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Technical analysis of the second biennial update report of Bosnia and Herzegovina submitted on 13 June 2017

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 (non-Annex I Parties), consistently with their capabilities and the level of support provided for reporting, were to submit their first biennial update report (BUR) by December 2014. Further, 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 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 BURs at their discretion. This summary report presents the results of the technical analysis of the second BUR 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.

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Contents

Abbreviations and acronyms

AD	activity data
BUR	biennial update report
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EF	emission factor
EU	European Union
EU ETS	European Union Emissions Trading System
GEF	Global Environment Facility
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
LUCF	land-use change and forestry
MRV	measurement, reporting and verification
N_2O	nitrous oxide
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
NE	not estimated
NMVOC	non-methane volatile organic compound
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
NOx	nitrogen oxides
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
Revised 1996 IPCC Guidelines	*Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*
SF_6	sulfur hexafluoride
SOx	sulfur oxides
TNA	technology needs assessment
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 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 BURs. 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 first BUR on 12 March 2015, which was analysed by a TTE in the second round of technical analysis of BURs from non-Annex I Parties, conducted from 17 to 21 August 2015. After the publication of its summary report, Bosnia and Herzegovina participated in the first workshop for the facilitative sharing of views, convened in Bonn on 20 and 21 May 2016.

5. This summary report presents the results of the technical analysis of the second 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. Bosnia and Herzegovina submitted its second BUR on 13 June 2017, which is more than two years since the submission of its first BUR. The reason for the submission date was not provided in the BUR.

7. Consistent with decision 2/CP.17, paragraph 41(f), the Party submitted its second BUR as part of its NC3 as the submission of the two reports coincided.

8. The technical analysis of the BUR took place from 4 to 8 December 2017 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: Mr. Menouer Booghdee (former member of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention from Algeria), Ms. Marjorie Doudnikoff (France), Mr. Xiang Gao (China), Mr. Sabin Ghislain Hippolyte Guendehou (Benin), Ms. Lisa Hanle (United States of America), Ms. Gherghita Nicodim (Romania) and Mr. Marius Taranu (Republic of Moldova). Mr. Guendehou and Ms. Nicodim were the co-leads. The technical analysis was coordinated by Ms. Alma Jean, Mr. Sohel Pasha and Mr. Simon Wear (secretariat).

9. During the technical analysis, the TTE and Bosnia and Herzegovina engaged in consultation[1] on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Bosnia and Herzegovina's second BUR, the TTE prepared and shared a draft summary report with the Party on 2 March 2018 for its review and comment. Bosnia and Herzegovina, in turn, provided its feedback on the draft summary report on 25 June 2018.

10. The TTE responded to and incorporated the Party's comments referred to in paragraph 9 above and finalized the summary report in consultation with Bosnia and Herzegovina on 25 June 2018.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

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

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

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

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

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

B. Extent of information reported

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

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

[1] The consultation was conducted via written exchange.

15. The TTE notes improvements in the reporting in the second BUR compared with the first BUR. Information on GHG inventories, mitigation actions and their effects, and needs and support reported in the second BUR demonstrates that the Party has taken into consideration the areas for enhancing transparency noted by the TTE in the summary report on the technical analysis of its first BUR. These include: the provision of information on some of the EFs applied, particularly for the industrial processes sector; improved reporting of the methodology used for the modelling of mitigation actions; improved description of mitigation actions, including information on quantitative goals and co-benefits for some of the actions; and improved reporting of capacity-building needs related to institutional arrangements for preparing GHG inventories. Regarding the areas for enhancing transparency noted by the TTE in the summary report on the technical analysis of the Party's first BUR that were not addressed in the second BUR, Bosnia and Herzegovina identified them as areas for enhancing national capacity.

C. Technical analysis of the information reported

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

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

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

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

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

20. In accordance with decision 17/CP.8, annex, paragraph 3, Bosnia and Herzegovina reported in its second BUR the following information 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, locally governed. The country is located in the Balkan Peninsula, belongs to the Adriatic basin and the Black Sea basin, and has a mountainous topography. It has several climate types: temperate continental, submountainous, mountainous, Adriatic and modified Adriatic. According to the preliminary results of the census conducted in 2013, the population of Bosnia and Herzegovina is 3,791,622. The population decreased by 585,411 inhabitants between 1991 and 2013 because of war, migration and a decrease in the birth rate. The share of gross domestic product by sector is as follows: agriculture, 8.6 per cent; industry, 21.1 per cent; construction, 4.8 per cent; and services, 66.0 per cent.

21. Extreme climate events are becoming more frequent in the country. Possible adverse changes in the intensity and frequency of extreme precipitation raises concerns about the functioning of forest ecosystems and the greater spatial distribution and intensity of existing

pests, diseases and weeds. Limitations and obstacles related to institutional, legal, financial, technical and human resource capacities in Bosnia and Herzegovina are affecting the implementation of its obligations under the Convention. A higher level of awareness and knowledge regarding the impacts of climate change is needed among decision makers and the general public to facilitate a systematic response and to build resilience.

22. In addition, as encouraged in decision 17/CP.8, annex, paragraph 4, Bosnia and Herzegovina provided a summary of relevant information regarding its national circumstances and priorities for environmental, economic and social development in tabular format.

23. Bosnia and Herzegovina did not provide in its BUR information on institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. In its NC3 information was reported on the institutional arrangements for the preparation and submission of NCs and BURs on a continuous basis, identifying the Ministry for Spatial Planning, Civil Engineering and Ecology of Republika Srpska as the coordinating institution involved in the process; however, the other agencies involved in the process and the individual roles and responsibilities of those agencies were not reported. During the technical analysis, Bosnia and Herzegovina indicated that one of its key priorities is to establish a formal (legally binding) framework or agreement that defines and establishes a system for the GHG inventory at the national level, including the roles and responsibilities of institutions and agencies. The TTE noted that including information on the other agencies involved in preparing the Party's NCs and BURs on a continuous basis could facilitate a better understanding of the information reported.

