019 Refinement to the 2006 IPCC Guidelines for estimating the categories CH_4 emissions from solid fuels (1.B.1), CH_4 emissions from enteric fermentation of all animal species other than cattle (3.A.1), CH_4 and N_2O emissions from manure management (3.A.2), direct N_2O emissions from managed soils (3.C.4) and CH_4 emissions from rice cultivation (3.C.7). The TTE commends the Party for using the 2006 IPCC Guidelines and the 2019 Refinement to the 2006 IPCC Guidelines.

27. Information on AD and EFs used and their sources was reported in the BUR. However, although the AD sources were reported, the TTE noted that obtaining the AD from the sources reported is a time-consuming and complex process. During the technical analysis, the Party explained that the AD considered for the emission estimates are available on the INFOCARBONO website, for which it provided the link, and that access to the AD can be improved for future submissions.

28. Information on the Party's total GHG emissions in 2000 by sector and by gas was not consistent in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that the correct values for total GHG emissions by sector and by gas are presented in figure 3.7 (trend of net emissions by GHG) and in the figures that describe trends for each sector in the GHG inventory chapter of the BUR. Regarding table A.9.1 of the BUR on anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol and precursor gases for 2000, the Party mentioned that some data were omitted from the table owing to formula errors: in the waste sector, the estimates of CH_4 and N_2O emissions did not include emissions from wastewater treatment and discharge; and total HFC emissions expressed in CO_2 eq did not include emissions from the IPPU sector. The Party mentioned that these omissions were generated when creating the reporting tables presented in annexes to the BUR. The Party shared the correct values with the TTE, which are consistent with the information presented in the inventory chapter of the BUR.

29. Information on the Party's total GHG emissions by gas for 2000–2019 is outlined in table 1 in Gg CO_2 eq. It shows an increase in emissions of 61.2 per cent without land and HWP since 2000 (41,616.86 Gg CO_2 eq without land and HWP).

Table 1
Greenhouse gas emissions by gas of Peru for 2000–2019

Gas	*GHG emissions (Gg CO_2 eq) including land and HWP[a]*	*GHG emissions (Gg CO_2 eq) excluding land and HWP[a]*	*% change 2000–2019*
CO_2	159 395.34	58 601.29	98.8
CH_4	39 014.02	39 014.02	32.1
N_2O	11 085.16	11 085.16	23.7
HFCs	909.91	909.91	4 704.2
PFCs	NE	NE	NA
SF_6	NE	NE	NA

Gas	*GHG emissions (Gg CO_2 eq) including land and HWP[a]*	*GHG emissions (Gg CO_2 eq) excluding land and HWP[a]*	*% change 2000–2019*
Other	NO	NO	NA
Total	**210 404.42**	**109 610.37**	**61.2**

[a] 2006 IPCC Guidelines AFOLU category 3.B (land) and, if reported, 3.D (HWP (3.D.1) and other emissions (3.D.2)).

30. Information on other emissions was reported, including 1,255.20 Gg NO_X, 569.58 Gg CO, 37.10 Gg SO_X and 262.54 Gg NMVOCs.

31. Other emissions for some categories were reported as "NE" (in annex 9 to the BUR) and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it faces reporting challenges in the areas of its capacity-building needs, and that for some categories these emissions were not reported because of insufficient knowledge of the EMEP/EEA air pollutant emission inventory guidebook methodology.

32. Peru applied notation keys in tables where numerical data were not provided. The use of notation keys was partly consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties.

33. Information about the use of notation keys for some categories was not consistently reported in Peru's BUR and the TTE detected inconsistencies in the use of notation keys between BUR table 3.6 and annex 9 to the BUR. During the technical analysis, the Party clarified that it considers that it would be appropriate for it to receive training on the use of notation keys.

34. Peru 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.

35. The shares of emissions that different sectors contributed to the Party's total GHG emissions excluding land and HWP (category 3.B and, if reported, 3.D), as calculated by the TTE using information from the BUR, in 2019 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector of Peru for 2000–2019

Sector	*GHG emissions (Gg CO_2 eq)*	*% share[a]*	*% change 2000–2019*
Energy	63 238.17	57.7	91.6
IPPU	7 475.47	6.8	167.2
AFOLU	129 272.40	NA	418.6
Livestock (category 3.A)	16 086.68	14.7	8.2
Land (category 3.B)	100 794.05	NA	NA
Aggregate sources and non-CO_2 emissions sources on land (category 3.C)	12 391.67	11.3	23.3
HWP and other emissions (category 3.D)	NE	NA	NA
Waste	10 418.38	9.5	43.4

[a] Share of total without 2006 IPCC Guidelines AFOLU category 3.B (land) and, if reported, category 3.D (HWP (3.D.1) and other emissions (3.D.2)).

