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Technical analysis of the first biennial update report of Sao Tome and Principe submitted on 25 October 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. 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 first biennial update report of Sao Tome and Principe, 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	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
AD	activity data
AFOLU	agriculture, forestry and other land use
Annex II Party	Party included in Annex II to the Convention
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
GCF	Green Climate Fund
GEF	Global Environment Facility
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	<i>Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories</i>
IPCC good practice guidance for LULUCF	<i>Good Practice Guidance for Land Use, Land-Use Change and Forestry</i>
IPPU	industrial processes and product use
LED	light-emitting diode
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
N ₂ O	nitrous oxide
NA	not applicable
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NMVO	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	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SF ₆	sulfur hexafluoride
SO _x	sulfur oxides
TTE	team of technical experts
UGP	project management unit

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. The least developed countries and small island developing States may submit at their discretion.
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. This summary report presents the results of the technical analysis of the first BUR of Sao Tome and Principe, 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

5. In accordance with the mandate referred to in paragraph 2 above, Sao Tome and Principe submitted its first BUR on 25 October 2022 as a stand-alone update report.
6. In its BUR, the Party clarified that it could not submit its BUR earlier owing to the restrictions associated with the coronavirus disease 2019 pandemic and the limitations of its capacities, mainly in relation to the GHG inventory, the mitigation and support received chapters of the BUR with regard to data collection, the use of AD and EFs and the preparation of information on projections and the implementation of mitigation actions. Additionally, the time needed to translate the document from Portuguese to English further contributed to the delay.
7. The technical analysis of Sao Tome and Principe's BUR was conducted from 17 to 22 February 2023 in Bonn and was undertaken by the following TTE, drawn from the UNFCCC roster of experts on the basis of the criteria defined in decision 20/CP.19, annex, paragraphs 2–6: Buket Akay (Türkiye), Irina Atamuradova (former member of the Consultative Group of Experts from Turkmenistan), Bernard Ayittah (Ghana), Hoy Yen Chan (Malaysia), Sangay Dorji (Bhutan), Craig William Elvidge (New Zealand), Baasansuren Jamsranjav (Mongolia), Nato Lomidze (Georgia), Soriano Luna Maria de los Angeles (Mexico), Anwar Sidahmed Mohamed Abdalla (Sudan), Gherghita Nicodim (Romania), Marcela Itzel Olguin-Alvarez (Mexico) and David Glen Thistlethwaite (United Kingdom of Great Britain and Northern Ireland). Irina Atamuradova and Gherghita Nicodim were the co-leads. The technical analysis was coordinated by Mirana Andriarisoa (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 Sao Tome and Principe engaged in consultation¹ on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Sao Tome and Principe's first BUR, the TTE prepared and shared a draft summary report with Sao Tome and Principe on 24 July 2023 for its review and

¹ The consultation was conducted via videoconferencing.

comment. Sao Tome and Principe, in turn, provided its feedback on the draft summary report on 27 February 2024.

9. The TTE responded to and incorporated Sao Tome and Principe's comments referred to in paragraph 8 above and finalized the summary report in consultation with the Party on 20 March 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 Sao Tome and Principe'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.

C. Technical analysis of the information reported

14. 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.

15. 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.

16. 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

17. 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.

18. Sao Tome and Principe reported in its first BUR information on its national circumstances, including a description of national and regional development priorities, objectives and circumstances, including features of geography, climate and economy that might affect the Party's ability to deal with mitigating and adapting to climate change. The Party also reported constraints in relation to specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as referred to in Article 4, paragraph 8, and, as appropriate, Article 4, paragraphs 9–10, of the Convention.

19. Sao Tome and Principe transparently reported in its first BUR information 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 role of the Ministry of Public Works, Infrastructure, Natural Resources and Environment as the entity responsible for leading activities related to implementation of the Convention at the national level through the General Directorate for the Environment and the National Institute of Meteorology. The General Directorate for the Environment, under the supervision of the Ministry, is responsible for the execution and coordination of all policies and government strategies on the environment. The National Institute of Meteorology leads the preparation of NCs, BURs and the national GHG inventory through UGP, a project management entity. UGP is supported by the National Committee for Climate Change, which is an interministerial committee aiming at coordinating, managing, training and raising awareness among the various stakeholders in matters related to climate change. The UGP is also supported by working groups composed of independent national consultants, and relevant national institutions responsible for collecting and processing data, calculating emissions and preparing sectoral reports.

20. In addition, Sao Tome and Principe provided a summary of relevant information regarding its national circumstances in tabular format.

21. Sao Tome and Principe reported on some planned improvements to its institutional arrangements for MRV, including the establishment of an additional five working groups on the GHG inventory, vulnerability and adaptation, mitigation, QA/QC, and education, training and public awareness. The Party also reported on the process of designating responsible institutions and entities and establishing official points of contact. During the technical analysis, the Party clarified that sustained capacity-building across all entities involved in preparing and submitting its national reports to the UNFCCC and enhanced institutional arrangements are essential to ensure continuous and improved national reporting.

