United Nations

Framework Convention on Climate Change

FCCC/SBI/ICA/2019/TASR.2/MNE

Distr.: General
22 January 2020

English only

Technical analysis of the second biennial update report of Montenegro submitted on 3 May 2019

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

GE.20-00942(E)

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Abbreviations and acronyms

AD	activity data
AFOLU	agriculture, forestry and other land use
BUR	biennial update report
CDM	clean development mechanism
CH_4	methane
CO	carbon monoxide
CORINE	Coordination of Information on the Environment (programme)
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EF	emission factor
EU	European Union
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
MSDT	Ministry of Sustainable Development and Tourism of Montenegro
NA	not applicable
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
NO_X	nitrogen oxides
N_2O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
Revised 1996 IPCC Guidelines	*Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*
SF_6	sulfur hexafluoride
SO_X	sulfur oxides
TTE	team of technical experts
UNFCCC guidelines for the preparation of NCs from non-Annex I Parties	"Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention"
UNFCCC reporting guidelines on BURs	"UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention"
2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*

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 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. Montenegro submitted its first BUR on 13 January 2016, which was analysed by a TTE in the fifth round of technical analysis of BURs from non-Annex I Parties, conducted from 13 to 17 June 2016. After the publication of its summary report, Montenegro participated in the third workshop for the facilitative sharing of views, convened in Bonn on 15 May 2017.

5. This summary report presents the results of the technical analysis of the second BUR of Montenegro, 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, Montenegro submitted its second BUR on 3 May 2019 as a stand-alone update report. The submission was made more than two years after the submission of the first BUR.

7. During the technical analysis, the Party clarified that the reason for the delayed submission was a reliance on international consultations, which stems from weak local capacities to perform reporting tasks and long tendering procedures.

8. The technical analysis of the BUR took place from 2 to 6 September 2019 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: Daniel Bretscher (Switzerland), Adelino Ricardo Jacintho Esparta (Brazil), Ngozi Eze (Nigeria), Olga Gavrilova (Estonia), Stephen King'uyu (former member of the Consultative Group of Experts from Kenya), Alyssa Ng (Singapore), Vishwa Bandhu Pant (India), David Glen Thistlethwaite (United Kingdom of Great Britain and Northern Ireland), Vute Wangwacharakul (former member of the Consultative Group of Experts from Thailand) and Oscar Zarzo Fuertes (Germany). Mr. Wangwacharakul and Mr. Zarzo Fuertes were the co-leads. The technical analysis was coordinated by Anna Sikharulidze and Gopal Raj Joshi (secretariat).

9. During the technical analysis, in addition to the written exchange, through the secretariat, to provide technical clarifications on the information reported in the BUR, the TTE and Montenegro 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 Montenegro's second BUR, the TTE prepared and shared a draft

[1] The consultation was conducted via teleconferencing.

summary report with Montenegro on 25 November 2019 for its review and comment. Montenegro, in turn, provided its feedback on the draft summary report on 21 January 2020.

10. The TTE responded to and incorporated Montenegro's comments referred to in paragraph 9 above and finalized the summary report in consultation with the Party on 21 January 2020.

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 Montenegro'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 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.

15. The current TTE noted improvements in reporting in the Party's second BUR compared with that in the first BUR. Information on institutional arrangements, GHG inventories, mitigation actions and their effects reported in the second BUR demonstrates that the Party has taken into consideration the areas for enhancing transparency noted by the previous TTE in the summary report on the technical analysis of the Party's first BUR.

16. Regarding the areas for enhancing transparency noted by the previous TTE in the summary report on the technical analysis of the first BUR that were not addressed in the second BUR, Montenegro identified them as areas for enhancing national capacity.

C. Technical analysis of the information reported

17. 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 focus of the technical analysis was on the transparency of the information reported in the BUR.

18. 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.

19. 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

20. 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.

21. In its second BUR, Montenegro provided an update on its national circumstances, including a description of national and regional development priorities, objectives and circumstances, such as information on geography, climate, and economic and social characteristics. The Party reported that, during recent years, the migration of the population has increased from less developed areas of the northern region to the central and coastal regions, where living conditions are more favourable. The period between 1990 and 2015 was accompanied by major changes in the structure of economic activity. By 2015, industry had reduced its share in the gross value added to only 12.9 per cent, from 20.8 per cent in 1990; however, the tourism sector has increased rapidly in recent years. The main energy-consuming industrial processes in Montenegro are mining and the metal industry. The transport sector is characterized by an upward trend in the number of vehicles with an average age of 14.9 years. Owing to the depopulation of rural areas, forests are encroaching on pastures and meadows, which are turning into forest land. The increasing prevalence of forest fires is causing damage, in addition to the loss of wood and biomass. There has also been a reduction in the resistance in forests and in their biodiversity, and in the destruction of landscapes and soil structures, all of which have contributed to erosion and serious degradation of the land. These and other factors affect the Party's GHG emissions and its ability to deal with mitigation and adaptation to climate change.