36. Peru reported information on its use of GWP values consistent with those provided by the IPCC in its AR5 based on the effects over a 100-year time-horizon of GHGs. In addition, for comparison, the Party provided in its BUR (annex 2, table A.2.2) a summary with the emissions aggregated by sector and by gas using the GWP values from the AR2.

37. For the energy sector, information was clearly reported on the methodological tier levels applied. Emissions from the energy sector were estimated using mainly tier 1 methodology. Tier 2 methodology was used for estimating CO_2 emissions from natural gas (category 1.A.1) and tier 3 for estimating emissions from civil aviation (category 1.A.3.a). Peru used default EFs from the 2006 IPCC Guidelines, except for natural gas for which a country-specific EF was used. CO_2 emissions from road transportation (1.A.3.b) and CO_2

emissions from use of gas in energy industries (1.A.1) are key categories and the main sources of emissions in the energy sector. During the technical analysis, the Party explained that the country-specific EF for natural gas was obtained by the Ministry of Energy and Mines, applying an industry-relevant methodology and using information provided by the industry. The Party provided a link to a report on– stationary combustion and fugitive emissions for 2019 and an Excel file containing detailed relevant information.

38. For the IPPU sector, information was clearly reported on the methodological tier levels applied (mainly tier 1, with tier 2 used for the category CO_2 emissions from cement production (2.A.1)) and EFs used (default EFs from the 2006 IPCC Guidelines, except for the EF for cement production, which was estimated using country-specific data from plants). CO_2 emissions from cement production (2.A.1) is a key category, accounting for 2.99 per cent of total emissions in the country in 2019.

39. Emissions from non-energy products from fuels and solvent use (category 2.D) were reported as "NE" and the reason for this was not clear to the TTE. During the technical analysis, the Party explained that the AD for category 2.D are aggregated and it was not possible to disaggregate the data for estimating the emissions.

40. Estimates of emissions from products used as substitutes for ozone-depleting substances were not reported for all subcategories. Only HFC emissions from refrigeration and air conditioning were reported. Emissions for the subcategories foam blowing agents (2.F.2), fire protection (2.F.3), aerosols (2.F.4) and solvents (2.F.5) were reported as "NE" and "NA". During the technical analysis, the Party clarified that it faces difficulties in obtaining the necessary AD.

41. Emissions for the category other product manufacture and use (2.G) were reported as "NE". During the technical analysis, the Party clarified that it faces challenges related to the unavailability of information and that for category 2.G emissions were not estimated because there are some subcategories for which AD are not available and other subcategories for which it is not certain that emissions occur in the country.

42. For 2006 IPCC Guidelines AFOLU categories 3.A and 3.C, information was clearly reported on the methodological tier levels applied. Peru estimated CH_4 emissions from enteric fermentation of dairy cows and other cattle (subcategories 3.A.1.a.i and 3.A.1.a.ii) using tier 2 methodology. For other categories in the agriculture sector, Peru used tier 1 methodology and default EFs from the 2006 IPCC Guidelines and the 2019 Refinement to the 2006 IPCC Guidelines. CH_4 emissions from enteric fermentation of cattle (3.A.1.a) and N_2O emissions from managed soils (3.C.4 and 3.C.5) were identified as key categories. During the technical analysis, the Party clarified that the country-specific EFs for cattle (dairy cows and other cattle) were determined on the basis of expert judgment and provided links to additional information and the updated country-specific EFs.

43. The categories CO_2 emissions from lime application on agricultural soils (3.C.2) and non-CO_2 emissions from biomass burning on forest land (3.C.1.a) were reported as "NE" owing to the unavailability of AD, as explained by the Party in the BUR. Information on the category non-CO_2 emissions from biomass burning on other land (3.C.1.d) was not reported and the reason for this was not clear to the TTE. During the technical analysis, Peru explained that it faces challenges in producing a consistent time series with data on areas affected by fires on forest land and other land for estimating non-CO_2 emissions for these subcategories. Regarding CO_2 emissions from lime application, Peru has included the reporting of these emissions in its inventory improvement plan.

44. For land (category 3.B), Peru reported annual GHG emissions and removals for 2008–2019. Overall, the net emissions from land fluctuated between a minimum of 92,448 Gg CO_2 eq in 2010 and a maximum of 112,049 Gg CO_2 eq in 2013, mainly owing to deforestation processes in the Peruvian Amazon (conversion of forest land to cropland, grassland and settlements), with relatively high emissions in 2008, 2013, 2016 and 2019. CO_2 emissions from forest land converted to cropland (3.B.2.b.i), forest land converted to grassland (3.B.2.b.ii) and forest land remaining forest land (3.B.1.a) were identified as key categories.

45. Peru reported information on emissions from wetlands (category 3.B.4) and from HWP (category 3.D.1) as "NE". During the technical analysis, Peru explained that, to obtain

approximate AD, it needs to collect information on the management of wetlands and draw on other countries' experience. Peru also explained that relevant capacity-building needs have been identified. Regarding HWP, Peru has included the reporting of these emissions in its inventory improvement plan.