22. Sao Tome and Principe reported in its first BUR information on its domestic MRV arrangements. The Party reported that, for the MRV system to work continuously and consistently, it is essential to establish adequate communication mechanisms between key institutions, ensuring clarity and an understanding of the reporting obligations of all those involved. It also reported that the structure of its MRV system is not yet complete, as it does not yet have in place institutional arrangements defining the legal or official agreements for implementing the MRV system. The TTE noted that BUR figure 7, which illustrates the domestic MRV system, includes two mentions of the working group on the evaluation of mitigation measures, while the working group on QA/QC is not mentioned in the figure although it is mentioned in the narrative text. In addition, the title of figure 7 does not match the description of the figure in the text of the BUR. The Party confirmed during the technical

analysis that there was an editorial error in BUR figure 7 and in the text, and noted the need to improve its QA/QC procedures for future submissions.

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

23. As indicated in table I.1, Sao Tome and Principe 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.

24. Sao Tome and Principe submitted its first BUR in 2022 and the GHG inventory reported is for 2018. The GHG inventory is consistent with the requirements for the reporting time frame.

25. GHG emissions and removals for the BUR covering the 2012, 2016 and 2018 inventories were estimated using tier 1 methodology from the 2006 IPCC Guidelines. The TTE commends the Party for using the latest IPCC guidelines.

26. Information on EFs used and their sources was clearly reported in the BUR. Default EFs from the 2006 IPCC Guidelines were used for calculating CH₄, CO₂, N₂O and HFC emissions.

27. Information on AD used for the agriculture (category 3.A) and forestry sectors was consistently reported for 2012–2018. The Party also reported information on AD used for the land-use and energy sectors for 2012, 2016 and 2018.

28. Information on AD used for other sectors was not consistently reported in the Party's BUR. Specifically, information on AD for the IPPU sector was reported for 2016 and 2018 but not for 2012, while information on AD for the waste sector was only reported for 2018 and not for 2012 and 2016. During the technical analysis, the Party clarified that owing to human resource and time constraints, it was not able to estimate a more consistent time series of AD. The Party particularly mentioned that there is no database for the waste sector: data is supposed to be collected by local municipalities, and the experts in the field use their knowledge and experience to make informed guesses or estimates to fill the data gaps. However, the Party stated that efforts and improvements are ongoing and it will address this issue and provide a consistent time series of AD in its next GHG inventory.

29. Information on the Party's total GHG emissions by gas for 2018 is outlined in table 1 in Gg CO₂ eq. It shows an increase in emissions of 35.7 per cent excluding land and HWP since 2012 (156.58 Gg CO₂ eq).

Table 1

Greenhouse gas emissions by gas of Sao Tome and Principe for 2018

<i>Gas</i>	<i>GHG emissions (Gg CO₂ eq) including land and HWP^a</i>	<i>% change 2012–2018</i>	<i>GHG emissions (Gg CO₂ eq) excluding land and HWP^a</i>	<i>% change 2012–2018</i>
CO ₂	–362.92	17.9	153.09	37.9
CH ₄	30.44	15.0	30.44	15.0
N ₂ O	21.44	14.8	21.44	14.8
HFCs	7.52	1 605.6	7.52	1 605.6
PFCs	NE	NA	NE	NA
SF ₆	NE	NA	NE	NA
Other	NO	NA	NO	NA
Total	–303.52	–15.7	212.49	35.7

^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 indirect GHG emissions (CO, NO_x, NMVOCs and SO_x) was not reported in Sao Tome and Principe's BUR. However, the Party clarified in its BUR that indirect GHG emissions were not estimated because the IPCC software version (2.69) used does not allow for the calculation of these GHGs. The Party clarified that it was constrained

only by the limitations of the IPCC software and that it will be able to estimate emissions from indirect GHGs when provided with the necessary training on the use of the relevant air pollutant emission inventory guidebook.

31. Information on HFCs, PFCs and SF₆ was reported in Sao Tome and Principe's BUR. Emissions of PFCs and SF₆ were reported as "NO" in the BUR. However, the Party explained in the BUR (p.14) that PFCs and SF₆ were not included in the inventory owing to limitations related to the availability of AD and should therefore be reported as "NE". During the technical analysis, the Party clarified that the inconsistent use of notation keys was due to a lack of capacity.

32. Sao Tome and Principe applied notation keys ("NO" and "NE") in tables where numerical data were not provided. The use of notation keys was not consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. The TTE noted that notation keys were applied consistently for emissions sources in the energy and AFOLU sectors but inconsistently for the waste and IPPU sectors. For example, emissions from the biological treatment of solid waste (category 4.B) were reported as "NO" in BUR table 56, while in BUR table 38 emissions for the subcategories composting and anaerobic digestion were reported as "NE" and emissions for the subcategory biological/mechanical treatment were reported as "NO". During the technical analysis, the Party clarified that it lacks capacity regarding the use of notation keys.

33. Sao Tome and Principe 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.

34. 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 reported by the Party, in 2018 are reflected in table 2.

Table 2

Shares of greenhouse gas emissions by sector of Sao Tome and Principe for 2018

<i>Sector</i>	<i>GHG emissions (Gg CO₂ eq)</i>	<i>% share^a</i>	<i>% change 2012–2018</i>
Energy	160.95	75.8	36.2
IPPU	7.52	3.5	1 605.6
AFOLU	-491.651	NA	NA
Livestock (category 3.A)	11.44	5.4	11.6
Land (category 3.B)	-516.01	NA	23.2
Aggregate sources and non-CO ₂ emissions sources on land (category 3.C)	12.97	6.1	20.7
HWP and other emissions (category 3.D)	-0.05	NA	12.6
Waste	19.62	9.2	18.4

^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)).

