



Technical analysis of the third biennial update report of Bosnia and Herzegovina submitted on 16 May 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 Bosnia and Herzegovina, 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>
2019 Refinement to the 2006 IPCC Guidelines	<i>2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
AD	activity data
AFOLU	agriculture, forestry and other land use
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BAM	Bosnia-Herzegovina convertible marka
BUR	biennial update report
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
COPERT	software tool for calculating road transport emissions
CORINE	Coordination of Information on the Environment (programme)
EF	emission factor
ETF	enhanced transparency framework under the Paris Agreement
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
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
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
N ₂ O	nitrous oxide
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
NE	not estimated
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
PFC	perfluorocarbon
RES	renewable energy source(s)
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SF ₆	sulfur hexafluoride
TTE	team of technical experts

UNFCCC guidelines for the preparation of NCs from non-Annex I Parties “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention”

UNFCCC reporting guidelines on BURs “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention”

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. Bosnia and Herzegovina submitted its second BUR on 13 June 2017, which was analysed by a TTE in the ninth round of technical analysis of BURs from non-Annex I Parties, conducted from 4 to 8 December 2017. After the publication of its summary report, Bosnia and Herzegovina participated in the sixth workshop for the facilitative sharing of views, convened in Katowice, Poland, on 3 December 2018.
5. This summary report presents the results of the technical analysis of the third BUR of Bosnia and Herzegovina, 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, Bosnia and Herzegovina submitted its third BUR on 16 May 2023 as a stand-alone update report. The submission was made within five years and 11 months from the submission of the second BUR.
7. During the technical analysis, the Party clarified that the preparation of the third BUR was delayed by challenges encountered with securing funding from the GEF.
8. The technical analysis of Bosnia and Herzegovina's BUR was conducted from 2 to 6 October 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: Ijaz Ahmad (Pakistan), Javier Bolufé Torres (Cuba), Ruleta Camacho Thomas (former member of the Consultative Group of Experts from Antigua and Barbuda), Akram Hamza (Tunisia), Atsuko Hayashi (Japan), Traute Koether (Austria), Kakhberi Mdivani (Georgia), Dingane Sithole (Zimbabwe), Koen E.L. Smekens (Belgium) and Christopher Roland Thorpe (Luxembourg). Traute Koether and Dingane Sithole were the co-leads. The technical analysis was coordinated by Marion Vieweg-Mersmann and Jeeyoon Jung (secretariat).
9. 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 Bosnia and Herzegovina 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 Bosnia and Herzegovina's third BUR, the TTE prepared and shared a draft summary report with Bosnia and Herzegovina on 12 December 2023 for its review

¹ The consultation was conducted via videoconferencing.

and comment. Bosnia and Herzegovina, in turn, provided its feedback on the draft summary report on 7 March 2024.

10. The TTE finalized the summary report in consultation with the Party on 7 March 2024.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

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

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

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

B. Extent of the information reported

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

14. According to decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE is to identify the extent to which the elements of information listed in paragraph 13 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is partially 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

15. The technical analysis referred to in paragraph 11(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, Bosnia and Herzegovina provided an update on its national circumstances. Bosnia and Herzegovina is a sovereign State with a decentralized political and administrative structure comprising two autonomous entities, Republika Srpska and the Federation of Bosnia and Herzegovina, and a third region, the Brčko District, that is locally governed. The country is situated in the Balkan Peninsula and has a mountainous topography. In terms of hydrology it belongs to the Adriatic basin and the Black Sea basin. Bosnia and Herzegovina also provided information relating to its institutional and legal framework, environmental statistics, geographical characteristics, population trends, climate characteristics and economic sectors, and the specific needs and concerns arising from the adverse effects of climate change and 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.

20. In addition, Bosnia and Herzegovina provided a summary of relevant information regarding its national circumstances in tabular format. Tables and graphs were used to illustrate the elements mentioned above, specifically its national context, population trends, economy and industry, waste management, forestry and transport.

21. Bosnia and Herzegovina 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 identification of the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska as the institution responsible for activities relating to climate change, including the preparation and submission of NCs and BURs on a continuous basis. The Party also described the involvement and roles of other institutions and experts, and mechanisms for information and data exchange. The TTE noted improvements to the information reported in the BUR, including information on the preparation process for its third BUR.

22. Bosnia and Herzegovina reported an update on its domestic MRV arrangements. The description covers information on domestic MRV of mitigation actions and the GHG inventory. However, the Party noted in the BUR (p.81) that it does not have a clearly defined MRV system, and there is currently no clear agreement on who will manage, store and archive the data.

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

23. As indicated in table I.1, Bosnia and Herzegovina reported information on its GHG inventory in its BUR partially 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. Bosnia and Herzegovina submitted its third BUR in 2023 and the GHG inventory reported is for 1990–2018. The latest reported inventory year is more than four years prior to the date of submission of the Party’s BUR and the reason for this was not clear to the TTE.

25. GHG emissions and removals for the BUR covering the 1990–2018 inventories were estimated for all sectors using a tier 1 methodology from the 2006 IPCC Guidelines, while in some cases the IPCC good practice guidance for LULUCF or the 2019 Refinement to the

2006 IPCC Guidelines were applied, as appropriate.² The TTE commends the Party for using the 2006 IPCC Guidelines for the energy, IPPU, agriculture and waste sectors.

26. Information on AD and EFs used and their sources was clearly reported in the BUR for the waste sector, including the amounts of solid waste and waste composition. Rates of biomass stock change for the estimation of emissions of CO₂ and other GHGs from the LULUCF sector were also clearly reported.