46. For land, the main sources of AD were clearly reported in the BUR but the methods used to collect the AD were not. During the technical analysis, the Party explained that two methods were used to collect AD: a systematic sampling approach using the Collect Earth Online tool for the Amazon biome; and using land-use and land-cover maps from the European Space Agency for the coast and sierra biomes. Peru also explained that significant efforts have been made to improve the gathering of data on land use and land-use change for the Amazon biome, which covers most of the Peruvian territory, and to develop country-specific EFs for estimating emissions from living biomass in forest land.

47. For the waste sector, information was clearly reported on the methodological tier level applied (tier 1) and EFs used (default EFs from the 2006 IPCC Guidelines). CH_4 emissions from solid waste disposal (4.A) and from domestic wastewater treatment and discharge (4.D.1) were identified as key categories.

48. The BUR provides an update to some of the GHG inventories reported in the Party's previous NCs and BURs. The information reported provides an update of the Party's second BUR, which addresses anthropogenic emissions and removals for 2014. The update was carried out for 2000–2019 (excluding LULUCF) and for 2010–2019 (for LULUCF) using the methodologies contained in the 2006 IPCC Guidelines, thus generating a consistent 19-year time series (excluding LULUCF) and 9-year time series (including LULUCF). The Party reported that it recalculated emissions for the energy, IPPU, agriculture and waste sectors for 2000–2014. For the LULUCF sector, recalculations were performed for 2012–2014 (the years reported in the previous BUR for this sector). The recalculations were due to changes and improvements in methodologies, and use of higher-tier methodologies and updated sources of AD and EFs. The Party reported that the recalculations resulted in an 8 per cent increase in the estimated emissions for 2014 for the energy, IPPU, agriculture and waste sectors and an 18 per cent increase for the LULUCF sector. The GHG inventories for 2000–2019 (without LULUCF) reported in the BUR are consistent.

49. Updated information on time series back to 1994, the initial inventory year included in Peru's NC1, was not reported in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that the historical AD series currently used are not available for all IPCC sectors and that the historical times series of sectoral statistics are not usually updated. The Party explained that, for the sectors where historical data are available for up until 1994, it has worked in a coordinated manner with the ministries involved to calculate the respective estimates.

50. Peru described in its BUR the institutional framework for the preparation of its GHG inventory. The Party reported that the Ministry of Environment is the governmental body responsible for its climate change policy and GHG inventory, which was prepared with the support of the United Nations Development Programme, which assisted Peru in implementing the project for elaborating the BUR.

51. Peru clearly reported that a key category analysis was performed using approach 1 from the 2006 IPCC Guidelines for the level of and trend in emissions. Peru noted in the BUR that 2010 is considered the base year, as it is the first inventory year that included emission estimates for all sectors. The key category analysis for the level of emissions showed that CO_2 emissions from land converted to cropland was the main source of emissions in 2019, accounting for 28.9 per cent of total emissions. According to the key category analysis for the trend in emissions, CO_2 emissions from forest land remaining forest land is the most important category.

52. The BUR provides information on QA/QC measures for all sectors. The 2023 GHG inventory was subject to QC procedures to avoid possible errors in data transcription, conversion of units, emission estimation, etc. QC was performed following the general and specific procedures described in the 2006 IPCC Guidelines and was applied to AD, EFs, spreadsheets, results and reporting. Furthermore, at the sector level, reviews were carried out

by specialists and/or experts in the sector who are not involved in preparing the inventory, and general QA of the inventory was carried out by a consultant.

53. Peru reported information on CO_2 fuel combustion emissions using both the sectoral and reference approach. The information reported indicates that the combustion emissions estimated under the sectoral and reference approach are 51,239.58 Gg CO_2 and 51,846.11 Gg CO_2 respectively. The difference between the estimates calculated using the two approaches was reported as 1.2 per cent for 2019 (i.e. below the 5 per cent reference level in the 2006 IPCC Guidelines).

54. Information regarding the comparison between the reference and sectoral approach was not provided for years other than 2019 and the reason for this was not clear to the TTE. In BUR table A.1.1, Peru identified making the comparison for other years as an area for potential improvement. During the technical analysis, the Party explained that it will continue working to improve the reporting of this information for future submissions.

55. Information was reported on international aviation and marine bunker fuels. The TTE noted that the trend in emissions from international aviation and marine bunker fuels showed particularly high emissions for international maritime navigation in 2016, which then sharply decreased until 2018. During the technical analysis, the Party explained that emission estimates for international aviation and marine bunker fuels are derived from the national energy balance, adding that it will work with the Ministry of Energy and Mines to analyse the data and methodologies used in the calculations prior to 2018 in order to explain the observed trends.