35. Sao Tome and Principe reported information on its use of GWP values consistent with those provided by the IPCC in its AR2 based on the effects over a 100-year time-horizon of GHGs.

36. For the energy sector, information was clearly reported on emission trends and drivers, the use of tier 1 methodology from the 2006 IPCC Guidelines, with default EF values used for the subcategories estimated, and the notation keys used. AD were mainly from the national energy balances. Emissions in the energy sector are mainly from energy industries (1.A.1), accounting for 52 per cent, followed by transport (1.A.3) (28 per cent), other sectors (1.A.4) (16 per cent) and non-specified (1.A.5) (4 per cent) in 2018. The Party reported emissions from manufacturing industries and construction (1.A.2) as zero (0) in 2018. Emissions from energy industries are the result of the country's reliance on fossil fuels, relatively limited use of renewables and inefficiency of older power plants. The Party also reported that fugitive emissions (1.B) are not occurring in the country.

37. For the IPPU sector, information was clearly reported on the emissions from refrigeration and air conditioning (2.F.1), which was the only subcategory for which the Party obtained data for estimating HFC emissions. Emissions from many industries in the IPPU sector do not occur in the country (e.g. mineral industries, metal industries), while others are small industrial sectors dominated by small and medium-sized companies that are considered to contribute negligible emissions to the national totals and therefore their emissions were not estimated.

38. For 2006 IPCC Guidelines AFOLU categories 3.A and 3.C, manure management (N₂O), enteric fermentation (CH₄) and direct N₂O emissions from managed soils were identified as key categories and the most relevant emissions sources in the sector. The largest contributor to category 3.A is manure management, accounting for 53 per cent of emissions. For category 3.C, direct N₂O emissions from managed soils is the largest contributor, accounting for 71 per cent of emissions. Sao Tome and Principe used default EFs from the 2006 IPCC Guidelines and data provided by the Livestock Directorate on the number of livestock for different species to calculate CH₄ emissions from enteric fermentation and manure management. To calculate N₂O emissions from manure management, the Party used data on the number of livestock for different species provided by the Livestock Directorate and the average weight of animals and default EFs from the 2006 IPCC Guidelines. For estimating emissions from synthetic nitrogen fertilizers, the Party reported that it used data on imports for 2018 provided by the National Institute of Statistics.

39. For the land and HWP categories 3.B and 3.D, Sao Tome and Principe reported annual GHG emissions and removals for 2012, 2016 and 2018. For category 3.B, the Party reported that the categories forests and other land uses were adapted to the national circumstances, as presented in BUR table 23. Overall, the net removals from land and HWP (categories 3.B and 3.D) fluctuated between a minimum of 418.86 Gg CO₂ eq in 2012 and a maximum of 523.26 Gg CO₂ eq in 2016. For category 3.B, the Party reported emissions of 48.00 Gg CO₂ eq in 2018, with the subcategory forest land conversions in urban areas contributing most to the emissions. Removals amounted to -564.01 Gg CO₂ eq in 2018 as a result of the increased carbon sequestration capacity of forest land, which grew by about 23.2 per cent in 2012–2018, equating to removals of 97.15 Gg CO₂ eq. The Party reported that the forests act as a net sink due to the fact that in recent years there have been no major conversions of forests to other types of land use.

40. For the waste sector, information was clearly reported on GHG emissions, emission trends, the use of tier 1 methodology from the 2006 IPCC Guidelines, with default EF values used for the subcategories estimated, and the notation keys used. Sao Tome and Principe provided information on the various institutions that provided AD. The largest contributor to sectoral emissions is wastewater treatment and discharge (4.D), accounting for 65 per cent of emissions in the sector. The second largest contributor is solid waste disposal (4.A), accounting for 34 per cent of sectoral emissions, while incineration and open burning of waste (4.C) is responsible for only about 1 per cent. The emission trend shows a 18.4 per cent increase in sectoral emissions from 2012 to 2018.

41. The BUR provides an update to some of the GHG inventories reported in the Party's previous NCs. The information reported provides an update of the Party's NC3, which addresses anthropogenic emissions and removals for 2012. The update was carried out for 2012, 2016 and 2018 using the methodologies contained in the 2006 IPCC Guidelines. The Party reported that it recalculated emissions for the energy, waste, IPPU and AFOLU sectors for 2012 using the 2006 IPCC Guidelines, which resulted in a decrease in estimated emissions of 36.3 per cent for 2012. However, the Party reported that it did not perform a recalculation of previous inventories included in the NC1 and NC2. The Party clarified in its BUR that because of a change in the methodology used for calculating emissions from the Revised 1996 IPCC Guidelines to the 2006 IPCC Guidelines, only emissions for 2012 (the reference year for the latest inventory) were recalculated. The Party further clarified during the technical analysis that it lacks capacity to perform recalculations for 1998 and 2005, and that it is currently assessing the capacity to improve this situation and perform recalculations for earlier years.