27. Information on AD and EFs used for estimating GHG emissions from the energy, IPPU and agriculture sectors was not reported in Bosnia and Herzegovina's BUR. During the technical analysis, the Party clarified that it used default conversion factors and EFs from the 2006 IPCC Guidelines, which it provided in tabular format. Bosnia and Herzegovina also clarified that data from the statistics agencies of the regions were used for the energy and IPPU sectors. The Party further provided information on the number of livestock and the amount of fertilizer used and other AD for the AFOLU sector.

28. Information on the Party's total GHG emissions by gas for 2017–2018 is outlined in table 1 in units of mass. It shows an increase in emissions of 3.1 per cent with LULUCF and 2.4 per cent without LULUCF since 2017.

Table 1

Greenhouse gas emissions by gas of Bosnia and Herzegovina for 2017–2018

<i>Gas</i>	<i>GHG emissions (Gg) including land and HWP^a</i>	<i>% change 2017–2018</i>	<i>GHG emissions (Gg) excluding land and HWP^a</i>	<i>% change 2017–2018</i>
CO ₂	21 701.91	3.7	27 533.80	2.8
CH ₄	117.83	–0.7	117.83	–0.7
N ₂ O	3.67	0.3	3.67	0.3
HFCs ^b	–	–	–	–
PFCs	NE	NA	NE	NA
SF ₆	NE	NA	NE	NA
Other	NO	NA	NO	NA
Total^c	25 315.52	3.1	31 147.42	2.4

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

^b Total HFC emissions were provided in CO₂ eq by gas in BUR table 13. During the technical analysis, the Party provided HFC emissions in CO₂ eq by sector, but not in units of mass.

^c Totals are shown as reported in BUR table 10 in Gg CO₂ eq (excluding memo items) and are including and excluding LULUCF, while other data were provided during the technical analysis using 2006 IPCC Guidelines AFOLU category 3.B (land) and, if reported, 3.D (HWP (3.D.1) and other emissions (3.D.2)).

29. Information on GHG emissions and removals by units of mass and by category was not reported in Bosnia and Herzegovina's BUR, although the Party provided data for CH₄ and N₂O emissions during the technical analysis. However, totals based on the data provided during the technical analysis were inconsistent with the values reported in the BUR (table 10) and the reason for this was not clear to the TTE.

30. Information on emissions of PFCs, SF₆ and precursor gases was not reported in Bosnia and Herzegovina's BUR. During the technical analysis, the Party provided tables containing the information on precursor gas emissions for 2017–2018 and HFC emissions in CO₂ eq by sector, but not in units of mass.

31. Bosnia and Herzegovina applied notation keys in the summary table for emission estimates for 2017–2018 (BUR table 10) where numerical data were not provided. The use of notation keys was consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties.

² Although the Party used mainly the 2006 IPCC Guidelines, the reporting was based on the categories in the Revised 1996 IPCC Guidelines.

32. Information contained in the summary table by year (BUR table 11) does not include notation keys for some years and some categories where numerical data were not provided and the reason for this was not clear to the TTE.

33. Bosnia and Herzegovina did not report 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. During the technical analysis, the Party provided tables for all sectors containing comparable information for 2017–2018.

34. The shares of emissions that different sectors contributed to the Party's total GHG emissions excluding LULUCF, as calculated by the TTE using information from the BUR, in 2018 are reflected in table 2.

Table 2

Shares of greenhouse gas emissions by sector of Bosnia and Herzegovina for 2018

<i>Sector</i>	<i>GHG emissions (Gg CO₂ eq)</i>	<i>% share^a</i>	<i>% change 1990–2018</i>
Energy	24 915.83	80.0	0.1
Industrial processes	2 814.43	9.0	–20.8
Agriculture	1 890.91	6.1	–59.0
LULUCF	–5 831.90	NA	21.4
Waste	1 526.25	4.9	53.8

^a Share of total emissions without LULUCF.

35. Bosnia and Herzegovina 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 GHG emissions, key categories and memo items. Emissions from the sector are mainly from energy industries and from the transport sector, accounting for 74.4 and 15.4 per cent respectively. Emissions have increased steadily since 1995, with drops in 2005 and 2012, and have returned to the 1990 level, driven by economic growth and increasing transport activity.

37. For the IPPU sector, information was clearly reported on GHG emissions and key categories. Emissions are driven by metal production, which constitutes 61.9 per cent of the total emissions from the sector, followed by mineral products, representing 35.3 per cent.

38. Information on AD for production of cement, lime, soda ash, aluminium, and iron and steel was not reported in Bosnia and Herzegovina's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it did not include the AD because verification of the accuracy of the data could not be conducted.

39. For 2006 IPCC Guidelines AFOLU categories 3.A and 3.C, enteric fermentation (CH₄) and direct emissions of N₂O from managed soils were identified as key categories and the most relevant emissions sources in the sector.

40. For land and HWP categories 3.B and 3.D, Bosnia and Herzegovina reported annual GHG emissions and removals for 1990–2018. Overall, the net removals from land and HWP categories 3.B and 3.D fluctuated between a maximum of 10,600 Gg CO₂ eq in 1993 and a minimum of 4,800 Gg CO₂ eq in 2002 (estimated by the TTE from BUR figure 11, p.44).

41. For the waste sector, information was clearly reported on GHG emissions and key categories for 2018. A link to the data used for calculating emissions from wastewater was provided.