56. Peru reported information on the uncertainty assessment of its national GHG inventory. The uncertainty analysis was based on the tier 1 approach described in the 2006 IPCC Guidelines and covers all source categories and all direct GHGs. The results obtained, as reported in the BUR, reveal that the level uncertainty for emissions with LULUCF is 10.9 per cent and the trend uncertainty is 12.8 per cent.

57. The TTE noted that the transparency of the information reported on GHG inventories could be enhanced by addressing the areas noted in paragraphs 27, 31, 32, 39, 40, 41, 43, 45, 46, 49 and 53 above, which could facilitate a better understanding of the information reported on GHG inventories.

58. In paragraph 46 of the summary report on the technical analysis of the Party's second BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be enhanced, namely by reporting information on CO_2 emissions from fuel combustion using the reference approach. The current TTE noted the improvements referred to in paragraph 53 above and commends the Party for enhancing the transparency of its reporting.

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

59. As indicated in table I.2, Peru 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.

60. The information reported provides a comprehensive overview of the Party's mitigation actions and their effects. In its BUR, Peru reported information on its national context and framed its national mitigation planning and actions in the context of its NDC, which specifies absolute emission reduction targets of 30 per cent (i.e. to limit the peak of emissions to 208.8 Mt CO_2 eq, unconditional target) and 40 per cent (i.e. to limit the peak of emissions to 179.0 Mt CO_2 eq, conditional target) by 2030 compared with 'business as usual'. Peru reported that the regulatory and institutional strengthening promoted by the country in recent years has facilitated the participation of the various actors in the country in the comprehensive management of climate change. Furthermore, the National Commission on Climate Change reinforced its role in the coordination, monitoring and implementation of national commitments under the Convention, with the participation of non-State actors ensuring a holistic approach to managing climate change.

61. The mitigation actions were reported separately for State and non-State actors and then categorized by sector for both groups. During the technical analysis, the Party acknowledged that there may be overlap of information between the mitigation actions reported for State and non-State actors. In addition, the MRV system for the mitigation measures of State actors is still in the design phase with the authorities in charge of those measures. It is expected that the MRV system will derive information from the entities carrying out the mitigation actions. The Party clarified that with the implementation of RENAMI it is seeking to align the MRV of initiatives of both State and non-State actors. In addition, it will allow monitoring of mitigation measures implemented by non-State actors that participate in the carbon market and ensure avoidance of double counting with respect to the transfer of mitigation outcomes under the cooperative approaches under Article 6, paragraph 2, of the Paris Agreement.

62. Most of the mitigation actions undertaken by State actors are in the energy sector, although the LULUCF sector makes the largest contribution in terms of estimated emission reductions. Mitigation actions of non-State actors predominantly focus on the LULUCF and energy sectors. Emission reductions were reported for the mitigation actions of State actors only, which are estimated at 71.6 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario, with LULUCF being the main source of emission reductions.

63. The Party reported information on NDC targets and/or progress in achieving them. Of the 14 nationally appropriate mitigation actions reported by Peru, 9 constituted an important input to the formulation of the mitigation measures that are part of the NDC. The TTE acknowledged the information, which is presented in this summary report as contextual without assessing the completeness and transparency of the information.

64. The Party reported a summary of its sectoral mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11.

65. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Peru clearly reported the names of mitigation actions or groups of actions, including a brief description, the implementing authority and coverage (sector and gases), in the BUR (tables 4.5–4.12). Moreover, for the 63 mitigation actions of State actors, Peru reported information on goals.

66. Information on progress indicators and progress of implementation for the mitigation actions of State and non-State actors was not reported in Peru's BUR and the reason for this was not clear to the TTE. For instance, there was a lack of quantitative information regarding the capacity of RES to be installed and how much of the planned capacity has already been implemented for the mitigation action on the renewable energy mix. During the technical analysis, the Party clarified that the MRV system needs to be strengthened for mitigation measures within each sector, which would allow the development of proper progress indicators, with the active involvement of the responsible actors, including those from the private sector.

67. Peru reported information on the objectives of the actions of State actors and steps taken or envisaged to achieve those actions for mitigation actions in all sectors and the estimated emission reductions.

68. In the energy sector, the mitigation actions focus mainly on increasing use of RES, replacing inefficient streetlamps with energy-efficient alternatives and promoting use of LPG in transportation. Peru has taken steps to implement the necessary legal framework for these mitigation actions. Also, the Party developed consultancy and pilot projects on clean cooking technologies in rural areas to replace consumption of wood and coal in traditional stoves. Further, it contracted consultancy services for the development of an energy efficiency labelling programme for light-duty vehicles and motorcycle taxis. Emission reductions from mitigation actions of State actors in the energy sector are estimated to be around 16.9 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario.