42. Sao Tome and Principe described in its BUR the institutional framework for the preparation of its 2018 GHG inventory. The Party reported that the Ministry of Public Works,

Infrastructure, Natural Resources and Environment is the governmental body responsible for its climate change policy and the National Institute of Meteorology leads the preparation of BURs, NCs and the GHG inventory, which were prepared through the project management entity UGP, supported by the National Committee for Climate Change. The structure of the institutional arrangements for preparing the inventory was presented in BUR figure 3, which shows that there is a separate sectoral group for preparing the information on each sector. The Party also described the proposed institutional arrangements for preparing the inventory, which include data collection, reporting, QA/QC and archiving procedures. The Party does not yet have institutional arrangements in place defining the legal or official agreements for implementing the domestic MRV system and which support the process of preparing NCs, BURs and the GHG inventory on a regular basis. However, the Party reported information in the BUR on its efforts to establish this institutional system.

43. Sao Tome and Principe clearly reported that a key category analysis was performed for the level of and trend in emissions. The Party reported the key categories in BUR tables 4 and 5 including and excluding land and HWP using the 2006 IPCC Guidelines and software provided by the secretariat. A total of 10 key categories were identified, with the most significant sources excluding land and HWP identified as CO₂ emissions from energy industries (1.A.1), road transportation (1.A.3.b) and other sectors (1.A.4).

44. The BUR provides information on QA/QC measures for all sectors. The information reported includes verification of the GHG inventory by an international expert within the scope of the Lusophone Cluster, incorporation of recommendations from the overall and sectoral GHG inventory review, verification by the monitoring and evaluation committee and official validation of the inventory. The TTE commends Sao Tome and Principe for providing information in accordance with the IPCC good practice guidance.

45. Sao Tome and Principe clearly reported information on CO₂ fuel combustion emissions using both the sectoral and the reference approach. The information reported indicates that the combustion emissions estimated under the sectoral and the reference approach are 152.96 and 144.43 Gg respectively. The difference between the estimates calculated using the two approaches was reported as 5.8 per cent. The Party explained in the BUR that the difference was caused by the fact that, when converting the unit of volume to the unit of energy, the reference method uses default data on net caloric values on the basis of the fuel accounted for, whereas the sectoral method uses data converted directly into energy units.

46. Information was clearly reported on international aviation and marine bunker fuels, which amounted to 3.75 Gg CO₂ eq in 2018. International aviation is the only contributor to international bunker emissions because the few long-distance international shipping connections or large fishing vessels are not supplied in the country, resulting in zero emissions from international waterborne navigation.

47. Information on the uncertainty assessment (level) of its national GHG inventory was not reported in Sao Tome and Principe's BUR. However, the Party provided relevant clarification in its BUR, explaining that it was not able to estimate the uncertainty associated with the GHG inventory owing to capacity constraints and the unavailability of reliable and accurate data.

48. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 28, 30, and 31 above, which could facilitate a better understanding of the information reported on GHG inventories.

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

49. As indicated in table I.2, Sao Tome and Principe 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.

50. The information reported provides a comprehensive overview of the Party's mitigation actions and their effects. In its BUR, Sao Tome and Principe reported information on its national context and framed its national mitigation planning and actions in the context

of its NDC and NDC Implementation Plan for 2022–2030, which were updated in 2021. The NDC is aimed at accelerating the efforts of the international community to combat climate change within the context of sustainable development and meeting Sao Tome and Principe’s carbon neutrality target by 2050. Further, the Party stated that the aim of its updated NDC is to reduce GHG emissions by 109 kt CO₂ eq by 2030, which corresponds to a 27 per cent reduction in total GHG emissions against a ‘business as usual’ scenario, with the energy sector being the main source of emission reductions. All the mitigation actions reported in the BUR are in the energy sector. In the context of mainstreaming climate change in development plans, Sao Tome and Principe reported that the updated NDC Implementation Plan for 2022–2030 is based on national and sectoral priorities and serves as a planning, coordination, transparency and resource mobilization tool for the Government.

51. Taking into consideration the fact that the mitigation actions presented in the BUR are based on those identified in the updated 2021 NDC and that some information provided in the BUR on the Party’s mitigation actions referenced the 2021 NDC, following consultations with the secretariat, the Party agreed that the TTE should assess the completeness and transparency of the information included in the 2021 NDC in accordance with the UNFCCC reporting guidelines on BURs.

52. Sao Tome and Principe reported a summary of its mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. The information on mitigation actions was presented in BUR table 7, with the contribution of mitigation actions to GHG emission reductions reported in table 6. The Party reported 11 mitigation actions consisting of 5 actions related to increasing the share of renewable energy (classified as “Group 1”), 3 actions on reducing losses in the transmission and distribution network and improving energy efficiency (“Group 2”) and 3 actions on reducing carbon intensity in mobility (“Group 3”).

53. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Sao Tome and Principe reported the names of mitigation actions, coverage (sector and gases) and progress indicators in the BUR (tables 6 and 7). A description of mitigation actions, as well as information on quantitative goals, was provided in the BUR.