42. Information on quantities of biological waste treated and related parameters was not reported in Bosnia and Herzegovina's BUR. During the technical analysis, the Party provided additional information on some parameters used.

43. The BUR provides an update to all GHG inventories reported in the Party's previous NCs and BURs. The information reported provides an update of the Party's NC4, which addresses anthropogenic emissions and removals for 1990–2016. The update was carried out

for 1990–2018 using the methodologies contained in the 2006 IPCC Guidelines and the IPCC good practice guidance for LULUCF, thus generating a consistent 28-year time series.

44. Information on recalculations was not reported in Bosnia and Herzegovina’s BUR. During the technical analysis, the Party clarified that the inventories covering 2003–2014, except for 2010–2011, were prepared in accordance with the Revised 1996 IPCC Guidelines. Recalculations are not possible, as the underlying data for these years are only available for the Republika Srpska and the Federation of Bosnia and Herzegovina. The inventories for 2015–2018 for Bosnia and Herzegovina were compiled using the IPCC software, which is based on the 2006 IPCC Guidelines.

45. Bosnia and Herzegovina described in its BUR the institutional framework for the preparation of its 2018 GHG inventory. The Party reported that the Hydrometeorological Institute of Republika Srpska and the Federal Hydrometeorological Institute of the Federation of Bosnia and Herzegovina are the governmental bodies responsible for producing and compiling the necessary data for the national GHG inventory for Republika Srpska and the Federation of Bosnia and Herzegovina respectively, which was prepared with the support of the United Nations Development Programme, which assisted Bosnia and Herzegovina in designing its GHG inventory system.

46. Information on data providers, the procedures for data exchange and arrangements adopted for collecting and archiving data for the preparation of its national GHG inventory was not clearly reported in Bosnia and Herzegovina’s BUR. During the technical analysis, the Party provided only information relating to the data providers for the energy, IPPU and AFOLU sectors.

47. Bosnia and Herzegovina clearly reported that a key category analysis was performed for the trend in emissions.

48. Information on the key category analysis by level was not reported in Bosnia and Herzegovina’s BUR. During the technical analysis, the Party provided information on its key category analysis for the level of emissions.

49. Bosnia and Herzegovina clearly reported information on CO₂ fuel combustion emissions using only the sectoral approach. Information on CO₂ fuel combustion emissions using the reference approach and the numerical differences between the CO₂ emissions calculated using the sectoral and the reference approach was not reported in Bosnia and Herzegovina’s BUR. The Party reported that calculations using the reference approach were difficult owing to different classifications of coal types used (BUR section 2.3.1.1) as there is a difference in the consumption of anthracite and bituminous coal between the two approaches. During the technical analysis, the Party clarified that problems with data entry to the software prevented it from reporting this information.

50. Information was clearly reported on international aviation and marine bunker fuels. The Party reported that emissions from international aviation amounted to 31.38 Gg CO₂ eq for 2017 and 23.51 Gg CO₂ eq for 2018. Emissions from marine bunkers were reported as “NO” (BUR table 10).

51. Bosnia and Herzegovina reported only information on the uncertainty assessment (trend) of its national GHG inventory for 2017–2018. Trend uncertainty is 5.8 per cent for both years and total uncertainty is 8.6 per cent for 2017 and 8.4 per cent for 2018.

52. Information on the uncertainty estimate by level was not reported in Bosnia and Herzegovina’s BUR. The approach used and the units of the uncertainty values were not reported. During the technical analysis, the Party clarified that approach 1 from the 2006 IPCC Guidelines software was used to calculate uncertainty.

53. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 24, 27, 29, 30, 32, 33, 42, 44, 46, 48, 49 and 52 above, which could facilitate a better understanding of the information reported on GHG inventories.

54. In paragraph 47 of the summary report on the technical analysis of Bosnia and Herzegovina’s second BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be enhanced. The current TTE noted the improvements

referred to in paragraph 43 above and commends the Party for enhancing the transparency of its reporting.

55. Bosnia and Herzegovina reported in its BUR (section 1.8) information on its areas for improvement for future BURs for compliance with requirements under the ETF. These relate to ensuring implementation of the institutional responsibilities for the systematic compilation of national GHG inventories; strengthening the capacity of the institution in charge of developing the GHG inventory; engaging other institutions in the inventory system (scientific and professional institutions, ministries, agencies, etc.) to provide scientific and professional contributions; providing up-to-date reports on GHG emissions; and using independent experts for assessing the quality of the inventory and the accuracy of the results. The TTE commends the Party for the clear and comprehensive reporting on its proactive approach to preparing for ETF implementation.

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

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

57. The information reported provides an overview of the Party’s estimated effects of its mitigation actions. In its third BUR, Bosnia and Herzegovina reported information on its national context and framed its national mitigation actions in the context of scenario projections and the sectoral structure and development, and domestic and EU policy and regulations. The most important domestic policy document reported by the Party is the 2020–2030 Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina. Bosnia and Herzegovina also reported that climate change has been mainstreamed in and integrated into its development plans, including mitigation. Bosnia and Herzegovina further reported that, if all activities are sustained, the anticipated minimum annual estimated emission reduction is expected to be 20,000 Gg CO₂ eq by 2050 compared with the 2016 level, with the electricity generation sector being the main source of emission reductions.

58. The Party reported in its BUR that the main underlying policy for climate change mitigation is the Green Agenda for the Western Balkans under the European Green Deal, aiming at climate neutrality by 2050, which the Party signed in Sofia in November 2020, and the Guidelines for the Implementation of the Green Agenda for the Western Balkans, which include proposed activities and measures.