24. The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina is responsible for coordinating activities and for international relations in the environmental sphere. The Ministry for Spatial Planning, Civil Engineering and Ecology of Republika Srpska coordinates activities related to the implementation of the Convention and is the UNFCCC national focal point. There are more than 100 non-governmental organizations in Bosnia and Herzegovina involved with environmental protection and climate change.

25. Bosnia and Herzegovina reported on its proposed domestic MRV system, which is designed at the national level and covers two main areas: the GHG inventory system and the preparation of NAMAs. The system will build on the existing mechanism for approving and submitting NAMAs.

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

26. As indicated in table 1 in annex I, Bosnia and Herzegovina 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. Since the BUR is a summary of the Party's NC3, the information contained in the NC3 relating to the reporting of the GHG inventory was subject to the technical analysis.

27. Bosnia and Herzegovina submitted its second BUR in 2017 and the GHG inventory reported is for 2014, which is consistent with the requirements for the reporting time frame. The TTE commends Bosnia and Herzegovina for reporting the GHG inventory for 2014, which is a more recent year than the mandated calendar year of no more than four years prior to the date of submission (2013). In the NC3, the GHG inventory reported is for 2002–2013.

28. GHG emissions and removals for the 2014 inventory were estimated using mainly a tier 1 methodology from the Revised 1996 IPCC Guidelines, while the IPCC good practice guidance was applied in the case of some cross-cutting issues.

29. With regard to the methodologies used, information was not reported transparently. While some information on methodologies used for calculating EFs and sources of AD was provided in the BUR (e.g. for the industrial processes sector), the methodology applied and actual values for AD were not reported for most source categories. Furthermore, information was generally not reported on the EFs used, such as references to equations used from the IPCC guidelines, nor other related parameters or assumptions considered in generating the estimates. In the BUR, Bosnia and Herzegovina noted in particular the challenge of acquiring the necessary AD to perform the GHG inventory calculations. The TTE noted that including information on AD and EFs for all categories reported in the BUR could facilitate a better understanding of the information reported.

30. The total GHG emissions for 2014 reported in the BUR (tables 49 and 50), including and excluding LUCF, amounted to 19,140.60 and 25,538.60 Gg CO_2 eq, respectively, an increase of 67.2 and 57.9 per cent, respectively, since 2002 (11,450.76 and 16,170.12 Gg CO_2 eq, respectively). The GHG emissions excluding LUCF reported for 2014 include 21,712 Gg CO_2, 120 Gg CH_4 and 6 Gg N_2O. Bosnia and Herzegovina reported emissions of HFCs of 26 Gg for 2014 (in section 1.3.5 of the BUR) but did not report emissions of PFCs or SF_6. The TTE noted that the BUR clearly outlines the challenges faced by the Party in collecting relevant data given that data on the production, export and destruction of fluorinated gases other than HFCs are not available.

31. Other emissions reported include 136 Gg CO, 24 Gg NMVOCs, 80 Gg NOx and 516 Gg SOx. In some cases, the use of notation keys was not consistent with the Revised 1996 IPCC Guidelines; for example, the Party reported total CO_2 eq emissions from international aviation as "NO" for 2002–2013 (2014 was reported as zero) but clarified during the technical analysis that "NE" would be more appropriate because data were not available for the calculations. In addition, the notation key "NE" was reported for some categories without providing explanations in the BUR; for example, for total CO_2 eq emissions for category 1.B.2 (oil and natural gas systems) for 2010 and 2011, for the solvents sector, for the LUCF sector (except for CO_2 emissions from changes in forest and other woody biomass stocks) and for total CO_2 eq emissions from field burning of agricultural residues. The TTE noted that explaining in the BUR why emissions or removals for a specific category were not estimated and reported and the use of notation keys, where relevant, in all reporting tables could facilitate a better understanding of the information reported.

32. The TTE noted that the total emissions reported in the BUR (table 49) for the energy sector (19,734.33 Gg CO_2 eq) and the waste sector (966.00 Gg CO_2 eq) do not equal the sum of the categories for these sectors (20,249.67 and 945.00 Gg CO_2 eq, respectively). During the technical analysis, Bosnia and Herzegovina submitted tables containing revised values for these sectors as well as for the agriculture sector (in table 49). The TTE noted that including those tables as additional information provided during the technical analysis could facilitate a better understanding of the information reported. On the basis of the revised values, the total GHG emissions for 2014, including and excluding LUCF, were calculated to amount to 19,664.51 and 26,062.18 Gg CO_2 eq, respectively, which is an increase of 71.7 and 61.2 per cent, respectively, since 2002. The GHG emissions excluding LUCF reported for 2014 based on the updated table 50 comprise 21,711.93 Gg CO_2, 119.96 Gg CH_4 and 5.91 Gg N_2O. The emission estimates contained in this report are based on tables 49 and 50 of the BUR.

33. The shares of emissions that different sectors contributed to the total GHG emissions excluding LUCF in 2014 are: energy, 77.7 per cent; industrial processes, 8.8 per cent; agriculture, 9.7 per cent; and waste, 3.8 per cent. Net removals of 6,398 Gg CO_2 eq were reported for LUCF.