54. Information on the nature of the mitigation actions in Group 1 on reducing imports of fossil fuels and improving the financial aspects of the energy sector was not sufficiently clear to enable the TTE to understand which policy, legal or economic instruments are used to achieve the objective of the respective actions. During the technical analysis, the Party clarified that the actions will be supported by developing and implementing legal tools, strategic plans and incentives aimed at reducing imports of fossil fuels and, consequently, improve the financial aspects of the energy sector.

55. The TTE noted inconsistencies between the information reported on the quantitative objectives of some mitigation actions in BUR tables 6 and 7. For example, information reported in table 6 on the quantitative objectives for action 1.3 in Group 1, actions 2.1 and 2.3 in Group 2 and action 3.3 in Group 3 differs from the information reported in table 7. During the technical analysis, the Party clarified that this was due to differences in the presentation of information and some errors, explaining that the order in which action 1.3 was presented differed between tables 6 and 7, the objectives for actions 2.1 and 2.3 need to be corrected, and action 3.3 has an indirect effect in GHG emission reductions and is needed to support the achievement of the goals of the other actions in Group 3. The Party further clarified its lack of capacity to perform QC of the report as a whole.

56. In its BUR, Sao Tome and Principe identified the reduction of GHG emissions in the energy sector as a priority and noted that the mitigation actions reported are in the form of projects ongoing or at a planning stage. The time frame of the mitigation actions is 2020–2030; however, the Party clarified during the technical analysis that the year in which the actions start depends on the funding obtained.

57. The mitigation actions in Group 1 on promoting the use of renewable energy are aimed at increasing the share of renewable energy in the energy mix to around 50 per cent by 2030. These actions are geared towards building solar power plants, hydro plants and installations for producing energy from biomass residues and are expected to achieve GHG emission reductions of up to 63 kt CO₂ eq by 2030. The only mitigation action in this group which is being implemented since 2020 is on building solar photovoltaic plants with a total output of

30 MW. At the time of preparing the BUR, the country had installed solar photovoltaic plants with an output of 0.5 MW and had secured financing for additional plants with an output of 2.5 MW. The remaining four mitigation actions in this subsector are still at the planning stage.

58. The mitigation actions in Group 2 are aimed at facilitating a decrease in electricity consumption and reducing technical losses in electricity network by 10 GW. The actions are mainly focused on replacing conventional light bulbs with LEDs and installing smart meters in 60,000 homes by introducing incentive mechanisms to improve energy efficiency in the electricity sector, and on improving the subsectoral capacity-building and infrastructure needs. The objective of these actions is to reduce GHG emissions by up to 39.3 kt CO₂ eq by 2030. One of these actions, which is being implemented since 2021, is focused on promoting home lighting using LEDs, while the other two actions aimed at developing projects on public lighting using LEDs and strengthening the transmission and distribution network are at the planning stage and financing is being sought.

59. The mitigation actions in Group 3 contribute to reducing carbon intensity in mobility, or more precisely fossil fuel consumption, by introducing electric vehicles and incentive mechanisms for their import and by implementing capacity-building in this field. By implementing these actions, the Party expects to achieve GHG emission reductions of up to 6 kt CO₂ eq by 2030. All three mitigation actions in this subsector are still at the planning stage.

60. The TTE noted inconsistencies between the information reported on the expected GHG emission reductions for some mitigation actions (in BUR tables 6 and 7). For example, information on the expected GHG emission reductions for action 1.5 in Group 1 and total emission reduction in Group 2 and Group 3, which are reported in the column “Interval of annual growth in GHG reduction (2020–2030)” in table 6, are different from those reported in table 7 in the column “Estimates of expected and achieved GHG emission reductions”. During the technical analysis, the Party clarified that this was due to an error in its reporting and provided correct information on the respective expected GHG emission reductions. In addition, the TTE noted that the expected annual GHG emission reductions were estimated as a large range of values and the reason for this was not clear to the TTE. The Party also clarified during the technical analysis that this is because of the country’s intention to implement the measures gradually during 2020–2030 until the maximum expected GHG emission reductions are achieved for each measure.

61. In its BUR Sao Tome and Principe referenced its updated 2021 NDC as the source of information for the methodologies and assumptions used. The methodology for estimating the GHG emission reductions reported in the NDC is derived from the 2006 IPCC Guidelines and based on the national GHG inventories with a view to facilitating an analysis of GHG emission reductions below the ‘business as usual’ scenario. Instead of identifying a base year, the methodology compares the results achieved by mitigation actions relative to a ‘business as usual’ scenario by 2030, calculated on the basis of the 2012 GHG inventory as the most recent reported inventory at the time of preparing the 2021 NDC.

62. However, given that the mitigation actions are to be implemented in different areas, it was not clear to the TTE what methodologies were used in the NDC for estimating the quantified impacts of individual mitigation actions. The Party clarified that the estimates were calculated using the Greenhouse Gas Abatement Cost Model and that more detail is available in a document that is separate from the official NDC submission; however, this document was not communicated to the TTE. The TTE was also unable to identify details on the assumptions or methodologies used to implement and record the progress of mitigation actions. The NDC contains information on the Party’s plans to apply specific principles and methodologies, where relevant, in its accounting for several policies and measures in order to provide further details in its future submissions to the UNFCCC secretariat. However, the corresponding information was not provided in the Party’s BUR. During the technical analysis, the Party clarified that the national MRV system is being updated, in particular with regard to implementing and recording the progress of mitigation actions reported in the NDC.