59. The Party reported that its intended nationally determined contribution was submitted in October 2015 and updated in March 2021. The Party indicated that its current goals for reducing GHG emissions are not sufficient to achieve climate neutrality by 2050. The TTE acknowledged the information, which is presented in this summary report as contextual without assessing the completeness and transparency of the information.

60. Information on actions to mitigate climate change was not reported in tabular format in Bosnia and Herzegovina’s BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party provided a table showing an indicative overview of its actions to mitigate climate change as contained in the “Roadmap and Action Plan for the implementation of nationally determined contributions of Bosnia and Herzegovina for 2020–2030”.

61. In its BUR, the Party presented three scenarios: S1, a reference (‘without measures’) scenario; S2, a moderate (‘with measures’) mitigation scenario; and S3, a ‘with additional measures’ mitigation scenario. The scenarios cover the sectoral GHG emissions in an aggregated format, not by individual GHG, and mostly use 2016 as the reference year for reporting on the sectoral emission reduction results for 2030. The projections are represented in the BUR by sector in graphical format for all three scenarios. The Party reported information on the outcomes of mitigation scenario projections separately for electricity generation, RES, district heating, buildings, transport, agriculture, forestry and waste. The TTE noted that for almost all sectors no numerical information was provided regarding the GHG reductions under these scenarios. The TTE also noted that for the end use sectors

emission projections were reported only for the buildings and transport sectors. No projections were reported for the industry sector, although the IPPU sector, especially F-gases (mainly from stationary and mobile air conditioning), is included in the GHG inventory. During the technical analysis, the Party explained that information on the mitigation measures for F-gases is included in the 2020–2030 Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina and that this information is contained in the table listing mitigation actions provided during the review. The TTE noted that the structure of the actions reported relating to F-gases was different from the actions reported for the other sectors and the reason for this was not clear to the TTE.

62. Consistently with decision 2/CP.17, annex III, paragraph 12(a), the Party reported in its BUR a narrative description of three GHG emission projection scenarios, by sector, including a description of some main assumptions, some progress indicators at the sector level and the expected outcomes of each scenario.

63. Bosnia and Herzegovina did not report in its BUR on names, coverage (sector and gases) or progress indicators or information on quantitative goals for individual mitigation actions in tabular or narrative format. During the technical analysis, the Party provided its mitigation actions in tabular format, including a detailed overview of the names of mitigation actions or groups of actions, coverage (sectors), progress indicators, indicative budget and time frame.

64. Information was not clearly reported on methodologies and assumptions, or on the objectives, progress achieved and steps taken or envisaged to achieve individual mitigation actions. The scenarios are reported in narrative format only, focusing on the estimated GHG emission savings up to 2050. During the technical analysis, the Party clarified that, similar to the reporting in its NC4, for the reporting in the BUR the Long-range Energy Alternatives Planning system software was used for electricity generation, RES, district heating, buildings and transport. For the other sectors, pre-existing tools developed for the NC2 were used for scenario modelling in the BUR.

65. Although national, regional and sectoral strategies and plans are reported in the BUR, their relationship with the specific scenario parameters applied was not clear, which was also identified as a finding in the technical analysis of the second BUR. During the technical analysis, the Party clarified that, in parallel with developing its third BUR, it had started to develop a national energy and climate plan. However, this strategic document has not yet been adopted. Although it was not mentioned in the BUR, the Party further explained that the S2 and S3 scenarios for the energy-related subsectors are aligned with the scenarios in the draft national energy and climate plan.

66. The mitigation actions for the energy sector focus mainly on electricity generation, with the phasing out of coal-fired thermal power plants. The mitigation actions with the largest contribution to GHG reductions in the energy sector are introducing emission permits (taxation), setting emission limits compatible with the EU ETS and increasing RES competitiveness. Under the most ambitious scenario (S3), GHG emissions in 2030 from fossil fuel based electricity generation would be 48 per cent lower than the 2016 level (approximately 14,000 Gg CO₂ eq) and climate neutrality would be achieved by 2050. In the renewable energy sector, sources covered in the BUR include biomass and biogas, solar energy and geothermal energy, and GHG emission reductions from the implementation of these sources are reported for each of the scenarios. Under the S3 scenario, GHG emission reductions from using RES would amount to 200 Gg CO₂ eq in 2050. Mitigation actions for the district heating system cover increasing efficiency and reducing losses, increasing the share of district heating in heat supply systems to buildings and increasing the share of low-carbon sources (e.g. biomass, heat pumps and geothermal) for supplying heat to district heating systems. These actions are expected to lead to a reduction in GHG emissions under the S3 scenario of about 400 Gg CO₂ eq in 2050 compared with the reference scenario (S1). Emission reductions in buildings are expected to be achieved by increasing the energy efficiency of new and existing buildings, and introducing solar heaters for domestic hot water and heat pumps for heating. Under the S3 scenario this would lead to a 62 per cent decrease in emissions in 2050 compared with the 2016 level. In the transport sector, although emissions show an upward trend owing to an increase in motorized mobility, mitigation actions that are supported by taxation (e.g. an increased share of fossil-free vehicles

(electricity, biofuel), subsidies and infrastructural policies, improved road infrastructure and modal shift for passenger and freight transport) can considerably offset this growth so that under the S3 scenario the GHG emissions in 2030 would be at about the same level as in 2016 and 25 per cent below that level by 2050.