22. In addition, Montenegro provided a summary of relevant information regarding its national circumstances in tabular and graphical format.

23. Montenegro described in its BUR the existing institutional arrangements for addressing climate change issues and preparing its NCs and BURs on a continuous basis and the roles and responsibilities of the agencies involved. In its BUR, the Party noted that the institutional set-up and capacities have shown some progress over the past few years. The description covers key aspects of the institutional arrangements, including the main organizations involved, such as the National Council for Sustainable Development, Climate Change and Integrated Coastal Area Management (chaired by the President of Montenegro) and MSDT, which is the main national entity responsible for national environmental and climate change policy and the national focal point for the UNFCCC, as well as climate change related laws and policies developed to meet the climate change requirements of the EU and the Party's national commitments to the UNFCCC. Montenegro is currently preparing its Law on Climate Change. Montenegro reported that the institutional arrangements for the national MRV system for GHG inventories assisted in the preparation of its NCs and BURs.

24. In paragraph 28 of the summary report on the technical analysis of Montenegro's first BUR, the previous TTE noted areas where the transparency of the reporting on institutional arrangements could be enhanced. The current TTE noted that Montenegro included relevant information in its second BUR and commends the Party for enhancing the transparency of its reporting.

25. Montenegro reported on its domestic MRV system. The Party is currently developing its national integrated climate change MRV system, which will cover four main areas: adaptation, GHG inventories, mitigation (projections and climate action analysis), and support and climate finance. In its BUR, Montenegro described its proposed institutional arrangements, information flows, QA/QC processes for data, and data exchange procedures for addressing climate change and supporting international reporting, including NCs and BURs. Further, Montenegro has developed an online MRV management portal. This portal is a coordination platform for managing information on stakeholders, engagement activities, climate action and impacts, and improvements to the MRV system. In the BUR, the Party also reported that the portal enhances communication between stakeholders and allows MSDT to better link data to policies. In the BUR Montenegro stated that the portal's management of improvements to the MRV system is vital to the preparation of NCs and BURs on a continuous basis. Information on the current status, progress and future actions of the integrated MRV system, including institutional arrangements, data flows, coordination, systems and tools, and stakeholder engagement, was also reported in the BUR.

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

26. As indicated in table 1 in annex I, Montenegro 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.

27. Montenegro submitted its second BUR in 2019, and the GHG inventory reported covers 1990–2015, which is consistent with the requirements for the reporting time frame. The BUR includes details on efforts made to improve the GHG inventory for 2014 and 2015 and the inventory update for 1990–2013.

28. GHG emissions and removals for the BUR covering the 1990–2015 inventories were estimated using mainly tier 1 methodology from the 2006 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. For some individual categories tier 2 methodology was used. For the energy and IPPU sectors, methodologies from the IPCC good practice guidance and the 2006 IPCC Guidelines were used. For the AFOLU sector, the IPCC good practice guidance, the IPCC good practice guidance for LULUCF and the 2006 IPCC Guidelines were used. Emissions from the waste sector were estimated using the 2006 IPCC Guidelines. The TTE commends the Party for using the 2006 IPCC Guidelines.

29. Montenegro reported that a combined tier 1 and tier 2 approach was used for the energy sector, including a combined use of default and national EFs. Given the availability of national data, it was possible to use the tier 2 approach for the aluminium industry in the IPPU sector, while the remaining categories in this sector were assessed using a tier 1 methodology. In the AFOLU sector, a tier 1 methodology was applied using AD from national statistics and the CORINE[2] land cover inventory. The TTE noted that information on the methodological approaches is presented in the national inventory report at an aggregated level, but that, for the individual subcategories, the descriptions of the methodologies are not clear, as they do not always specify the tier level used for a particular source or sink category. During the technical analysis, Montenegro explained that a disaggregated list of methodologies and approaches for individual source or sink categories was not readily available because estimates in some categories, particularly in the IPPU and AFOLU sectors, are compiled by external consultants. Montenegro stated that it plans to provide such a list in future reports. The TTE noted that providing information on the

[2] CORINE is a European programme for monitoring the Earth, in which data are collected by observation satellites and combined with observation data from sensor networks on the Earth's surface. Detailed information is available at https://land.copernicus.eu/.

methodologies and tiers used for specific source and sink categories could facilitate a better understanding of the methodological approaches used.

30. Information on the Party's total GHG emissions by gas for 2015 is outlined in table 1 in Gg CO_2 eq. It shows a decrease in total net emissions of 74 per cent since 1990 (3,241 Gg CO_2 eq).