63. Information on steps taken or envisaged to achieve the Party’s mitigation actions was not reported for the mitigation actions in Group 1. Further, the relevant information on steps

taken or envisaged reported as “seeking financing” for the actions in Groups 2 and 3 was not clear enough for the TTE to understand what steps have already been taken or are planned for seeking financing, and the information is considered to be incomplete. In addition, although information on the status of implementation and progress was reported for all the actions, information on the underlying steps taken or envisaged was missing. During the technical analysis, Sao Tome and Principe provided information on the steps taken after the NDC Implementation Plan was prepared, namely designing five priority project proposals on the basis of the actions reported in the NDC.

64. Sao Tome and Principe did not provide information on its involvement in international market mechanisms. During the technical analysis, the Party clarified that, although there is a designated national authority for clean development mechanism projects, which has not yet been institutionalized, no clean development mechanism projects are currently being implemented in the country.

65. Sao Tome and Principe reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that the current arrangements used for reporting on mitigation actions are built on the existing national systems and capacities concerning climate change. In the BUR the Party provided information on institutional arrangements and outlined the institutional roles and responsibilities of the entire MRV system, which comprises the coordinating entity supported by thematic working groups, including the mitigation information working group, which comprises national independent consultants and representatives of relevant institutions and is responsible for collecting and reporting data related to mitigation actions and their impacts and preparing mitigation-related reports. The Party reported that the structure of its MRV system is not yet complete, as it does not yet have in place legal or official agreements for implementing the MRV system and for supporting the preparation of NCs, GHG inventories and BURs on a regular basis. In its BUR, Sao Tome and Principe outlined its plans to improve its capacities in order to better coordinate activities related to identifying the responsibilities of the designated authorities in terms of monitoring and reporting activities and projects related to mitigation. In particular, the mitigation information working group will also be responsible for establishing indicators to measure the impacts of mitigation actions and for monitoring emissions avoided by mitigation projects.

66. The TTE noted that the transparency of the information reported on mitigation actions could be further enhanced by addressing the areas noted in paragraphs 54, 55, 60, 62 and 63 above, which could facilitate a better understanding of the information reported on mitigation actions.

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

67. As indicated in table I.3, Sao Tome and Principe 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.

68. Sao Tome and Principe 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. The constraints and gaps identified by the Party include capacity needs (accessing and mobilizing support for capacity-building related to demand-driven capacity development, the breadth and depth of training and the ability to plan, design, implement and execute development objectives); technical needs (collecting and processing data, compiling, classifying, documenting and archiving information related to climate change, the availability of disaggregated data and institutional challenges); financial and economic needs (collecting and compiling information on available financial resources to implement activities, measures and programmes with multiple uses or with co-benefits related to climate change, the level of transparency related to climate finance including technical support and training, and institutional challenges related to coordinating the financing of climate change actions); and linguistic challenges related to the lack of documents made available under the Convention in Portuguese.

69. Information on quantified support needed was not reported in Sao Tome and Principe's BUR and the TTE was not able to assess the level of support needed from the information reported. During the technical analysis, the Party clarified that tracking support and reporting disaggregated information on support needed and received continues to be a challenge owing to capacity constraints.

70. Sao Tome and Principe reported information on financial resources and technical support received in accordance with decision 2/CP.17, annex III, paragraph 15. The Party reported that it received USD 342,000 from the GEF (including an in-kind contribution from the Government of Sao Tome and Principe equivalent to USD 20,000) for preparing its BUR.

71. Information on the technology transfer, capacity-building and technical support received was not clearly reported in Sao Tome and Principe's BUR. The Party stated only which types of support it received without providing any further details on the nature of the support. However, the Party provided relevant clarification in its BUR that the information on support received is not prepared by a single institution and is not disaggregated or sufficiently detailed in accordance with the UNFCCC reporting guidelines on BURs. The Party requested support to overcome the gaps identified in the support received in terms of collecting and disaggregating data and ensuring that information on support received is prepared by a single responsible institution that can respond to the reporting requirements.

72. 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, was not reported in Sao Tome and Principe's BUR. During the technical analysis, the Party clarified that this information was not reported as the technology needs assessment was being conducted at the time of the submission of its BUR and has only recently been completed. The technology needs assessment will be used as the basis for addressing the Party's technology needs and for its future national reporting.

73. 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 69, 71 and 72 above, which could facilitate a better understanding of the information reported on needs and support received.

D. Identification of capacity-building needs

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

(a) Enhancing national capacity for using the IPCC inventory software for the 2006 IPCC Guidelines to estimate and report HFC, PFC and SF₆ emissions;

(b) Enhancing national capacity for using the EMEP/EEA air pollutant emission inventory guidebook to estimate emissions of CO, NO_x, NMVOCs and SO_x in future inventories;

(c) Enhancing national capacity for reporting on the methodologies used for assessing the effects of mitigation actions in accordance with the relevant provisions of the UNFCCC reporting guidelines on BURs;

(d) Enhancing national capacity for developing approaches and methodologies for monitoring, assessing and reporting on progress in implementing the underlying steps taken or envisaged to achieve individual mitigation actions and integrating them into the domestic MRV system;

(e) Enhancing national capacity for improving the quality of future submissions by introducing QC procedures for the information on mitigation actions reported in national reports submitted to the UNFCCC and incorporating QC procedures into the domestic MRV system;

(f) Enhancing national capacity to institute a robust and sustainable domestic MRV system, including by defining policy and legal guidance and institutional arrangements

to collect, analyse and archive relevant information for its reporting under the Convention and the Paris Agreement;

(g) Building capacity on implementing relevant QA/QC procedures for the information reported in national submissions;

(h) Building national capacity to assess the type and level of support needed and received (technical, financial and capacity-building) to implement activities related to climate change and reporting this information in the national submissions.