34. GHG emissions in 2014 from the energy sector amounted to 19,734.33 Gg CO_2 eq. According to the BUR, the energy balance was used only for 2012 and 2013. The TTE noted that providing information on the types and quantities of fuel used in the country, for example with the details on the reference approach, could facilitate a better understanding of the information reported. Information reported in the BUR focuses on the categories energy industries and transport (sections 1.2.1 and 1.2.2, respectively); however, emissions for other categories (e.g. manufacturing industries and construction and other sectors) are included in the national totals (table 49). Providing a description of the methods, AD and EFs used to estimate emissions for all categories could facilitate a better understanding of the information reported. Zero is reported for a number of categories for 2014. During the technical analysis, Bosnia and Herzegovina clarified that, in table 49, zero emissions were reported for some gases and categories although such emissions do occur (e.g. CH_4 and N_2O emissions from energy industries, manufacturing industries and construction, and transport). The Party explained that this was because the software used to generate the estimates automatically presented low values as zero.

35. Industrial process emissions amounted to 2,247.36 Gg CO_2 eq, with the largest share of the emissions originating from source category 2.C metal production, followed by 2.A mineral industry and 2.B chemical industry. Emissions from the bulk import of HFC-134 were reported for earlier years in the time series but not for 2014. During the technical analysis, Bosnia and Herzegovina clarified that the primary source of AD for the industrial processes sector was a 2014 report of the Agency for Statistics of Bosnia and Herzegovina on the production and sale of industrial products in the country. According to the BUR, production data are directly obtained from iron and steel, ferroalloys, cement and chemicals manufacturers. The TTE noted that including in the BUR the source and values of AD and the methodology implemented for each category in the industrial processes sector could facilitate a better understanding of the information reported.

36. For the agriculture sector, Bosnia and Herzegovina reported GHG emissions of 2,453.00 Gg CO_2 eq, with N_2O from agricultural soils and CH_4 from enteric fermentation being identified as key categories and the most relevant emissions sources in the sector. N_2O emissions from manure management were also reported. Information on the methodologies and AD used to estimate emissions from the agriculture sector was not reported in the BUR. During the technical analysis, the Party clarified that all calculations are based on the tier 1 approach, and it provided background AD on the populations of cattle, sheep, swine, horses, poultry and goats for 2014 from the Agency for Statistics of Bosnia and Herzegovina. The TTE noted that providing the AD used in the calculations (e.g. number of livestock, amount of fertilizer used) in the BUR, even at an aggregated level, and providing references to the specific EFs applied could facilitate a better understanding of the information reported.

37. For the LUCF sector, Bosnia and Herzegovina reported GHG emissions and removals for 2002–2014. Overall, the net removals from the LUCF sector fluctuated between 4,719.00 Gg CO_2 eq in 2002 and 7.999,47 Gg CO_2 eq in 2009. Net removals reported for 2014 amounted to 6,398.00 Gg CO_2 eq, or 25.0 per cent of the total national GHG emissions in 2014 (25,538.60 Gg CO_2 eq, including the LUCF sector). Bosnia and Herzegovina reported only net removals from changes in forest and other woody biomass stocks, which is a key category according to the Party's key category analysis. Emissions and removals were reported as "NE" for other categories in the sector, specifically forest land and grassland conversion, abandonment of managed lands and CO_2 emissions and removals from soils. During the technical analysis, Bosnia and Herzegovina explained that it generally did not have the necessary AD to perform calculations for this sector and noted in particular the lack of data on forest areas. The TTE noted that providing AD on forest areas could facilitate a better understanding of the information reported.

38. For the waste sector, Bosnia and Herzegovina reported emissions of 966.00 Gg CO_2 eq, with CH_4 from solid waste disposal sites being a key category. CH_4 emissions from wastewater handling were also reported, while waste incineration was reported as "NO". Information was not reported on the methodologies used to estimate emissions from solid waste disposal or wastewater handling. During the technical analysis, Bosnia and Herzegovina explained that all calculations are based on the tier 1 approach, and it provided additional AD for the category solid waste disposal on land, in particular for the amount of waste generated and the management procedures (e.g. sent to landfill, removal of waste in other ways and recovered waste), as well as information on data collection procedures. The TTE noted that providing in the BUR a description of the overall flows of waste through the various management systems in operation in the country and the underlying AD used could facilitate a better understanding of the information reported.

39. Bosnia and Herzegovina included in its BUR, submitted in conjunction with its NC3, an update of the GHG inventory from the previous BUR, which addressed anthropogenic emissions and removals for 2010 and 2011. The update was carried out for total national CO_2 eq emissions using the methodologies contained in the Revised 1996 IPCC Guidelines. The time series of emissions for other gases and emissions by category was not updated for the years covered in the NC2 (1991–2002) or the NC1 (1990). The previous national inventory was also prepared using the Revised 1996 IPCC Guidelines. The TTE noted that providing the entire time series of emissions back to 1990 by gas, at the sector and category level, could facilitate a better understanding of the information reported.

40. Bosnia and Herzegovina reported recalculated emission estimates for the years reported in the previous BUR but did not include the rationale for the recalculations or the data used. During the technical analysis, the Party explained that the rationale was included in the NC3 and that the primary reasons for the recalculations were the revision of the degradable organic carbon value for landfills and changes in the amount and classification of types of coal consumed. The TTE was unable to find this explanation in the NC3. The TTE noted that reporting in the BUR a summary of the information provided in the NC3 or a reference to the relevant section of the NC3 could facilitate a better understanding of the information reported.

41. Bosnia and Herzegovina described in its BUR the institutional framework for the preparation of its 2014 GHG inventory. The Ministry for Spatial Planning, Civil Engineering and Ecology of Republika Srpska is the governmental body responsible for climate change policy and is also responsible for the Party's GHG inventory, which was prepared with the support of the United Nations Development Programme, which assisted Bosnia and Herzegovina in designing its GHG inventory system. The Party identified a number of challenges related to the compilation of the GHG inventory; for example, the lack of availability of permanent funding for reporting and of a framework for the collection of the necessary AD.