69. In the IPPU sector, mitigation actions focus mainly on the cement industry and the use of alternatives to HFCs. Peru has established maximum permissible limits for atmospheric emissions from industrial cement and/or lime manufacturing plants and an MRV protocol with the industry. Also, it approved legislation on replacing HFCs with alternative refrigerants and is working with the customs authorities to strengthen controls on the entry

into the country of fluorinated gases, including HFCs. Emission reductions from mitigation actions of State actors in the IPPU sector are estimated at 1.8 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario.

70. Regarding mitigation actions in the agriculture sector, the use of natural pastures for livestock is expected to make the greatest contribution to emission reductions. Peru has developed a plan for the use of natural pastures and to secure funding for farmers in its budgetary programme. Emission reductions from mitigation actions of State actors in the agriculture sector are estimated at 6.5 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario.

71. The LULUCF sector is expected to make the largest contribution in terms of estimated emission reductions, with a total of 49.9 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario. Peru approved a research and capacity-building plan for forestry and wildlife management covering 2021–2025, provided grants to Indigenous communities to ensure the conservation of 1,516,790 ha forest and established cooperation agreements with public and private institutions to promote interventions for conservation of community forests. Peru attributed rights and titles to Indigenous communities, covering 5,615,755 ha land in the Amazon region between 2014 and 2020, with a view to ensuring sustainability and avoiding loss of forest.

72. Regarding the waste sector, Peru reported that it is improving and expanding the capture and burning and use of biogas produced in landfills as a source of energy for electricity generation and developing wastewater treatment plants with biogas collection systems. Emission reductions from mitigation actions of State actors in the waste sector are estimated at 0.9 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario.

73. Information on methodologies and assumptions for all mitigation actions and the progress of implementation of mitigation actions by non-State actors was not reported in the BUR and the reason for this was not clear to the TTE. For instance, there was a lack of information regarding how emission reduction estimates were obtained for measures such as allocating rights to non-categorized lands in Amazonia and commercial forest plantations. During the technical analysis, the Party clarified that the information on the methodologies and assumptions used to calculate the emission reductions for mitigation measures is based on the experience of mitigation projects previously implemented in the country, especially under the clean development mechanism. The Party also clarified that detailed information can be found in the report from the working group responsible for identifying the mitigation measures for the NDC and provided the link to that report.

74. Information on progress of implementation of actions by State actors and underlying steps taken or envisaged to achieve them was not clearly reported in Peru's BUR. The Party provided information on some steps taken to implement mitigation actions by State actors but it was not clear to the TTE whether the mitigation actions are fully implemented or further steps are planned. During the technical analysis, the Party clarified that the MRV system needs to be strengthened for mitigation measures within each sector, including the design and monitoring of indicators of implementation.

75. Peru provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. Peru documented 59 clean development mechanism projects registered by its designated national authority, most of which are still in operation. The statistics include information on the project name, date of registration, sectors covered, estimated emission reductions, credit period, status and geographical scope. The projects have the potential to reduce emissions by 10,243,880 t CO_2 eq per year, of which 78.8 per cent corresponds to RES projects. In relation to the conventional voluntary carbon market, Peru has 35 projects registered or in the process of registration under the Gold Standard (7 projects) and Verra standards (28 projects).

76. Peru reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Peru is in the process of designing and developing a domestic MRV system for mitigation actions. Peru reported that, in August 2022, a public consultation process was initiated in order to gather input from civil society, the private sector, public entities and other sources to improve the provisions for the operation of RENAMI, the objective of which is to collect, register,

monitor and manage information on the level of progress in GHG emission reductions and removals resulting from mitigation measures, as well as registering co-benefits, financing or other relevant information.

77. The TTE noted that the transparency of the information reported on mitigation actions could be enhanced by addressing the areas noted in paragraphs 66, 73 and 74 above, which could facilitate a better understanding of the information reported on mitigation actions.

78. In paragraph 71 of the summary report on the technical analysis of Peru's second BUR, the previous TTE noted areas where the transparency of the reporting on mitigation actions could be further enhanced. The current TTE noted some improvements as referred to in paragraph 67 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

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

80. Peru reported information on financial, technical and capacity-building needs in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR, Peru reported that its financial, technical and capacity-building needs are primarily in the areas of compliance with its NDC, implementation of adaptation and mitigation measures and aspects associated with the management of GHG emissions.

81. Peru did not report information on constraints and gaps associated with its financial, technical and capacity-building needs in accordance with decision 2/CP.17, annex III, paragraph 14, and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it finds it challenging to report such information. The Party also clarified that some advances have been made; for example, some limitations on access to funding have been identified within the framework of the development of the Climate Finance Strategy.