75. The TTE noted that, in addition to those identified during the technical analysis, Sao Tome and Principe reported several capacity-building needs covering the following areas:

(a) Training to improve the preparation of its inventories with regard to the collection and processing of AD by national experts for all sectors, estimating uncertainty, defining country-specific EFs and using higher-tier methodologies;

(b) Technological and financial support and institutional capacity-building to update the most recent forest inventory prepared in 1991, which is important given the role of the forestry sector in the country's emissions balance;

(c) Financial, technical and capacity-building support for recalculating the emissions in each sector in order to report a consistent time series back to the years reported in the previous NCs in view of the change in the calculation methodology used and in order to comply with the minimum reporting requirements under the Paris Agreement;

(d) Training to improve the preparation of its inventories, especially with regard to the uncertainty analysis, taking into account the Party's current limitations and the unavailability of reliable and accurate data;

(e) Support to address constraints related to the collection, compilation, classification, documentation and archiving of information;

(f) Capacity-building for developing the domestic MRV system with defined roles and responsibilities and institutional arrangements.

III. Conclusions

76. The TTE conducted a technical analysis of the information reported in the first BUR of Sao Tome and Principe 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; mitigation actions and their effects; constraints and gaps, and related financial, technical and capacity-building needs; the level of support received to enable the preparation and submission of BURs; domestic MRV; and any other information relevant to the achievement of the objective of the Convention. During the technical analysis, additional information was provided by Sao Tome and Principe on the missing information related to GHG inventories, mitigation actions and the support needed and received, namely that this is mainly due to lack of capacity. The TTE concludes that the information analysed is partially transparent.

77. Sao Tome and Principe reported information on the institutional arrangements relevant to the preparation of its BURs. This includes the role of the Ministry of Public Works, Infrastructure, Natural Resources and Environment as the entity responsible for leading the activities related to implementation of the Convention at the national level through the General Directorate for the Environment and the National Institute of Meteorology. The National Institute of Meteorology leads the preparation of NCs, BURs and the national GHG inventory through UGP, a project management entity. UGP is supported by the National Committee for Climate Change, working groups composed of independent national consultants, and relevant national institutions responsible for collecting and processing data, calculating emissions and preparing sectoral reports. The Party also reported information on the domestic MRV system and planned improvements, including the need to

build capacity, establish institutional arrangements and enhance inter-agency collaboration. It has taken significant steps to establish institutional arrangements that enable sustainable preparation of its BURs, such as making organizational improvements and establishing knowledge-sharing procedures to facilitate sectoral information transfer.

78. In its first BUR, submitted in 2022, Sao Tome and Principe reported information on its national GHG inventory for 2012, 2016 and 2018. This included GHG emissions and removals of CO₂, CH₄, N₂O and HFCs for all relevant sources and sinks as well as the precursor gases. The inventory was developed on the basis of the 2006 IPCC Guidelines and specific EF values from the 2006 IPCC Guidelines were applied for all categories. The total GHG emissions for 2018 were reported as 212.49 Gg CO₂ eq (excluding land and HWP) and -303.52 Gg CO₂ eq (including land and HWP), which represents an increase in emissions of 35.7 per cent since 2012. The Party reported an increase in removals of around 23.2 per cent since 2012. Sao Tome and Principe also reported that an assessment of the level of and trend in emissions and removals was carried out, which made it possible to identify the main sources and sinks of GHGs that comprise 95 per cent of the country's total emissions, thus enabling the Party to identify the key categories with and without land and HWP. A total of 10 key categories were identified, with the three most significant sources without land and HWP identified as CO₂ from energy industries (1.A.1), road transportation (1.A.3.b) and other sectors (1.A.4). Estimates of PFCs and SF₆ were not provided owing to the unavailability of the necessary statistical data and reports, as clarified by the Party in the BUR.

79. Sao Tome and Principe reported a summary of its mitigation actions and their effects in tabular format, including the objectives and emission reduction targets of the actions, and framed its national mitigation planning and actions in context of its NDC and NDC Implementation Plan, which were updated in 2021. The aim of the NDC is to reduce GHG emissions by 109 kt CO₂ eq by 2030, which corresponds to a 27 per cent reduction in total emissions compared with a 'business as usual scenario', and to meet the country's carbon neutrality target by 2050. Sao Tome and Principe identified the reduction of GHG emissions in the energy sector as a priority, where the mitigation actions focus on increasing the share of renewable energy, reducing losses in the transmission and distribution network and improving energy efficiency, and reducing carbon intensity in mobility. The Party reported that its mitigation actions are derived from projects which are ongoing or at the planning stage. The Party also provided information on its current arrangements for reporting on mitigation actions and plans for their improvement. In its BUR the Party did not report information on the assumptions or methodologies used for implementing and recording the progress of mitigation actions, methodologies for estimating the quantified impacts of individual mitigation actions, or information on its involvement in international market mechanisms. For some mitigation actions, Sao Tome and Principe did not report information on steps taken or envisaged and the progress of implementation of the underlying steps. During the technical analysis, the Party provided most of the missing information.