42. Bosnia and Herzegovina reported a key category analysis performed for the level of emissions, including and excluding LUCF, for 2002, 2003 and 2012–2014 and for the trend in emissions, including LUCF, for 2002, 2003, 2012 and 2013. The BUR states that QA/QC, including verification of the accuracy of the data, EFs and uncertainty estimates, was conducted by an independent international expert. The TTE noted that providing information on how QA/QC procedures are incorporated into the inventory planning, preparation and management process (e.g. the actors conducting QA/QC, specific procedures undertaken and the timing of those procedures) could facilitate a better understanding of the information reported.

43. Bosnia and Herzegovina reported information on CO_2 emissions from fossil fuel combustion using the sectoral approach and noted that the difference between the reference and sectoral approach estimates is more than 1,600 Gg CO_2 for 2014 (8.2 per cent), which

is due to the difference in the quantity of anthracite consumed. During the technical analysis, the Party expressed its assumption that once it has access to a complete energy balance, along with the underlying data from questionnaires used to develop such a balance, calculating emission estimates using the reference approach will be possible.

44. Information was reported on international aviation and marine bunker fuels. Bosnia and Herzegovina reported the notation key "NO" or zero for bunker fuels for all years. During the technical analysis, the Party clarified that it should have reported "NE" for international aviation as it was unable to gather data on international flights. The TTE noted that including information in the BUR on such emissions could facilitate a better understanding of the information reported.

45. Bosnia and Herzegovina reported information on its use of GWP values consistent with those provided by the IPCC in its Second Assessment Report based on the effects of GHGs. The TTE noted that the BUR did not include the GWP value applied for HFC 134-a, and that including the GWP values applied for all gases reported in the GHG inventory could facilitate a better understanding of the information reported.

46. Bosnia and Herzegovina reported information on the uncertainty assessment (level) of its national GHG inventory. The uncertainty analysis is based on the tier 1 approach and covers only CO_2 emissions from fossil fuel combustion. The uncertainty of other gases and sectors was not assessed. The results reveal that the level of uncertainty for CO_2 emissions from fossil fuel combustion is +/– 10 per cent for coal, +/– 13 per cent for liquid fuels and +/– 7 per cent for natural gas. The TTE commends Bosnia and Herzegovina for providing in its BUR detailed information on the selected uncertainty values for AD and EFs and the reasons for their selection for CO_2 emissions from fossil fuel combustion. The TTE noted that providing uncertainty information for other gases and sectors could facilitate a better understanding of the information reported.

47. The TTE noted that the transparency of the information reported could be enhanced by addressing in subsequent BURs the areas indicated in paragraphs 29–46 above, which could enable the TTE to better understand the information reported.

48. In paragraph 28 of the summary report on the technical analysis of Bosnia and Herzegovina's first BUR, the TTE noted where the transparency of reporting on EFs could be further enhanced. The TTE noted that Bosnia and Herzegovina took into consideration this area for improvement, in particular in reporting on the industrial processes sector, by clarifying the industries in operation in the country and by including the default EFs applied. In addition, HFC emissions were reported for specific categories and years for the first time in the second BUR. The TTE commends the Party for enhancing the transparency of the information reported.

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

49. As indicated in table 2 in annex I, Bosnia and Herzegovina 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. Bosnia and Herzegovina established a mechanism for approving and submitting NAMAs in 2015 and the first NAMA project proposals are being developed. The Party highlighted to the TTE during the technical analysis that the NC3 (section 4.1.1.2) reports that the Council of Ministers of Bosnia and Herzegovina adopted the Climate Change Adaptation and Low Emission Development Strategy in October 2013, which includes a

GHG emission peak target that is below the average per capita emissions by 2025 of the 27 EU member States (EU-27)[2] and also activities to be undertaken to reach that target.

51. The information reported provides a clear and comprehensive overview of the Party's mitigation actions and their effects, including national context. In its BUR, Bosnia and Herzegovina frames its national mitigation planning and actions in the context of mitigation scenarios and provides a list of 25 mitigation actions; however, the scenarios do not relate to the GHG emission peak target. The emission projections comprise three scenarios – S1 ('business as usual'), S2 (moderate mitigation) and S3 (advanced mitigation) – covering aggregate emissions for electricity, renewable energy sources, district heating, buildings, transport, agriculture, forestry and waste management. According to the aggregate estimation, the emission trends under the S1, S2 and S3 scenarios until 2040 would be a 31 per cent increase, an 11 per cent reduction and a 46 per cent reduction, respectively, compared with the 2014 level, not including the effects of sinks in forestry. Most of the mitigation actions are in the energy sector. Bosnia and Herzegovina indicated during the technical analysis that climate change considerations, including mitigation, have been integrated into its development plans and that, to date, the implemented mitigation actions have made some progress. The Party reported on its Climate Change Adaptation and Low Emission Development Strategy in its NC3 submitted with its BUR but did not elaborate on the strategy in relation to the above-mentioned emission projections. The TTE noted that providing information on mitigation strategies, plans or climate change activities at the national level, if available, could facilitate a better understanding of the information reported.

52. The Party reported a summary of its mitigation actions in tabular format. Consistent with decision 2/CP.17, annex III, paragraph 12(a), it reported the name and coverage (sector and gases) of the mitigation actions in the table annexed to the BUR, but did not report clear information on progress indicators or on the methodologies and underlying assumptions used for the individual sectoral mitigation actions. The actions cover energy, buildings, transportation, agriculture, waste management and forestry, while the GHGs affected are CO_2, CH_4 and N_2O. A description of mitigation actions, including quantitative goals for some of them, is clearly reported in the BUR. The TTE commends Bosnia and Herzegovina for including this information. The TTE noted that providing information on progress indicators for mitigation actions, and methodologies and underlying assumptions for sectoral mitigation actions, could facilitate a better understanding of the information reported.