Table 1
Greenhouse gas emissions and removals by gas for Montenegro for 2015

Gas	*GHG emissions (Gg CO_2 eq)*	*Change (%) 1990–2015*
CO_2 (including removals)	77	–92
CO_2 (excluding removals)	2 440	0
CH_4	597	–32
N_2O	120	–33
HFCs[a]	94	4 986
PFCs	240	–90
SF_6	2	141
Total (including removals)	**1 131**	**–74**
Total (excluding removals)	**3 494**	**–41**

[a] The starting year for HFCs is 2005.

31. Other emissions, including NO_X, CO, NMVOCs and SO_X, were not reported in the BUR. During the technical analysis, the Party clarified that the time series for NO_X, CO, NMVOCs and SO_X covering 1990–2011 was reported under the Convention on Long-range Transboundary Air Pollution in 2013.

32. Montenegro listed source and sink categories reported as "NE" or "NO" in table 9 of the BUR. While notation keys were reported, the reasons why a source or sink category could not be estimated (e.g. 1.A.2.i mining and quarrying, 1.A.3.c railways, 2.F.1.b mobile air conditioning and 3.B.1.b land converted to forest land) were unclear. In addition, notation keys were not always applied correctly, for example for marine bunker emissions, which, as the Party clarified during the technical analysis, were included under transport sector emissions. The TTE noted that the consistent and transparent use of notation keys, for example by properly applying the notation keys when emissions are included elsewhere, such as for marine bunkers, providing clarifications on the use of notation keys at a more disaggregated category level and providing information on the reasons why it was not possible to report numerical data for categories reported as "NE", could facilitate a better understanding of the information reported in the BUR.

33. Montenegro 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. In particular, the tables included in annex 3A.2 contain a more detailed level of disaggregation of sectors and subsectors compared with the information reported in the BUR and include information on annual changes in carbon stocks per carbon pool and other parameters, which was not reported in the BUR. Concerning the sectoral reporting tables annexed to the Revised 1996 IPCC Guidelines, the level of disaggregation by sector and subsector presented in the BUR is comparable for all sectors except for emissions from LULUCF. During the technical analysis, Montenegro explained that it had difficulty in reporting emissions from LULUCF owing mainly to a lack of sufficiently experienced staff in public institutions. Furthermore, data are only available from one forest inventory for 2013, which restricts time-series assessments. The TTE noted that providing information that is comparable in terms of disaggregation and level of detail to that in the tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF could facilitate a better understanding of the information reported.

34. The shares of emissions that different sectors contributed to the total GHG emissions excluding the category land (3.B) as calculated by the TTE using information in the BUR in 2015 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector for Montenegro for 2015

Sector	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*Change (%) 1990–2015*
Energy	2 528	72	5
AFOLU	–2 012		146
Livestock (category 3.A)	292	8	–52
Land (category 3.B)	–2 363	NA	54
Aggregate sources and non-CO_2 emissions sources on land (category 3.C)	59	2	–46
IPPU	411	12	–84
Waste	203	6	13

[a] Share of total without the category land (3.B).

35. Montenegro reported information on its use of GWP values consistent with those provided by the IPCC in its Fourth Assessment Report based on the effects over a 100-year time-horizon of GHGs.

36. For the energy sector, information was reported in tables 10–21 of the BUR. Some sources were reported as "NO" or "NE". Emissions were calculated using a combined tier 1 and tier 2 approach from the 2006 IPCC Guidelines. This methodology includes a combined use of default and national EFs as provided in tables 14–18 of the BUR. However, the calculation methods and the EFs used for estimating emissions for specific categories were not clearly presented in the BUR. During the technical analysis, the Party clarified that it was unable to provide more detailed reporting owing to various constraints, mainly a lack of sufficiently experienced staff in public institutions and some data being assessed by external consultants. The TTE noted that reporting emissions from the energy sector in more detail and in a more structured way could enable a better understanding of the information reported.

37. For IPPU emissions, the most important source is category 2.C.3 aluminium production. Disaggregated information on HFCs and PFCs on gas-by-gas basis was not provided in the BUR. During the technical analysis, Montenegro clarified that it experienced difficulty in assessing the full time series of AD for fluorinated gases, and that it lacks experience and sufficient knowledge in this field. Montenegro indicated that it intends to update its reporting in this area in future reports. The TTE noted that providing estimates of emissions of HFCs and PFCs and indicating the constraints that the Party faces when estimating these emissions could facilitate a better understanding of the information reported.

38. For the AFOLU sector, the net removals fluctuated between 531 Gg CO_2 eq in 2007 and 2,673 Gg CO_2 eq in 1998. In its BUR, Montenegro reported that the high level of sinks results from the vast forest coverage in the country. The key category in the AFOLU sector is enteric fermentation. Montenegro reported in its BUR that not all emissions from agriculture were estimated. This concerns mainly emissions from manure management and field burning of agricultural residues. The BUR clarifies that this is mainly the result of incomplete statistical data.