67. Agriculture, being an important economic sector for Bosnia and Herzegovina, faces structural challenges such as the large number of small local farms, and poor production performance and management practices, as reported by the Party. Emissions in agriculture are expected to increase owing to yield increases resulting from an increase in the use of fertilizers and manure on soils, and an increasing amount of livestock, which will require more fodder. In order to reduce emissions, the Party envisages measures such as improving livestock feed and living conditions, manure management, fertilizer use, knowledge and technology transfer, management practices and the application of EU agricultural policies and funds. This would lead to a 30 per cent decrease in the sectoral emissions in 2050 compared with the 2016 level. Furthermore, the Party reported that it sees potential for increasing the use of biogas in the energy sector, which would lead to further emission reductions for that sector.

68. Forest and forest land constitute 63.1 per cent of the total territory of Bosnia and Herzegovina and are a net GHG sink (amounting to approximately 5,900 Gg CO₂ eq in 2016). The main measures comprise increased afforestation, reforestation of barren land, reduced logging, improved forest land management, improved fire and pest protection and an increase in protected areas. These measures are supported by activities such as implementing improved mapping systems, species selection and monitoring, increasing staff capacity, field trials and increasing the area of afforestable land through landmine clearance (mined forest land currently accounts for 10 per cent of forest land in the country). Full implementation of the domestic and EU measures would lead to an increase in GHG removals amounting to 6,830 Gg CO₂ eq by 2050. During the technical analysis, the Party clarified that, as well as its efforts to adhere to the EU forestry regulations, the country has a domestic forestry policy and measures in the 2020–2030 Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina.

69. Waste management in Bosnia and Herzegovina has been reformed, guided by EU policy and domestic environmental protection policies, under the supervision of the two government entities and the Brčko District. Several laws and by-laws concerning landfill sites, waste management and packaging have been updated since the second BUR, such as the Waste Management Strategy of the Republika Srpska (2017–2026). However, the Party recognizes in its BUR that the legislation is still not harmonized across all entities of Bosnia and Herzegovina (the level of transposition of directives is not the same), nor have the same legal acts been passed (e.g. regulations on specific waste streams), which makes it difficult to estimate the potential effect of these laws and policies on the GHG estimates for the whole of Bosnia and Herzegovina. Identified mitigation measures include improved waste collection, reduction of landfill disposal through increased amounts of separately collected and sorted solid waste, increased amounts of recycling for reuse, increased valorization of biodegradable waste, and improved management and introduction of waste treatments such as biological treatment or incineration. Under the S3 scenario these measures could lead to a 50 per cent reduction in GHG emissions for this sector by 2050 compared with the 2016 level.

70. Bosnia and Herzegovina reported the combined effect of the sectoral scenario projections, excluding industry and forestry. The reference scenario (S1) foresees an 11.7 per cent reduction in emissions by 2030 compared with the 2016 level, with the reduction in emissions increasing to 29.5 per cent by 2050. The ‘with additional measures’ mitigation scenario (S3) sees a larger reduction effect, with a 34.0 per cent reduction by 2030 and around 66.0 per cent by 2050 compared with the 2016 level. The largest contributor to the GHG emission reductions is the electricity generation sector. The Party also reported that the remaining emissions for 2050 still exceed the projected sinks from forestry by about 3,425 Gg CO₂ eq.

71. Bosnia and Herzegovina provided information on sectoral scenarios, including some progress indicators at the sector level (e.g. shares, energy or emission intensity). The reported scenarios also include the sectoral outcomes in narrative format and the Party provided graphs of the GHG emission projection scenarios, which are expressed in Gg CO₂ eq.

72. The Party did not report information on the effects of mitigation actions on individual GHGs by sector or the results of individual mitigation actions. It was not clear to the TTE whether the indicators reported were the outcomes of the scenario analyses or the input assumptions. During the technical analysis, the Party provided an additional table with an indicative overview of the planned emission reductions by 2030, including the names and objectives of the mitigation activities. It also clarified that this information is included in the “Roadmap and Action Plan for the implementation of nationally determined contributions of Bosnia and Herzegovina for 2020–2030”.

73. Bosnia and Herzegovina provided information on its involvement in international market mechanisms. Bosnia and Herzegovina reported that its intended nationally determined contribution, in which the Party reported its intention to use international market mechanisms, was submitted in October 2015. However, it was not clear to the TTE whether international market mechanisms have been used and to what extent. During the technical analysis, the Party clarified that it has not accessed any of the international market mechanisms. It also clarified that the designated national authority for clean development mechanism projects has been formed, but no clean development mechanism projects have been realized. The Party further clarified that it has not yet introduced the EU ETS but is taking preparatory steps towards introducing it before 2026.

74. Bosnia and Herzegovina reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Bosnia and Herzegovina has in place a domestic MRV system for collecting and managing information on GHG emissions and for NAMAs, including institutional arrangements, mitigation accounting standards, responsibilities for the collection of monitoring data, reporting obligations and verification approaches and roles. Bosnia and Herzegovina reported that the EU monitoring mechanism regulation (MMR/525/2013) was adopted by the Ministerial Council of the Energy Community in October 2016, but it also reported that further efforts are needed to harmonize legislation and to strengthen capacities among EU member States. It further reported in its BUR (section 4) on its international NAMA MRV set-up and characteristics. In addition, Bosnia and Herzegovina reported that further development is still needed for domestic MRV of NAMAs.