53. Mitigation actions were reported for the energy sector, including information on the methodologies and underlying assumptions used for estimating the impact of the mitigation actions, which the Party indicated were based on the LEAP[3] model. For the emission projection scenarios, estimates were made for electricity generation, renewable energy sources, district heating, buildings and transport. The objectives of the mitigation actions were reported, but information on the steps taken to implement them was not clearly reported. The reported mitigation actions are mainly in the areas of improvement in energy efficiency and promotion of renewable energy sources in power generation, buildings and transportation. For the electricity generation and transport sectors, under the S1 scenario an 18.5 per cent reduction and a 53 per cent increase, respectively, in GHG emissions by 2040 compared with the 2014 level were estimated; under the S3 scenario a 60 per cent reduction

[2] The EU-27 member States comprise Austria, Belgium, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland.

[3] Long-range Energy Alternative Planning system.

and a 10 per cent increase, respectively; while under the S2 scenario the results fell between those of the S1 and S3 scenarios. The estimated GHG emission reductions for the renewable energy sources, district heating and buildings sectors were provided in tabular format.

54. Bosnia and Herzegovina reported in the BUR mitigation scenarios and actions for the agriculture sector. One of the key assumptions included in the scenario assessment was the application of EU common policies in the sector. However, the methodologies and tools used for the scenario assessment and an estimation of the results achieved by individual actions were not reported. The Party indicated that climate change is not included in the policies and strategies for the sector. The planned activities are aimed at reducing N_2O emissions and increasing the energy efficiency of irrigation. The estimated effects of the actions are an 80 per cent emission increase under the S1 scenario, a 3.6 per cent emission reduction under the S2 scenario and a 38 per cent emission reduction under the S3 scenario. As well as the scenario assessment for the sector, Bosnia and Herzegovina reported one planned mitigation action for agriculture in the annex to the BUR, which aims at reducing emissions of NOx, increasing the energy efficiency of irrigation and preventing the volatilization and contamination of surface water and groundwater; however, an emission reduction estimate was not reported.

55. Bosnia and Herzegovina reported in the BUR mitigation scenarios and actions for the waste management sector. Key assumptions included in the scenario assessment were the construction of sanitary landfills and the level of recycling. However, the methodologies and tools used for the scenario assessment and an estimation of the results achieved by individual mitigation actions were not reported. The Party indicated that legislation for the sector has been developed. Three planned actions (rehabilitation of existing landfills, construction of regional landfills, and introduction of alternative waste management practices to increase recycling and composting) were reported, which are aimed at reducing CH_4 emissions and have a total emission reduction potential of 170 Gg CO_2 eq.

56. Bosnia and Herzegovina reported in the BUR mitigation scenarios and actions for the forestry sector. Key assumptions included in the scenario assessment concerned the sectoral and economic situation and the expectation that the country will become a full member of the EU by 2025. However, the methodologies and tools used for the scenario assessment and an estimation of the results achieved by individual mitigation actions were not reported. One of the most significant strategies for the sector is the Forestry Development Strategy of Republika Srpska for the period 2012–2020. The estimated change in GHG sinks by 2040 compared with the 2014 level as a result of the strategy is a 5 per cent reduction under the S1 scenario, a 3 per cent increase under the S2 scenario and a 4.7 per cent increase under the S3 scenario. As well as the scenario assessment for the sector, Bosnia and Herzegovina reported one planned and three in-progress mitigation actions for forestry in the annex to the BUR with a total emission reduction potential of 311 Gg CO_2 eq.

57. Bosnia and Herzegovina provided in an annex to the BUR additional information on mitigation actions derived from projects that are ongoing, planned or in the conceptual design phase. The most significant mitigation action reported is the efficiency improvement programme for coal-fired power plants, which is to be implemented during the period 2018–2030 and has an estimated CO_2 emission reduction potential of 4,800 Gg. For several plants the conceptual designs and necessary permits for construction have been prepared. The Party reported several other actions but indicated that it is not possible to estimate the results that could be achieved in terms of emission reduction or other outcomes owing to such actions being of a legislative nature rather than concrete projects (e.g. the enhancement of the legal framework for the implementation of energy efficiency measures

in the buildings sector). Bosnia and Herzegovina also reported on expected co-benefits of the mitigation actions, such as job creation and improvement of air quality. The TTE commends Bosnia and Herzegovina for including this information.

58. Bosnia and Herzegovina provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol, mainly on the potential mitigation effect of its planned participation in the EU ETS. However, the Party reported that, owing to its slow progress towards full membership of the EU, it is not realistic to expect that it will participate in the EU ETS before 2020. During the technical analysis, Bosnia and Herzegovina clarified that it has not recorded any participation in international market mechanisms.

59. Bosnia and Herzegovina reported information on its domestic MRV arrangements consistent with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Bosnia and Herzegovina is in the process of developing and designing a domestic MRV system for mitigation actions. The Party reported that the domestic MRV arrangements will follow the country's constitutional structure, and the activities of the MRV system will be embedded in existing institutions. The functions of the MRV system will include: compiling the GHG inventory, directly measuring GHG emissions, monitoring performance indicators of NAMAs, reporting information, establishing an information network between NAMA projects and relevant line ministries, and legalizing qualified entities for verifying NAMA projects. Bosnia and Herzegovina indicated in its BUR the need to build and strengthen the capacity of its existing institutions in order to ensure higher-quality MRV.