39. For the waste sector, CH_4 from solid waste disposal sites is the most relevant emissions source. The TTE noted that, in terms of methodological descriptions in the BUR, the waste sector was reported on in the most detail in Montenegro's GHG inventory, and the TTE commends the Party for this detailed reporting.

40. The national inventory report provides an update to all GHG inventories reported in previous NCs and BURs. The update was carried out for all years 1990–2013 reported in the first BUR using the methodologies contained in the 2006 IPCC Guidelines owing to improvements in AD and other parameters, thus generating a consistent 26-year time series (for 1990–2015). The previous inventory was also prepared using the 2006 IPCC Guidelines.

41. Montenegro described in its BUR the institutional framework for the preparation of its 2015 GHG inventory. The Environment Law and the Air Protection Law provide a legal framework for climate change monitoring and reporting in Montenegro. The legal framework falls within the scope of MSDT. The Environmental Protection Agency is entrusted with keeping and updating the GHG inventory, and with data management and storage. The GHG inventory is part of the environmental database. The Rulebook on the Methodology and Contents of the GHG Inventory was adopted under the Air Protection Law. The Rulebook stipulates that the GHG inventory be developed in accordance with the UNFCCC reporting guidelines on BURs and the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties and relevant IPCC guidelines.

42. Montenegro reported that a key category analysis was performed for the level of and trend in emissions. The analysis of key sources and completeness of the inventory was carried out in accordance with the methodology under the IPCC good practice guidance, using a tier 1 approach; however, it was not clear which categories were selected using a trend analysis and which were selected using a level analysis. The most important categories as reported in the BUR are 2.C.3 PFC emissions from aluminium production, 1.A.1 CO_2 emissions from solid fuel combustion (lignite) for electricity generation and 1.A.3.b CO_2 emissions from fuel combustion in road transportation. During the technical analysis, Montenegro clarified that the IPCC inventory software used for key category analysis would provide a more disaggregated table than currently used in the BUR and that such a table will be made available in future reports. The TTE noted that reporting the analysis of key categories at a more detailed and more disaggregated level could facilitate a better understanding of the importance of individual source and sink categories.

43. The BUR provides information on QA/QC measures for the GHG inventory. The QA/QC plan for the GHG inventory is set out in the Rulebook on the Methodology and Contents of the GHG Inventory. It stipulates the QA/QC procedures for data, the method for archiving the inventory, and the accompanying resources and documentation. During the technical analysis, the TTE noted some inconsistencies in the reporting of information in the BUR on the GHG inventory. Examples of inconsistent reporting are (1) the value for emissions from industrial processes in 1998 in table 5 of the BUR; (2) the range of total GHG emissions on page 51 of the BUR; (3) the level of emissions of PFCs in 2013 in figure 14 of the BUR; and (4) the reporting of key categories on page 59 of the BUR. During the technical analysis, the Party acknowledged these inconsistencies and clarified that the appropriate QA/QC procedures were not carried out owing to a shortage in human resources. The TTE noted that refining the QA/QC procedures and rectifying these inconsistencies could facilitate a better understanding of the information provided in the BUR.

44. Montenegro reported information on CO_2 fuel combustion using both the sectoral and the reference approach and reported the differences between the two approaches (0.18 and 4.23 per cent for 1990 and 2015, respectively).

45. Montenegro reported information on GHG emissions from international aviation, but emissions from marine bunkers were not provided, although AD and EFs were available. During the technical analysis, Montenegro clarified that GHG emissions from marine bunker fuels were not reported separately but were included under transport sector emissions. Montenegro further clarified that it plans to report emissions for marine bunker fuels separately in its next submission. The TTE noted that reporting marine bunker emissions separately from other transport sector emissions in the BUR could facilitate a better understanding of domestic and international emissions in the transport sector.

46. Montenegro reported information on the uncertainty assessment (level) of its national GHG inventory. The uncertainty analysis was based on a tier 1 approach and covers most source categories and all direct GHGs. The assessment was based mainly on the methodologies and default values as outlined in the 2006 IPCC Guidelines and the IPCC good practice guidance. Uncertainties were not estimated for some source and sink categories, and the overall uncertainties on a sectoral level and for the total GHG inventory were not provided in the BUR. The TTE noted that reporting aggregated uncertainty estimates could facilitate a better understanding of the overall uncertainty of Montenegro's estimates of GHG emissions.

47. The TTE noted that the transparency of the information reported on GHG inventories could be enhanced by addressing the areas noted in paragraphs 29, 32, 33, 36, 37, 42, 43, 45 and 46 above.