80. Sao Tome and Principe reported information on key constraints and gaps but did not report quantified information on support needed. In terms of support received, the Party reported that it mobilized financial resources and technical support from various sources but detailed information was only reported on the financial support received from GEF to prepare the first BUR amounting to USD 342,000. The Party clarified in its BUR that tracking support and reporting disaggregated information on support needed and received continues to be a challenge owing to capacity constraints.

81. The TTE, in consultation with Sao Tome and Principe, 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. Sao Tome and Principe prioritized all the capacity-building needs.

Annex I

Extent of the information reported by Sao Tome and Principe in its first biennial update report

Table I.1

Identification of the extent to which the elements of information on greenhouse gases are included in the first biennial update report of Sao Tome and Principe

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
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	Sao Tome and Principe submitted its first BUR in October 2022; the GHG inventories reported are for 2012, 2016 and 2018.
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	Sao Tome and Principe 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	AD for 2012 for the IPPU sector as well as AD for 2012 and 2016 for the waste sector were not reported.
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 tables 56–58.
	(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 1998 and 2005, although they were included in Sao Tome and Principe's NC1 and NC2.
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 1998 (NC1) and 2005 (NC2).
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	

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	(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 tables 56–58.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF ₆).	Yes	Comparable information was reported in tables 56–58.
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 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 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 ;	Yes	
	(b) CH ₄ ;	Yes	
	(c) N ₂ O.	Yes	
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	
	(a) HFCs;	Yes	
	(b) PFCs;	Yes	
	(c) SF ₆ .	Yes	Information on SF ₆ was reported as “NO”.
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) CO;	No	
	(b) NO _x ;	No	
	(c) NMVOCs.	No	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as SO _x , and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties.	No	The Party did not report on other gases, such as SO _x .
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	Yes	The information was reported for both the sectoral and the reference approach.

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	and to explain any large differences between the two approaches.		
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 AR2.
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	Sao Tome and Principe used the 2006 IPCC Guidelines. Tier 1 methodology was used for all sectors.
	(b) Explanation of the sources of EFs;	Yes	Sao Tome and Principe used the 2006 IPCC Guidelines.
	(c) Explanation of the sources of AD;	Yes	Sao Tome and Principe 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:	NA	Sao Tome and Principe used the 2006 IPCC Guidelines. Tier 1 methodology was used for all sectors.
	(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,	Yes	Notation keys were used.

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	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.		
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;	No	
	(b) Underlying assumptions;	No	
	(c) Methodologies used, if any, for estimating these uncertainties.	No	

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 first biennial update report of Sao Tome and Principe

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
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	Sao Tome and Principe provided information in BUR tables 6 and 7.
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;	Yes	
	(b) Information on:		
	(i) Methodologies;	Partly	Information on the methodologies used for estimating the quantified impacts of individual mitigation actions was not reported.
	(ii) Assumptions;	No	Information on the assumptions or methodologies used to implement and record the progress of

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
			mitigation actions was not provided.
	(c) Information on:		
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Partly	Information on steps taken or envisaged was not reported for some actions.
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Partly	Information on the underlying steps taken or envisaged was not reported for some actions.
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Yes	
	(e) Information on international market mechanisms.	No	Information on Sao Tome and Principe's involvement in international market mechanisms was not reported.
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 first biennial update report of Sao Tome and Principe

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
Decision /CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	
	(b) Related financial, technical and capacity-building needs.	Partly	Information on related financial, technical and capacity-building needs was described in generic terms.
Decision /CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources, technology transfer and capacity-building received from the GEF, Annex II Parties and other developed country Parties, the GCF and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR;	Partly	Sao Tome and Principe reported that financial resources and technical support were mobilized, but did not provide details on the source of financing or on the amount and type of support received.
	(b) Information on technical support received from the GEF, Annex II Parties and other developed country Parties, the GCF and multilateral institutions for activities relating	Partly	Information on support received for the preparation of the BUR from GEF was provided. However, information on support received from Annex II

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	to climate change, including for the preparation of the current BUR.		Parties, the GCF and other developed country Parties was not reported.
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;	No	The Party was in the process of finalizing its technology needs assessment.
	(b) Technology support received.	No	Sao Tome and Principe did not report information on technology support received.

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>.

B. UNFCCC documents

First BUR of Sao Tome and Principe. Available at <https://unfccc.int/BURs>.

NC3 of Sao Tome and Principe. Available at <https://unfccc.int/non-annex-I-NCs>.

C. Other documents

The following references may not conform to UNFCCC editorial style as some have been reproduced as received:

EMEP/EEA. 2019. *EMEP/EEA Air Pollutant Emission Inventory Guidebook 2019*. European Environment Agency. Available at <https://www.eea.europa.eu/publications/emep-eea-guidebook-2019>.