60. The TTE noted that the transparency of the information reported could be enhanced by addressing in subsequent BURs the areas indicated in paragraphs 51–56 above, which could enable the TTE to better understand the information reported.

61. In paragraph 41 of the summary report on the technical analysis of Bosnia and Herzegovina's first BUR, the TTE noted that the transparency of the reported information on the methodology used to undertake modelling to project future emissions could be enhanced. The TTE noted that Bosnia and Herzegovina took into consideration this area for improvement in its second BUR and commends the Party for enhancing the transparency of the information reported.

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

62. As indicated in table 3 in annex I, 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.

63. Bosnia and Herzegovina reported information on constraints and gaps and related financial, technical and capacity-building needs that have limited its capacity to deal with climate change issues. The information reported in the BUR indicates a lack of sufficient staff allocated to environmental issues and in particular issues of climate change. The Party provided general information on capacity-building needs without indicating any financial or technical needs. It reported a lack of capacity to identify or assess technology and other needs.

64. The Party did not report information on financial resources, technology transfer, capacity-building needs and technical support received in accordance with decision 2/CP.17, annex III, paragraphs 14 and 16. During the technical analysis, the Party informed the TTE that the funds allocated by the GEF for the preparation of the NC3 and second BUR amounted to USD 500,000. National capacity was strengthened through the United Nations

Environment Programme/GEF project "Capacity development for the integration of global environmental commitments into national policies and development decision making in Bosnia and Herzegovina" and through the support received from the Environment Agency Austria for activities related to training and the review of the GHG inventory. The TTE noted that providing information on financial resources and technical support received could facilitate a better understanding of the information reported.

65. Bosnia and Herzegovina reported information on its technology needs but did not report information on technology support received. During the technical analysis, the Party informed the TTE that a TNA was prepared with the aim of strengthening the capacity of all stakeholders in the country, primarily of decision makers. It was based on expert analysis and prepared using the United Nations Development Programme's *Handbook for Conducting Technology Needs Assessment for Climate Change*. The Party's application of TNA methodology was made difficult by uncertainties and lack of information for assessing benefits, specifically for adaptation subsectors. The Party clarified that it did not report on technology support received owing to a lack of data. The TTE noted that providing information on specific technology needs and technology support received could facilitate a better understanding of the information reported.

66. The TTE noted that the transparency of the information reported could be enhanced by addressing in subsequent BURs the areas indicated in paragraphs 64 and 65 above, which could enable the TTE to better understand the information reported.

5. Any other information

67. Bosnia and Herzegovina reported information on TNA; plans and programmes for systematic observation; education, training and awareness-raising activities; preparation of operational programmes to inform the public about mitigation and adaptation programmes; and regional and international cooperation.

D. Identification of capacity-building needs

68. In consultation with Bosnia and Herzegovina, the TTE identified the following capacity-building needs related to the facilitation of the preparation of subsequent BURs and participation in ICA:

(a) Capacity-building needs related to GHG inventories:

(i) Establishing and fostering institutional arrangements that support the planning, preparation and management of GHG inventories among the relevant ministries and data providers to allow GHG inventory development on a continuous basis, particularly for the energy sector, where regular access to the national energy balance would facilitate the improvement of the inventory for the Party's largest sector;

(ii) Establishing a system to identify, collect and record the relevant sectoral data to calculate GHG emissions in accordance with the relevant tiers in the various IPCC guidelines, particularly for the key categories public electricity and heat production, road transportation, agricultural soils (collection of data on fertilizer application), changes in forest and other woody biomass stocks, and solid waste disposal on land, and other categories to the extent that resources allow (e.g. reporting on fluorinated gases);

(iii) Providing technical assistance to staff compiling the GHG inventory in order to enhance their understanding of the application of the relevant methodologies from

the Revised 1996 IPCC Guidelines and to enable the presentation of transparent information in the BUR;

(iv) Enhancing the capacity of the GHG inventory team to conduct cross-cutting analyses prior to submitting the BUR, and in particular to develop a QA/QC plan and to train staff at institutions involved in the GHG inventory preparation and other stakeholders in the implementation of procedures in accordance with the QA/QC plan, the key category analysis (level and trend) and the uncertainty analysis;

(v) Collecting data to allow the calculation of CO_2 emissions using both the sectoral and the reference approach;

(vi) Estimating and separately reporting emissions from international aviation bunker fuels;

(b) Capacity-building needs related to mitigation actions and their effects:

(i) Identifying and implementing the most suitable methodologies and tools to enable the Party to assess and report on the progress of implementation of mitigation actions, including on progress indicators, and to estimate expected mitigation outcomes and calculate the results achieved at the national, sectoral and action level;

(ii) Establishing a system to identify, collect and record relevant sectoral data in order to facilitate timely availability of relevant multisectoral data on mitigation;

(iii) Building and strengthening domestic MRV arrangements, including the data and information collection system, in relation to international market mechanisms;

(c) Capacity-building needs related to cross-cutting issues:

(i) Strengthening the capacities of the governmental administration, State bodies and local entities to implement legislation related to environmental issues and climate change;

(ii) Strengthening the capacities of State bodies to implement environmental legislation and the Convention, to fulfil reporting obligations to the UNFCCC (NCs, BURs) and to increase awareness among decisions makers and professionals so as to improve the mainstreaming of climate change issues in national institutions;

(iii) Training staff at all institutions and agencies involved with climate change and environmental issues for more efficient vertical and horizontal coordination;

(iv) Supporting the development of new policy to introduce economic instruments that encourage people and institutions to change their behaviours to have positive impacts on the environment and contribute to mitigating climate change;

(d) Related to needs and support, enhancing coordination and cooperation among national institutions and agencies involved in the preparation of BURs to reinforce their capacities to capture financial, technical and technology support received.