82. Peru 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, Peru reported that it received support from the Global Environment Facility and the United Nations Development Programme for preparing its third BUR. The Party also reported information on the support received directly by sectoral authorities, which is related to enabling the implementation of specific mitigation and adaptation measures under their competences in accordance with the Framework Law on Climate Change and its regulations. The information reported indicates that Peru received capacity-building and technical support from international cooperation entities including the Federal Ministry for Economic Affairs and Climate Action of Germany and the Global Environment Facility. The support was mainly used to facilitate the Party's preparation of its BUR and its use of the 2006 IPCC Guidelines for preparing its GHG inventory, in addition to other related capacity-building initiatives.

83. Quantitative information on the financial support received was not reported in Peru's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it needs to obtain more detailed information on the support received from international sources because the specific areas of support are not identified in all cases.

84. Peru 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, Peru reported that the technology needs assessment was nationally determined on the basis of a compilation of information relating to, among others, the Ministries of Transportation and Communications, Energy and Mines, Production, and Agrarian Development and Irrigation. The technology needs assessment was the basis for the technology needs reported in the BUR.

85. Information on nationally determined technology needs with regard to technology development and transfer was not clearly reported in Peru's BUR and the reason for this was not clear to the TTE. Many of the Party's technology development and transfer activities and

processes are related to private sector actors; however, information from the private sector was not included in the BUR. During the technical analysis, the Party clarified that a gap remains in identifying technological needs with respect to some important actors and sectors.

86. The TTE noted that the transparency of the information reported on needs and support received could be enhanced by addressing the areas noted in paragraphs 81, 83 and 85 above, which could facilitate a better understanding of the information reported on needs and support received.

87. In paragraph 78 of the summary report on the technical analysis of the Party's second BUR, the previous TTE noted areas where the transparency of the reporting on constraints, gaps, needs and support needed and received could be further enhanced. The current TTE noted the improvements referred to in paragraph 84 above and commends the Party for enhancing the transparency of its reporting.

88. Peru reported in its BUR (section 2.4) information on its areas for improvement for future BURs and its current initiatives for enhancing its existing MRV system for compliance with requirements under the ETF. The initiatives relate to a technical analysis simulation process within the framework of the Climate Transparency Network for Latin America and the Spanish-Speaking Caribbean, under the Capacity-building Initiative for Transparency–Global Support Programme. The Party considers that improving its System for Monitoring Adaptation and Mitigation Measures will help it to better understand the needs of different sectors in complying with the requirements under the ETF. The TTE commends the Party for the clear and comprehensive reporting on its proactive approach to preparing for ETF implementation.

D. Identification of capacity-building needs

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

(a) Strengthening capacities in public institutions to generate and process information within the required time frames, specifically in relation to methodological consistency in the historical series of AD reported by the national statistics office; inclusion of AD that would contribute to the completeness of the GHG inventory; disaggregation of statistical data; inclusion of statistical data uncertainty; and conducting QC of statistical data;

(b) Enhancing technical capacity for collecting and generating AD and applying IPCC splicing techniques;

(c) Enhancing capacity to use notation keys in accordance with the 2006 IPCC Guidelines;

(d) Enhancing capacity to use the relevant methodological approaches to collect and approximate the data necessary to estimate emissions for the following categories: non-energy products from fuels and solvent use (2.D), products used as substitutes for ozone-depleting substances (2.F.2, 2.F.3, 2.F.4 and 2.F.5), other product manufacture and use (2.G), wetlands (3.B.4), biomass burning in forest land (3.C.1.a), lime application on agricultural soils (3.C.2) and HWP (3.D.1);

(e) Enhancing capacity to estimate emissions from GHG precursors for some categories using the EMEP/EEA air pollutant emission inventory guidebook methodology;

(f) Enhancing AD collection for the coast and sierra biomes to enhance the consistent representation of the land;

(g) Improving technical capacity to estimate the mitigation potential of public and private sector initiatives;

(h) Enhancing capacity to design and implement progress indicators for public and private sector initiatives;

(i) Enhancing capacity to report information on constraints and gaps associated with the reported needs;

(j) Enhancing capacity to compile, classify and report quantitative financial information on support received;

(k) Enhancing capacity to identify technology needs in both the public and the private sector.

90. The TTE noted that, in addition to those identified during the technical analysis, Peru reported capacity-building needs covering the following areas (in tables 5.2, 5.3 and 5.5 of the BUR):

(a) Implementation and monitoring of sectoral mitigation measures;

(b) Achievement of the mitigation objectives;

(c) Support received for implementing sectoral mitigation measures.

91. During the technical analysis, Peru identified detailed capacity-building needs covering the following areas:

(a) The national GHG inventory;

(b) MRV of mitigation actions and their effects;

(c) Support needed and received for implementing mitigation actions.