75. The TTE noted that the transparency of the information reported on mitigation actions could be enhanced by addressing the areas noted in paragraphs 60, 63, 64, 65, 72 and 73 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

76. As indicated in table I.3, Bosnia and Herzegovina 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.

77. Bosnia and Herzegovina reported information on constraints and gaps, and related capacity-building needs in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR, Bosnia and Herzegovina identified a lack of data, staff and funding, and insufficient cooperation between institutions as constraints related to the preparation of its GHG inventory, and referred in its BUR to information in its NC4 regarding other constraints and gaps in relation to institutional, legal, financial, technical and human capacities. The Party reported that its capacity-building needs relate only to developing its GHG inventory (specifically to strengthening the capacity of its institutions, ensuring permanent sources of funding and increasing public awareness) and assessing its quality and accuracy.

78. Information on financial and technical needs was not reported in Bosnia and Herzegovina’s BUR. During the technical analysis, the Party clarified that for 2020–2030 its financial needs relating to climate change mitigation and adaptation totalled BAM 16.6 billion and BAM 91.4 million respectively, or approximately BAM 1.66 billion per year, which is approximately 5 per cent of Bosnia and Herzegovina’s annual GDP. This estimation is based on GDP data for 2018, which recorded the Party’s GDP as BAM 32.95 billion. A sector-specific breakdown of the investment requirements until 2030 shows the electricity

generation sector as needing the largest annual allocation of approximately BAM 860 million, closely followed by the buildings sector, which requires an annual investment of approximately BAM 420 million.

79. Information on financial resources received was not clearly reported in Bosnia and Herzegovina's BUR. The Party reported that its NC4 and third BUR were prepared in partnership with the United Nations Development Programme, but did not report on the financial resources it received for this or on other financial resources received. Further, the Party did not report on technology transfer, capacity-building or technical support received. During the technical analysis, the Party clarified that the funds allocated by the GEF for the preparation of the NC4 and third BUR amounted to USD 852,000, and that this had helped the Party to build the capacity of individual experts involved in climate research in Bosnia and Herzegovina and to improve the organizational capacities of the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska (as the UNFCCC focal point in Bosnia and Herzegovina) as well as the two hydrometeorological institutes referred to in paragraph 45 above. The Party further clarified that ongoing support for enhancing the domestic MRV system is being provided via the GEF project "Integrated reporting and transparency system of Bosnia and Herzegovina", amounting to USD 740,000. The Party also provided information on support it received in addition to that from the GEF, which included EUR 25 million from the European Commission for flood protection and river management, and technology, capacity-building and/or technical support from five other projects for monitoring and using hydrological and meteorological climate information to adapt to flood risks. In addition, the Party informed the TTE that its NC4 contains information on other support it had received.

80. Bosnia and Herzegovina 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, Bosnia and Herzegovina reported a technology needs assessment for the agriculture and water resources sector and that the main findings of this assessment are included in its NC4 (section 5.1.5). Within the agriculture sector, a total of 22 measures were assessed and prioritized and in the water resources sector 14 adaptation technologies were identified. No technology needs for other sectors were reported.

81. 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 78–79 above, which could facilitate a better understanding of the information reported on needs and support received.

5. Any other information

82. Bosnia and Herzegovina reported information on gender equality in climate change related policy and decision-making, focusing on five sectors: energy, transport, agriculture, health and waste. Bosnia and Herzegovina provided the information that this is the first step towards raising awareness about the mandatory inclusion of women and men in climate change related policy and decision-making.

D. Identification of capacity-building needs

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

(a) In relation to reporting information on national GHG emissions by sources and removals by sinks:

(i) Developing the technical capacity of inventory compilers to transparently explain trends in GHG emissions and removals;

(ii) Enhancing the technical capacity to conduct key category analysis by level and transparently reporting thereon;

- (iii) Developing the national capacity to collect AD on HFCs, PFCs and SF₆ and to estimate related emissions;
- (iv) Enhancing the national technical capacity to report the GHG inventory using 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, including reporting in CO₂ eq, units of mass by gas and by category, and correctly using notation keys;
- (v) Enhancing the national capacity to transparently explain the significant differences between energy-related CO₂ emissions from fuel combustion calculated using the sectoral and the reference approach;
- (vi) Enhancing the technical capacity of inventory compilers to report transparently the AD, parameters and EFs used for calculating GHG emissions and removals;
- (vii) Enhancing the national capacity to conduct inventory uncertainty analyses and transparently report the assumptions and results of the analyses;

(b) In relation to reporting on mitigation actions and their effects, including associated methodologies and assumptions, enhancing the capacity for reporting on mitigation actions according to UNFCCC reporting guidelines, and on GHG projections under the ETF according to the relevant reporting guidelines as part of reporting on tracking progress towards implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement;

(c) In relation to reporting on constraints and gaps, and related technology, financial, technical and capacity-building needs, including a description of support needed and received, enhancing capacity within Bosnia and Herzegovina's governmental administrations in order to develop an MRV system that facilitates the reporting of the information required by UNFCCC reporting guidelines.

84. The TTE noted that, in addition to those identified during the technical analysis, Bosnia and Herzegovina reported the following capacity-building needs in its BUR, which relate specifically to strengthening capacities for GHG inventory compilation:

- (a) Training on the EU and UNFCCC reporting obligations, specifically the EU monitoring mechanism regulation (MMR/525/2013);
- (b) Guidance on Bosnia and Herzegovina's inventory compilation system (i.e. the structure required for an efficient, reliable, transparent, timely and comparable inventory);
- (c) Training on compiling the emissions from the energy generation sector, including on specific methodologies and software tools, common reporting format tables, calculation of emissions, preparation of country-specific EFs and estimating emissions where data do not exist;
- (d) Guidance on calculating emissions from the transport subsector (IPCC and use of the COPERT V model);
- (e) Training on calculating emissions and removals from the LULUCF sector (e.g. preparation of a land-use change matrix and use of CORINE land-cover data);
- (f) Training on calculating emissions from the waste sector – owing to the lack of data for this sector, expert assessments are needed, leading to unreliable calculations;
- (g) Guidance on quality assurance/quality control procedures (definition of steps necessary to ensure and improve the quality of calculations);
- (h) Training on assessing data uncertainty.