69. 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:

(a) Strengthening institutional and human capacities for the fulfilment of obligations under the Convention;

(b) Supporting the establishment of a legislative framework to secure permanent funding for reporting activities and to allow acquisition of the necessary AD to calculate GHG emissions and to prepare the national GHG inventory in accordance with the relevant IPCC guidelines and commitments under the Convention while ensuring that the data

system is multifunctional so that reporting obligations under other conventions can also be met;

(c) Strengthening the capacities of both the Republic Hydrometeorological Service of Republika Srpska and the Federal Hydrometeorological Service by increasing the number of employees and their professional capacities, and by ensuring that inventory compilers have access to all data necessary for GHG inventory calculation and compilation;

(d) Addressing the incompatibility between the existing statistical data available in the country and the AD and EFs required to implement the IPCC methodologies (preferably the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*), in particular data on mineral fertilizers, carbon contents of different types of coal, forest areas, waste composition at landfills and wastewater discharge;

(e) Addressing additional capacity-building needs as elaborated in the NC3 (sections 1.8.2–1.8.4);

(f) Building and strengthening the capacity of existing institutions and staff in order to ensure the development and implementation of a high-quality MRV system;

(g) Enhancing the national capacity to establish a systematic and continuous approach to raising public awareness on climate change.

70. In paragraph 58 of the summary report on the technical analysis of Bosnia and Herzegovina's first BUR, the TTE, in consultation with Bosnia and Herzegovina, identified and prioritized capacity-building needs. In its second BUR, Bosnia and Herzegovina reflected that some of those capacity-building needs have been addressed.

III. Conclusions

71. The TTE conducted a technical analysis of the information reported in the second BUR (as part of the NC3) of Bosnia and Herzegovina in accordance with the UNFCCC reporting guidelines on BURs. The TTE concludes that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs and provides an overview of: national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis (most of this information is included in the NC3); the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol, including a national inventory report (with the exception of PFCs and SF_6); mitigation actions and their effects, including associated methodologies and assumptions for most sectors; constraints and gaps and related financial, technical and capacity-building needs, including a description of support needed; and domestic MRV. During the technical analysis, additional information was provided by Bosnia and Herzegovina on the above, as well as a description of support needed and received. The TTE concluded that the information analysed is mostly transparent.

72. Bosnia and Herzegovina reported information on the institutional arrangements relevant to the preparation of BURs. The Ministry for Spatial Planning, Civil Engineering and Ecology of Republika Srpska coordinates activities related to the implementation of the Convention and is the UNFCCC national focal point. The Party reported the need to strengthen its institutional, administrative and staff capacities to achieve sustainable reporting in accordance with the UNFCCC provisions. The TNA prepared by Bosnia and Herzegovina aimed to strengthen the capacity of all stakeholders, primarily of decision makers, to define development strategies based on low-carbon emissions and adaption to climate change.

73. In its second BUR, submitted in 2017, Bosnia and Herzegovina reported information on its national GHG inventory for 2014. This included GHG emissions and removals of CO_2, CH_4 and N_2O for all relevant sources and sinks as well as the precursor gases. Emissions of HFC-134a were provided for imports, but estimates of other fluorinated gases were not provided owing to difficulties in obtaining the necessary data on production, import and export, as explained by the Party in its BUR. The inventory was developed on the basis of the Revised 1996 IPCC Guidelines, although the IPCC good practice guidance was applied in the case of some cross-cutting issues. The total GHG emissions for 2014 were reported as 25,538.60 Gg CO_2 eq (excluding LUCF) and 19,140.60 Gg CO_2 eq (including LUCF). Nine key categories were identified, with CO_2 and the energy sector as the main gas and key category, respectively.

74. Bosnia and Herzegovina reported information on mitigation actions and their effects in the form of mitigation scenarios and a list of 25 mitigation actions. The Party in its NC3 referred to the Climate Change Adaptation and Low Emission Development Strategy adopted in October 2013, which includes a GHG emission peak target that is below the EU-27 average per capita emissions by 2025 and activities to be undertaken to reach that target. The mitigation actions were reported by sector, with estimated GHG emission reductions provided at both the aggregate and sectoral level. Most of the individual activities were also reported. In aggregate, under the S1 scenario a 31 per cent increase in GHG emissions by 2040 compared with the 2014 level was estimated, while under the S3 scenario there would be a 46 per cent reduction in emissions, not including the effects of sinks in forestry. An aggregate estimation of GHG emissions for the energy sector was not reported. The results under the S2 scenario fell between those under the S1 and S3 scenario.

75. Bosnia and Herzegovina reported information on key constraints, gaps and related needs in its NC3. The BUR includes an annex that clearly identifies the needs related to the development of the mitigation actions. During the technical analysis, the Party provided additional information on key challenges and needs, and stressed that the capacity-building activities should be carried out for all competent ministries involved in environmental issues, not just for a single ministry (Ministry of Environment). The Party highlighted the need for capacity-building with regard to GHG inventory preparation, including the development of calculation sheets in accordance with the IPCC methodology, which would enable more efficient inventory compilation and easier QA/QC and key category analysis. The Party provided information on technology needs, but technology support received was not reported.

76. The TTE, in consultation with Bosnia and Herzegovina, identified 14 capacity-building needs listed in chapter II.D above 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 further identified the capacity-building needs related to GHG inventories described in paragraph 68(a)(i–iv) above as having the highest priority, ideally for immediate implementation, and those described in paragraph 68(a)(v) and (vi) above as having medium priority, to be implemented in the medium term.