92. In paragraphs 81–82 of the summary report on the technical analysis of Peru's second BUR, the previous TTE, in consultation with Peru, identified capacity-building needs. In its third BUR, Peru reflected that some of those capacity-building needs have been partially addressed:

(a) Strengthening the national capacity to prepare the GHG inventory for the purposes of the BUR, in particular the capacity to prepare and use higher-tier EFs, preparing time series of GHG emissions, and collecting AD for missing categories and subcategories and gases;

(b) Enhancing use of the 2006 IPCC Guidelines, including reporting all LULUCF sources and sinks in line therewith;

(c) Improving planning of the QA/QC timeline for the GHG inventory in order to prevent any part of the process from delaying the final submission of the BUR, thus ensuring compliance with the UNFCCC reporting guidelines on BURs;

(d) Improving the national capacity to include additional information on anthropogenic emissions by sources of HFCs, PFCs, SF_6, CO, NO_X, NMVOCs and SO_X;

(e) Increasing institutional capacity to enhance collaboration between the Government and the private sector with a view to implementing the mitigation actions needed to fulfil the Party's NDC, including defining a road map and action plan.

III. Conclusions

93. The TTE conducted a technical analysis of the information reported in the third BUR of Peru 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 its BURs and 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; mitigation actions and their effects; financial, technical and capacity-building needs, including a description of support needed and received; the support received to enable the preparation and submission of BURs; and domestic MRV. During the technical analysis, additional information was provided by Peru on reporting notation keys, problems faced in estimating emissions for some categories, consistency in the use of different data sources, estimates of mitigation potential, mitigation progress indicators, and reporting constraints and gaps, among other aspects. The TTE concludes that the information analysed is mostly transparent.

94. Peru reported an update on the institutional arrangements relevant to the preparation of its BURs. The information covers regulatory and institutional strengthening for the comprehensive management of climate change policy and the enactment in 2018 of the Framework Law on Climate Change with its respective regulations. The Law establishes clear mandates and defines the specific functions and roles of government at the national, regional and local level, and the interrelations between government branches and non-State actors. The Party reported details on the National Strategy on Climate Change to 2050 and the High-Level Commission on Climate Change.

95. In its third BUR, submitted in 2023, Peru reported information on its national GHG inventory for 2000–2019. This included GHG emissions and removals of CO_2, CH_4 and N_2O for all relevant sources and sinks as well as the precursor gases. The inventory was developed on the basis of the 2006 IPCC Guidelines, although specific EFs from the 2019 Refinement to the 2006 IPCC Guidelines were applied for some categories of the energy and agriculture sectors. GWP values from the AR5 were used. The total GHG emissions for 2019 were reported as 109,610.23 Gg CO_2 eq (excluding land and HWP) and 210,404.28 Gg CO_2 eq (including land and HWP). A total of 37 key categories were identified, with CO_2 emissions from forest land converted to cropland being the main key category for the level of emissions and forest land remaining forest land for the trend in emissions. Emissions for some of the main categories were estimated using higher-tier methodologies, which led to an increase in the quality of the GHG inventory compared with those reported in previous NCs and BURs. GHG emissions for a number of non-key categories of the IPPU, agriculture, LULUCF and waste sectors were not estimated owing to the unavailability of AD.

96. Peru reported information on mitigation actions and their effects in both tabular and narrative format, including information on its national context and framed its national mitigation planning and actions in the context of its NDC. The mitigation actions were reported separately for State and non-State actors and then categorized by sector for both groups. Most of the mitigation actions undertaken by State actors are in the energy sector, although the LULUCF sector is expected to make the largest contribution in terms of estimated emission reductions. The mitigation actions primarily target improving energy efficiency of vehicles; replacing inefficient streetlamps with energy-efficient alternatives; replacing inefficient conventional cooking technologies in rural areas, such as open fires, with improved cookstoves and LPG cookstoves; promoting use of RES, LPG in transportation and natural pastures for livestock and sustainability of forest areas; and preventing deforestation. Emission reductions from mitigation actions of State actors in the energy sector are estimated to be around 16.9 Mt CO_2 eq by 2030 compared with a 'business as usual' scenario, with estimated reductions of 1.8 Mt CO_2 eq in the IPPU sector, 6.5 Mt CO_2 eq in the agriculture sector, 44.9 Mt CO_2 eq in the LULUCF sector and 0.9 Mt CO_2 eq in the waste sector. Information on methodologies and assumptions for all mitigation actions, progress of implementation of mitigation actions by non-State actors, and steps taken to implement mitigation actions by State actors was not reported or not clearly reported in the BUR owing to difficulties in obtaining the necessary data, as clarified by the Party during the technical analysis.