85. In paragraph 68 of the summary report on the technical analysis of Bosnia and Herzegovina's second BUR, the previous TTE, in consultation with Bosnia and Herzegovina, identified and prioritized capacity-building needs. During the technical analysis, the Party confirmed that these capacity-building needs remain the same.

III. Conclusions

86. The TTE conducted a technical analysis of the information reported in the third BUR of Bosnia and Herzegovina in accordance with the UNFCCC reporting guidelines on BURs and concludes that the information reported is partially consistent. It provides an overview of national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis; the national inventory of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol, including a national inventory report; mitigation actions and their effects represented by mitigation scenarios; constraints and gaps, and capacity-building needs related to its GHG inventory; and domestic MRV for GHG inventories and mitigation actions. During the technical analysis, additional information was provided by Bosnia and Herzegovina on its GHG emissions by gas, sector and category for 2017–2018, as well as HFC emissions in CO₂ eq by type of application for 2012–2018. The Party also provided information on its mitigation actions in an overview tabular format as well as information on domestic policies and measures, including for the agriculture and forestry sectors; and on finance, technology transfer, capacity-building and technical support received, including for its domestic MRV system. On the basis of the clarifications provided, the TTE concluded that the information analysed is mostly transparent.

87. Bosnia and Herzegovina reported an update on the institutional arrangements relevant to the preparation of its BURs. The Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska is the institution responsible for activities relating to climate change, including for the preparation and submission of NCs and BURs on a continuous basis. It reported information on its cross-cutting MRV arrangements, which include MRV of its GHG inventory and mitigation actions, but not MRV of support needed and received. It has taken steps to improve reporting on its institutional arrangements by including information on the preparation process for its third BUR, and during the technical analysis the Party clarified that it was receiving ongoing support for MRV from the GEF under the “Integrated reporting and transparency system of Bosnia and Herzegovina” project, amounting to USD 740,000.

88. In its third BUR, submitted in 2023, Bosnia and Herzegovina reported information on its national GHG inventory for 1990–2018. This included GHG emissions and removals of CO₂, CH₄ and N₂O for all relevant sources and sinks. The inventory was developed on the basis of the 2006 IPCC Guidelines, although in some cases the IPCC good practice guidance for LULUCF or the 2019 Refinement to the 2006 IPCC Guidelines were used and specific EFs from the 2006 IPCC Guidelines were applied for individual key categories. The total GHG emissions for 2018 were reported as 31,147.42 Gg CO₂ eq (excluding LULUCF) and 25,315.52 Gg CO₂ eq (including LULUCF). Eighteen key categories and main gases were identified using trend assessment with the following three categories covering 51 per cent of the trend: 1.A.1 energy industries – solid fuels (CO₂), 1.A.4 other sectors – solid fuels (CO₂) and 2.C.1 iron and steel production (CO₂).

89. Bosnia and Herzegovina provided information on mitigation actions and their effects in tabular format during the technical analysis, including expected emission reductions. The Party reported a reference scenario (S1) and two mitigation scenarios (S2, a moderate ‘with measures’ mitigation scenario, and S3, a ‘with additional measures’ mitigation scenario) for 2016–2050 and framed its national mitigation planning and actions in the context of its national strategy, in particular the 2020–2030 Climate Change Adaptation and Low Emission Development Strategy for Bosnia and Herzegovina. The mitigation actions and reported scenarios comprise the energy sector (electricity generation, RES, district heating, buildings, transport) and the agriculture, forestry and waste sectors. No information on actions or scenarios for the industry sector was reported in the BUR. The Party did not report on the progress of implementation of its mitigation actions but included expected emission reductions as estimated scenario outcomes. The highest estimated outcome was reported for the electricity generation sector, which could reach zero emissions by 2050 under the most ambitious scenario (S3). Bosnia and Herzegovina reported that, if the most ambitious mitigation scenario reported in its BUR is implemented, the GHG emission reductions achieved will be 34 per cent below the 2016 level by 2030 and 66 per cent below the 2016

level by 2050. The Party also reported on its involvement in international market mechanisms and on domestic MRV arrangements; specifically, the Party clarified during the technical analysis that it was not yet involved in the use of international market mechanisms. The TTE noted that for most of the mitigation actions the information in the BUR was not reported in accordance with the UNFCCC reporting guidelines on BURs, an observation that was also part of the findings reported in the summary report on the technical analysis of Bosnia and Herzegovina's second BUR.

90. Bosnia and Herzegovina reported information on key constraints, gaps and related needs, specifically technology and capacity-building needs. However, the Party only reported information on technology needs related to water resources and the agriculture sector, and only reported capacity-building needs relating to its GHG inventory. Information was not reported on other capacity-building needs or on financial and technical needs. During the technical analysis, the Party provided information on its other capacity-building needs, which were reported in its NC4 but not referenced in its third BUR. Regarding support received, information on the financial, technology, capacity-building and technical support received was not clearly reported. During the technical analysis, the Party clarified that it had provided this information in its NC4. In addition to the support reported in its NC4, it received USD 852,000 from the GEF for preparing its NC4 and third BUR, EUR 25 million from the European Commission for flood protection and river management, and technology, capacity-building and technical support from five other projects.