48. In paragraphs 36, 38 and 40 of the summary report on the technical analysis of Montenegro's first BUR, the TTE noted where the transparency of reporting on (1) AD in the energy sector, (2) emissions from international aviation and marine bunker fuels and (3) assumptions used to estimate uncertainties could be further enhanced. The TTE noted that Montenegro made efforts to take into consideration these areas for improvement, as illustrated in the energy chapter and in the uncertainty subchapters for the different sectors in Montenegro's second BUR, and 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, Montenegro 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.

50. The information reported provides an overview of the Party's mitigation actions and their effects. In its BUR, which includes information on national context and changes thereto, Montenegro framed its national mitigation planning and actions in the context of its national climate change strategy by 2030 and a technical document for its intended nationally determined contribution. Montenegro's pledge under the Paris Agreement is to reduce its GHG emissions by at least 30 per cent by 2030 compared with 1990. Most of the mitigation actions are in the energy sector. Montenegro reported that it aims to reduce energy consumption by 9 per cent by 2018 compared with the average consumption between 2002 and 2006, and to achieve a 33 per cent share in renewable energy consumption by 2020. Montenegro reported that it is a candidate country for accession to the EU. As such, it has transposed the EU climate and energy package into its domestic legislation and policies, including identifying mitigation actions that would become part of the European Union Emissions Trading System once Montenegro becomes an EU member State.

51. The Party reported a summary of its mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. A total of 27 mitigation actions were reported in annex 1 to the BUR. Information on the plan to publish guidelines on the competitive selection and support for renewable energy through auctions, the commencement of trading activities of the Montenegrin power exchange and the project entitled "Sustainable Urban Mobility in South-East European Countries – Cities of South-East Europe Together towards Sustainable and Energy Efficient Urban Transport" was reported in the BUR, but not listed in the tables in annex 1 to the BUR. During the technical analysis, Montenegro clarified that those mitigation actions either began in 2019 after the submission of the BUR or would only start in 2020, and thus the Party had limited information to report in tabular format.

52. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Montenegro reported the names and descriptions of mitigation actions or groups of actions, including information on the nature of the actions, coverage (sectors and gases) and progress indicators. The information was reported in individual tables for each mitigation action. Information on quantitative goals was not clearly reported in the BUR for some mitigation actions (such as mitigation actions 13–24 contained in annex 1 to the BUR). During the technical analysis, Montenegro clarified that it lacked the AD to provide this information. The TTE noted that reporting the constraints on deriving quantitative goals for specific mitigation actions could facilitate a better understanding of the information reported.

53. Consistently with decision 2/CP.17, annex III, paragraph 12(b–d), Montenegro reported information on the mitigation actions in the energy, IPPU, waste and AFOLU sectors, including the objectives and time frames. Information on the steps envisaged was reported for all mitigation actions, and information on the steps taken to implement the actions was reported for most of the actions. The information reported includes the methodologies used for estimating the results achieved for all mitigation actions. Details on the underlying assumptions for all mitigation actions in all sectors were not clearly reported

in the BUR. During the technical analysis, the Party clarified that assumptions could not be reported owing to a lack of AD and a weak MRV system hindering the proper exchange of information. The TTE noted that reporting the assumptions used to calculate the emission reductions for specific mitigation actions could facilitate a better understanding of the expected and achieved results of actions.

54. The Party reported all actions that began in or after 2018, which means that progress in the implementation of the mitigation actions was not reported. However, Montenegro reported on policies that have been adopted to support the actions. Details on emission reductions achieved were not reported for mitigation actions (owing to the start date of 2018) and expected emission reductions were not reported for a number of measures across all sectors. During the technical analysis, the Party clarified that information on the results achieved could have been reported, since these are available from the related project documentation or from the groundwork. However, the energy savings resulting from these actions would have to be checked, as they were calculated by various consultants on the basis of measurements or assumptions, and probably not using the same input data, such as grid EFs for electricity generation. With regard to the expected emission reductions for some measures, this information could not be reported owing to a lack of AD and incomplete project documentation. The TTE noted that including information on the results achieved, such as estimated emission reductions, and the specific constraints encountered while reporting this information for individual mitigation actions could enable a better understanding of the information reported.

55. Mitigation actions in the energy sector are mainly in the areas of improvements in energy efficiency in energy generation and buildings, as well as the promotion of renewable energy and its use in transportation. Information on the steps taken to implement the actions was not reported for the establishment of energy management in the industry sectors. During the technical analysis, Montenegro clarified that, although regulations for this action had been adopted, they were yet to be consistently implemented in industrial facilities. The TTE noted that including information on the challenges to implementing the relevant mitigation actions could facilitate a better understanding of the information reported.