97. Peru reported information on key financial, technical and capacity-building needs, which are primarily in the areas of compliance with the NDC, implementation of adaptation and mitigation measures and aspects associated with the management of GHG emissions. Information was reported on technology transfer and capacity-building support received, which focused on the preparation of the BUR, management of GHG emissions and implementation of mitigation and adaptation measures. The Party also reported that it received financial support for preparing its third BUR. Information on key constraints and gaps associated with the needs and on quantitative financial support received was not reported by the Party. During the technical analysis, the Party clarified that reporting information on constraints and gaps and on support received from international cooperation entities remains a challenge. Information on nationally determined technology needs with regard to technology development and transfer was not clearly reported in Peru's BUR owing to a gap in identifying technological needs with respect to some important actors and sectors, as clarified by the Party during technical analysis.

98. The current TTE noted improvements in the reporting in the Party's third 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 second BUR. However, improvements are ongoing and the Party has taken note of outstanding areas for future improvement.

99. The TTE, in consultation with Peru, identified the 11 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. Peru prioritized the capacity-building needs referred to in paragraphs 89(f)–(h) and (j) above.

Annex I

Extent of the information reported by Peru in its third biennial update report

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

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	Peru submitted its third BUR in June 2023; the GHG inventory reported is for 2000–2019.
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	Peru used the 2006 IPCC Guidelines as well as the 2019 Refinement to the 2006 IPCC Guidelines for the energy and agriculture sectors.
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	Information on updated AD was not reported for some sectors.
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	Comparable information was reported in BUR tables A.6.1 and A.6.2.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was reported.
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.	Partly	The time series reported in the BUR does not include 1994–1999.
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).	Partly	This information was not reported for 1994 for the agriculture sector or 1994, 2000 and 2005 for forest and other land use.
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of a national inventory report 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	

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(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 BUR table 3.6 and annex 9.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Yes	Comparable information was reported in BUR table 3.6 and annex 9.
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	NA	The Party did not submit a national inventory report 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 relevant institutional arrangements 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	CO_2 emissions for categories 2.D, 3.C.2, 3.D.1 and 3.B.4 were reported as “NE” owing to the unavailability of AD.
	(b) CH_4;	Partly	The Party reported CH_4 emissions for categories 3.C.1.a and 3.B.4 as “NE” owing to the unavailability of AD.
	(c) N_2O.	Partly	N_2O emissions for categories 3.C.1.a and 3.B.4 were reported as “NE” owing to the unavailability of AD.
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;	Partly	Notation keys for PFCs were not reported consistently for some subcategories under category 2.G.
	(c) SF_6.	Partly	Notation keys for SF_6 were not reported consistently for some subcategories under category 2.G.
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:		

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(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 sulfur oxides.
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	The information was reported only for 2019.
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.	NA	The Party used the GWP provided in the AR5.
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	Peru used the 2006 IPCC Guidelines. Tier 1 methodology was used for most sectors, with tier 2 and 3 being used for the rest.
	(b) Explanation of the sources of EFs;	Yes	
	(c) Explanation of the sources of AD;	Partly	Peru provided information on the main sources of AD in BUR table 3.5 but did not report information on the sources of AD used for estimating emissions from biomass burning (category 3.C.1).

Decision	*Provision of the reporting guidelines*	*Assessment of whether the information was reported*	*Comments on the extent of the information provided*
	(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:	NA	
	(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 third biennial update report of Peru

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 removals by sinks of all GHGs not controlled by the Montreal Protocol.	Yes	

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 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 quantitative goals and progress indicators for most of the mitigation actions was not reported.
	(b) Information on:		
	(i) Methodologies;	No	Information on how the reduction potential was estimated was not reported.
	(ii) Assumptions;	No	Information on assumptions was not reported.
	(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;	Partly	For mitigation actions of non-State actors, no information was reported on the status of implementation. For mitigation actions of State actors, the Party included information on steps taken to implement the mitigation actions but it was not clear whether the measure was fully implemented or steps are planned to be taken to achieve full implementation.
	(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 reported on emission reductions for most of the mitigation actions in the public sector, but not for actions under private sector implementation.
	(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 third biennial update report of Peru

Decision	*Provision of the reporting requirements*	*Assessment of whether the information was reported*	*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;	No	
	(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, technology transfer and capacity-building received;	Partly	The Party did not report specific information on quantitative values associated with financial resources.
	(b) Information on technical support received from the Global Environment Facility, 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	
	(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

IPCC. 1997. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. JL Houghton, LG Meira Filho, B Lim, et al. (eds.). Paris: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency. Available at https://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html.

IPCC. 2000. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. J Penman, D Kruger, I Galbally, et al. (eds.). Hayama, Japan: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency/Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/gp/english/.

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.

IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. E Calvo Buendia, K Tanabe, A Kranjc, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html.

B. UNFCCC documents

First, second and third BURs of Peru. Available at https://unfccc.int/BURs.

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

Summary reports on the technical analysis of the first and second BURs of Peru, contained in documents FCCC/SBI/ICA/2015/TASR.1/PER and FCCC/SBI/ICA/2020/TASR.2/PER respectively. Available at https://unfccc.int/ICA-reports.