91. The current TTE noted improvements in the reporting in the Party's third BUR compared with that in its previous BUR. However, improvements are ongoing, and the Party has taken note of outstanding areas for future improvement.

92. The TTE, in consultation with Bosnia and Herzegovina, identified the nine 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. Bosnia and Herzegovina prioritized the capacity-building needs referred to in paragraph 83(a)(iii) above.

Annex I

Extent of the information reported by Bosnia and Herzegovina 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 Bosnia and Herzegovina

<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.	No	Bosnia and Herzegovina submitted its third BUR in May 2023; the GHG inventory reported is for 1990–2018.
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	Bosnia and Herzegovina used a combination of the IPCC good practice guidance for LULUCF, the 2006 IPCC Guidelines and the 2019 Refinement to 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	The AD used for estimating CH ₄ emissions from the waste sector and information on estimating emissions of CO ₂ and other GHGs from the LULUCF sector were reported; however, AD for other sectors 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;	No	
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	No	
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	Yes	
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their NCs are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000).	Partly	This information was not reported for the inventory years 2001 and 2013, which were reported in the NC2 and NC3 respectively.
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	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>
	III (National greenhouse gas inventories), including:		
	(a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors);	Partly	Comparable information was reported in table 9 on total GHG emissions in CO ₂ eq and the GWPs used, but information on GHG emissions by subcategory and by gas was not reported.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF ₆).	No	
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	NA	
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.	Partly	Information on key source categories by trend analysis was reported but key categories by level were not.
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.	Partly	The Party reported information on data sources for all categories, but did not report on the procedures and arrangements adopted for collecting and archiving data for the preparation of its national GHG inventory.
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	Only information for forestry was reported.
	(b) CH ₄ ;	Partly	Information on total CH ₄ emissions was reported in Gg CO ₂ eq, but not in units of mass.
	(c) N ₂ O.	Partly	Information on total N ₂ O emissions was reported in Gg CO ₂ eq, but not in units of mass.
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of:	Partly	
	(a) HFCs	Yes	Information on HFCs was reported for 2017–2018 in BUR table 13.
	(b) PFCs;	No	Information on PFCs was not reported.
	(c) SF ₆ .	No	Information on SF ₆ was not reported.
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:		

<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) Carbon monoxide;	No	
	(b) Nitrogen oxides;	No	
	(c) Non-methane volatile organic compounds.	No	
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.	No	
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.	No	Information was reported only for the sectoral approach.
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;	Partly	Bosnia and Herzegovina used the 2006 IPCC Guidelines, the IPCC good practice guidance for LULUCF and the 2019 Refinement to the 2006 IPCC Guidelines. Tier 1 methodology was used for most sectors. Information on EFs and AD was not provided for, among others, the energy and IPPU sectors.
	(b) Explanation of the sources of EFs;	Partly	Information on the parameters used for solid and liquid waste in the waste sector, and some

<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>
			details on land were reported. However, details on the selected EFs for the energy and IPPU sectors were not provided.
	(c) Explanation of the sources of AD;	Yes	
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	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.	Partly	Notation keys were not used in BUR table 11 for categories and years with no data.
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;	Partly	Only the trend of uncertainty was reported.
	(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 third biennial update report of Bosnia and Herzegovina

<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.	No	No information was provided in tabular format on actions to mitigate climate change.
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	Some information was provided on progress indicators (e.g. energy or emission intensity), sector coverage and expected outcomes, but no information was provided for the names and descriptions of individual mitigation actions, the nature of actions, gases covered and quantitative goals.
	(b) Information on:		
	(i) Methodologies;	No	
	(ii) Assumptions;	Partly	No information on assumptions for specific mitigation actions was reported, but some information on assumptions for the sectoral scenarios was provided.
	(c) Information on:		
	(i) Objectives of the action;	Partly	Sectoral scenario outcomes were reported, but no objectives for specific mitigation actions.
	(ii) Steps taken or envisaged to achieve that action;	No	
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Partly	No information on the progress of individual mitigation actions was reported, but sectoral GHG scenarios up to 2050 were presented.
	(ii) Progress of implementation of the underlying steps taken or envisaged;	No	
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Partly	The Party did not report emission reduction values for all measures or sectors; instead, graphical representations of emission projection scenarios were provided for most of the sectors.

<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>
	(e) Information on international market mechanisms.	Partly	The Party did not report clearly on whether international market mechanisms have been used and, if so, to what extent.
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 Bosnia and Herzegovina

<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; (b) Related financial, technical and capacity-building needs.	Yes Partly	Information on financial and technical needs was not reported.
Decision /CP.17, annex III, paragraph 15	Non-Annex I Parties should provide: (a) Information on financial resources, technology transfer and capacity-building received; (b) Information on technical support received from the GEF, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	No No	
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; (b) Technology support received.	Yes No	

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.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html>.

B. UNFCCC documents

First, second and third BURs of Bosnia and Herzegovina. Available at <https://unfccc.int/BURs>.

NC4 of Bosnia and Herzegovina. Available at <https://unfccc.int/non-annex-I-NCs>.

Summary report on the technical analysis of the second BUR of Bosnia and Herzegovina, contained in document FCCC/SBI/ICA/2017/TASR.2/BIH. Available at <https://unfccc.int/ICA-reports>.