56. Montenegro expects to achieve emission reductions from additional installed capacity of different renewable power plants, with the highest reductions expected to be achieved by constructing new hydropower plants, with 337.3 kt CO_2. Other significant emission reductions reported were 150 kt CO_2 in total by 2020 by improving energy efficiency in new buildings, 12 kt CO_2 by improving street lighting, and 500 kt CO_2 in total by 2033 owing to energy labelling and eco-design requirements. In addition, the Party reported co-benefits such as increase in employment, reduction in environmental pollution and improved quality of life.

57. The mitigation actions in the IPPU sector are mainly in the area of using the best available technologies in the aluminium plant in Podgorica and in other metal processing facilities. By employing the best available technologies in the aluminium plant in Podgorica, the Party expects to reduce emissions by at least 500 kt CO_2 eq by 2020 compared with the 2007 level. The reported co-benefits include reduction in environmental pollution.

58. In the AFOLU sector, the mitigation actions are mainly in the areas of supporting organic agricultural production, supporting manure management, improving forest management and increasing afforestation. The methodology used for estimating the results achieved for the action of providing support for organic agricultural production was not reported. During the technical analysis, the Party clarified that it had not established a methodology for this mitigation action owing to a lack of input data. The TTE noted that reporting the constraints on establishing methodologies for this specific mitigation action could facilitate a better understanding of the information reported.

59. The Party expects its mitigation actions for the AFOLU sector to reduce the country's environmental impacts, energy consumption and fertilizer use, increase carbon sinks and enhance biodiversity, with improved forest management and increased afforestation enhancing carbon sinks by more than 200 kt CO_2. Other co-benefits include economic gains.

60. The mitigation actions in the waste sector are mainly in the areas of reducing the share of biowaste and encouraging sustainable production and consumption. The Party expects its waste sector mitigation actions to reduce the country's environmental impact. The Party

reported co-benefits as the results achieved, including a more efficient use of resources and more economically competitive production as a result of fewer resources being consumed.

61. Montenegro did not report information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. During the technical analysis, the Party clarified that although the UNFCCC CDM registry includes two CDM projects for Montenegro, these projects were ultimately not implemented, and the country has no plans to participate in international market mechanisms, including the CDM. The TTE noted that providing updated information on the Party's participation in international market mechanisms could enable a better understanding of the information reported.

62. Montenegro reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Montenegro has in place a domestic MRV system for mitigation actions, although this is not integrated in the national MRV system. Montenegro reported that MSDT coordinates the preparation of emission projections from agencies and data suppliers with the National Council for Sustainable Development, Climate Change and Integrated Coastal Zone Management coordinating stakeholder management. Montenegro reported that it has not yet put in place a system or designated a body responsible for GHG emission projections and carbon removal analyses for assessing potential emission reductions, for adopting policies and measures for cost-effective GHG emission reductions, or for developing the relevant performance monitoring indicators. During the technical analysis, the Party clarified that, under the Law on Climate Change, a legal entity will be authorized by MSDT to perform projections of GHG emissions. This legal entity will be experienced in the preparation of GHG emission projections and be appointed through a public call for tenders, issued in accordance with the law governing public procurement. Training and the availability of relevant systems and tools will be ensured to strengthen the capacities of MSDT and the Agency for Nature and Environment Protection to prepare projections of GHG emissions and removals, and undertake mitigation analyses.

63. The TTE noted that the transparency of the information reported on mitigation actions and their effects could be enhanced by addressing the areas noted in paragraphs 52, 53, 54, 55, 58 and 61 above.

64. In paragraphs 53–55 of the summary report on the technical analysis of Montenegro's first BUR, the previous TTE noted where the transparency of reporting on methodologies and assumptions, information on steps taken or envisaged and emission reductions could be enhanced. The current TTE noted that Montenegro took into consideration these areas for improvement for some mitigation actions listed in annex 1 to the 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

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

66. Montenegro reported information on constraints and gaps, and related financial, technical and capacity-building needs, in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR, Montenegro identified the main constraints as being the lack of a permanent and binding system for the preparation of NCs and BURs and the lack of a system to sustainably monitor and support decision makers with regard to GHG trends, progress and options for mitigation actions. The absence of a national system for MRV also hinders the development of effective systems for coordinating and registering nationally appropriate mitigation actions, thus further limiting opportunities for Montenegro to seek project funding. Furthermore, given developments in processes and agreements under the Convention, the Party needs to constantly improve its capacity, expertise and skills to meet its national obligations. Montenegro also encounters technological, financial and capacity constraints when implementing its identified actions.