Annex I

Extent of the information reported by Bosnia and Herzegovina in its second biennial update report

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

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
Decision 2/CP.17, paragraph 41(g)	The first BUR shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available, and subsequent BURs shall cover a calendar year that does not precede the submission date by more than four years.	Yes	Bosnia and Herzegovina submitted its second BUR in June 2017; the GHG inventories reported are for 2002–2014.
Decision 2/CP.17, annex III, paragraph 3	Non-Annex I Parties should submit updates of national GHG inventories according to paragraphs 8–24 in the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties as contained in the annex to decision 17/CP.8.	Yes	Bosnia and Herzegovina used the Revised 1996 IPCC Guidelines.
Decision 2/CP.17, annex III, paragraph 5	The updates of the sections on the 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 second BUR includes updated references to AD for some fuels in the energy sector (e.g. oil); AD for other sectors were generally not provided.
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) 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 the 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).	No	This information was not reported for 1990–2001.
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:		
	(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	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	greenhouse gas precursors);		
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Partly	Table 2 was not provided for 2014.
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 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	Information on the implemented QA and archiving procedures was not 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_2O.	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:		
	(a) HFCs;	Partly	Only bulk import data for HFC-134a were available. No data on production, export and destruction were available.
	(b) PFCs;	No	
	(c) SF_6.	No	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emission by sources of other GHGs, such as:		
	(a) CO;	Yes	
	(b) NOx;	Yes	
	(c) NMVOCs.	Yes	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as SOx, included in the Revised 1996 IPCC Guidelines may be included at the discretion of the Parties.	Yes	The Party reported on SOx.
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.	Partly	The difference between the reference and sectoral approach was reported for 2014 only. An explanation for the difference was provided.
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	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	by the IPCC in its Second Assessment Report based on the effects of GHGs over a 100-year time-horizon.		
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	
	(b) Explanation of the sources of EFs;	Yes	
	(c) Explanation of the sources of AD;	Partly	The Party explained some data sources for some categories in the energy, industrial processes and LUCF sectors. Data sources for the agriculture and waste sectors were not provided.
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	NA	
	(i) Source and/or sink categories;		
	(ii) Methodologies;		
	(iii) EFs;		
	(iv) AD;		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	Yes	
Decision 17/CP.8, annex, paragraph 22	Each non-Annex I Party is encouraged to use tables 1 and 2 of the guidelines annexed to decision 17/CP.8 in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14–17. In preparing those tables, Parties should strive to present information that is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated.	Partly	Table 2 for HFCs, PFCs and SF_6 was missing for 2014.
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:		The quantitative analysis, assumptions and methodologies address only CO_2 emissions.
	(a) Level of uncertainty associated with inventory data;	Partly	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	(b) Underlying assumptions;	Partly	
	(c) Methodologies used, if any, for estimating these uncertainties.	Partly	

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

Table 2

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

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 11	Non-Annex I Parties should provide information, in a tabular format, on actions to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.	Yes	
Decision 2/CP.17, annex III, paragraph 12	For each mitigation action or group of mitigation actions, including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information, to the extent possible:		
	(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;	Partly	Information on the quantitative goals of most of the mitigation actions was reported; however, the progress indicators were not reported.
	(b) Information on:		
	(i) Methodologies;	Partly	Information on assumptions used for mitigation scenarios was reported. The LEAP model was used for the energy sector, but methodologies for other sectors were not reported. Information on the methodologies and assumptions for the assessment of expected and achieved outcomes of individual mitigation actions was also not reported.
	(ii) Assumptions;	Partly	
	(c) Information on:		
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Yes	
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Yes	
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Yes	
	(e) Information on international market mechanisms.	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on the description of 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, paragraphs 11–13.

Table 3

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

Decision	*Provision of the reporting requirements*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	The Party reported on constraints and gaps related to collecting data and reporting on a continuous basis.
	(b) Related financial, technical and capacity-building needs.	Yes	
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources received, technology transfer and capacity-building received;	No	The Party did not report on financial resources received, technology transfer or 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	The Party did not report information on support received from the GEF and other donors for the preparation of its second BUR.
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		
	(a) Technology needs, which are nationally determined;	Yes	Technology needs were reported for each sector.
	(b) Technology support received.	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, paragraphs 14–16.

Annex II

Documents and information used during the technical analysis

A. Reference documents

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"Composition, modalities and procedures of the team of technical experts for undertaking the technical analysis of biennial update reports from Parties not included in Annex I to the Convention". Annex to decision 20/CP.19. Available at http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=12.

"Modalities and guidelines for international consultation and analysis". Annex IV to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

"UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention". Annex III to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

"Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention". Annex to decision 17/CP.8. Available at http://unfccc.int/resource/docs/cop8/07a02.pdf#page=2.

First and second BURs of Bosnia and Herzegovina. Available at http://unfccc.int/8722.php.

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Summary report on the technical analysis of the first BUR of Bosnia and Herzegovina. Available at http://unfccc.int/national_reports/non-annex_i_parties/ica/technical_analysis_of_burs/items/10054.php.

B. Additional information provided by the Party

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

Agency for Statistics of Bosnia and Herzegovina (December 2015). Production and Sale of Industrial Products in Bosnia and Herzegovina (PRODCOM), 2014, First Results. Number 1a.

Agency for Statistics of Bosnia and Herzegovina (March 2016). Agriculture, Environment and Regional Statistics. Number 11.

Agency for Statistics of Bosnia and Herzegovina (May 2016). Energy Statistics: Total Energy Balance, Bosnia and Herzegovina, 2014. Number 1.

Agency for Statistics of Bosnia and Herzegovina (October 2016). Environment. Public Transportation and Disposal of Municipal Waste. Number 1.

[1] Reproduced as received from the Party.