67. Montenegro reported that its financial, technical and capacity-building needs are primarily in the areas of developing an MRV system for GHG trends and mitigation actions,

and implementing mitigation actions. Further details on support requirements by type and area of support were presented in chapters 3 and 5 of the BUR. In the case of support needed for implementing mitigation actions, the TTE noted that Montenegro clearly presented information on the needs for implementing mitigation actions in energy generation and energy efficiency; however, for other mitigation actions (such as agriculture, forestry, the waste sector and industrial plants), information on particular needs was not provided. During the technical analysis, Montenegro clarified that, in carrying out related tasks, it was predominantly hindered by a lack of human capacity. The Party intends to increase its human resources, and these employees will perform mitigation analyses after receiving the necessary training. The TTE noted that the Party clarifying such constraints and the measures planned to address them in the BUR could facilitate a better understanding of the information reported.

68. Montenegro reported information on financial resources, technology transfer, capacity-building and technical support received in accordance with decision 2/CP.17, annex III, paragraph 15. In its BUR, Montenegro reported that, between 2006 and 2014, it received official development assistance for climate change amounting to more than EUR 490 million from a number of partners. The EU, along with a variety of its programmes, was the main source of donations; together, they contributed approximately 60 per cent of Montenegro's total project funding. The United Nations and the Global Environment Facility together contributed approximately 30 per cent of the Party's total funding through programmes and donations. Montenegro reported that a review of its climate change projects and investment to date shows that approximately EUR 119.6 million was spent on mitigation, adaptation and mixed projects, of which around EUR 114.2 million in loan funds and EUR 5.4 million in grant funds. Although information on the financial support received was reported, the TTE noted that the information was not updated from Montenegro's first BUR. Also, specific information on support related to the preparation of the current BUR was not reported. Montenegro also reported on technology needs; however specific information on technology support received was not provided. During the technical analysis, Montenegro clarified that the information that was reported in the BUR was provided from the Directorate for EU Integration and International Cooperation of MSDT. The TTE noted that the Party reporting updated information on financial, capacity-building, technical and technology support received could facilitate a better understanding of the information reported.

69. Montenegro 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, Montenegro reported that its first technology needs assessment was conducted in 2012. The assessment was the basis for the nationally determined technology needs reported in the BUR.

70. 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 67–68 above.

5. Any other information

71. Montenegro reported some information on its adaptation policies, legal framework and activities that may lead to GHG emission reductions, without providing estimations of such reductions. Montenegro also reported information on mitigation related to gender equality. It noted that a gender disaggregation of climate change data could contribute to developing policies and actions that promote women's roles in mitigation activities.

D. Identification of capacity-building needs

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

(a) Enhancing the national capacity in general data management, reporting (structure of the report and information provided) and archiving as well as in QA/QC and cross-cutting issues (reporting of recalculations, methodologies used, notation keys, key category analysis, uncertainties) in order to better meet the requirements of the UNFCCC reporting guidelines on BURs and the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties;

(b) Enhancing the national capacity to use integrated information technology tools and models for coherent assessments of emissions of GHGs and air pollutants in order to streamline processes and facilitate the compilation of inventories by:

(i) Building institutional capacity and raising awareness among relevant governmental institutions to secure sufficient resources for general inventory preparation procedures in public institutions (GHGs and air pollutants);

(ii) Consolidating the compilation of inventories at a single entity;

(iii) Reducing dependency on external consultants;

(c) Capacity-building in assessing and reporting GHG sinks and sources in the LULUCF sector:

(i) Assessing and reporting information on carbon stocks and carbon stock changes for the different land-use categories of living biomass, dead organic matter and soils;

(ii) Establishing consistent time series (e.g. updating the national forestry inventory);

(iii) Reporting area estimates for land use and land-use change (e.g. land transition matrix, "area of X land converted to Y land");

(d) Enhancing national capacity to estimate emissions from the agriculture sector (manure management, field burning of agricultural residues);

(e) Enhancing national capacity to report information in a more structured format (comparable to IPCC tables or common reporting format tables) in order to better meet the requirements of the UNFCCC reporting guidelines on BURs and the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties;

(f) Enhancing national capacity to assess and report consistent time series for HFCs, PFCs and SF_6 on a gas-by-gas basis and in units of mass (e.g. anode effects in the aluminium industry);

(g) Enhancing national capacity to collect AD and quantify emissions for the categories reported as "NE" (disaggregated reporting in the energy, IPPU and AFOLU sectors);

(h) Enhancing technical capacities to estimate quantitative goals of individual mitigation actions;

(i) Developing methodologies and methodological assumptions applied to estimate emission reductions for individual mitigation actions;

(j) Developing processes to track the progress of implementation of individual mitigation actions, including steps taken or envisaged;

(k) Developing technical capacities to obtain, record, track and report AD for individual mitigation actions;

(l) Enhancing institutional capacities to improve monitoring and reporting on sector-specific mitigation actions;

(m) Enhancing national capacity to identify and report support needed for the implementation of mitigation actions in agriculture, forestry, the waste sector and industrial plants;

(n) Enhancing national capacity to track and report information related to financial resources, technology transfer, capacity-building and technical support provided by multilateral and bilateral agencies on a continuous basis, including support received for the preparation of the BUR;

(o) Enhancing technical and institutional capacities to facilitate the timely planning, preparation and submission of BURs;

(p) Enhancing technical capacity to develop projections and use software solutions for this purpose at the country's Agency for Nature and Environment Protection.

73. The TTE noted that, in addition to those identified during the technical analysis, Montenegro reported several capacity-building needs on pages 127, 151, 152 and 168 of its BUR, covering the following areas:

(a) Coordination, systems and tools for GHG inventories;

(b) Stakeholder engagement for GHG inventories;

(c) Energy generation, energy efficiency and renewable energy sources;

(d) Mitigation actions and their effects.

74. In paragraphs 70 and 73 of the summary report on the technical analysis of Montenegro's first BUR, the previous TTE, in consultation with Montenegro, identified and prioritized capacity-building needs. In its second BUR, Montenegro reflected that some of those capacity-building needs had been addressed.

III. Conclusions

75. The TTE conducted a technical analysis of the information reported in the second BUR of Montenegro 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; the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol; mitigation actions and their effects, including associated methodologies and assumptions; constraints and gaps and related financial, technical and capacity-building needs, including a description of support needed and received; domestic MRV; and adaptation measures and gender equality. The TTE concluded that the information analysed is mostly transparent.

76. Montenegro reported information on the institutional arrangements relevant to the preparation of its BURs. It has taken significant steps to create institutional arrangements that allow for the sustainable preparation of its BURs. These include organizational improvements, development of a national MRV system and knowledge-sharing procedures to facilitate sectoral information transfer.

77. In its second BUR, submitted in 2019, Montenegro reported information on its national GHG inventories for 1990–2015. This included GHG emissions and removals of CO_2, CH_4 and N_2O for all relevant sources and sinks. Estimates of fluorinated gases were also provided in the BUR. The inventory was developed on the basis of the 2006 IPCC Guidelines, although in some cases the IPCC good practice guidance or the IPCC good practice guidance for LULUCF was used. The total GHG emissions for 1990 and 2015 were reported as 5,903 and 3,494 CO_2 eq (excluding removals) and 4,372 and 1,131 CO_2 eq (including removals), respectively. The key category analysis identified categories 2.C.3 PFC emissions from aluminium production, 1.A.1 CO_2 emissions from solid fuel combustion (lignite) for electricity generation and 1.A.3.b CO_2 emissions from fuel combustion in road transportation as the most important categories.

78. Montenegro reported information on mitigation actions and their effects, including how its national mitigation planning and actions are framed in the context of its national climate change strategy by 2030 and a technical document for its intended nationally determined contribution. Montenegro reported actions that are planned, ongoing or implemented, which occur within the energy, IPPU, AFOLU and waste sectors. The key mitigation actions are improving energy efficiency in energy generation and buildings, promoting renewable energy and its utilization in transportation, introducing the best available technologies in the aluminium industry, managing the agricultural industry, improving forest management and reducing the amount of waste produced. Among these, the construction of new hydroelectric power plants by 2025 is expected to bring about the largest emission reduction, of 337.2 kt CO_2 eq/year. Co-benefits were also outlined by the Party and

included an increase in the country's employment rate, improved quality of life and reduction in air pollution.

79. Montenegro reported information on key constraints, gaps and related needs. The BUR identifies the needs related to the sustainable preparation and reporting of its BURs. During the technical analysis, Montenegro provided additional information on key challenges and needs, such as a need for an efficient information exchange system and related technical and institutional capacity-building needs. Information on support received and needed was reported, including the information on technology needs and support.

80. The TTE, in consultation with Montenegro, identified the 16 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. Montenegro further identified the needs listed in paragraph 72(a–o) above as high priority, and the need listed in paragraph 72(p) as medium priority.

Annex I

Extent of the information reported by Montenegro 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 Montenegro

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	Montenegro submitted its second BUR in 2019; the GHG inventories reported are for 1990–2015.
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	Montenegro used a combination of the IPCC good practice guidance, the IPCC good practice guidance for LULUCF and 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.	Yes	
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	Comparable information was not reported.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was reported.
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	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).	Yes	The GHG inventory reported covers 1990–2015.
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	Partly	Comparable information for CO_2, CH_4 and N_2O was partly reported in tables 5–53 of the

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	controlled by the Montreal Protocol and greenhouse gas precursors);		BUR. Emissions of CO, NO_X, NMVOCs and SO_X were not reported.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Partly	HFC and PFC emissions were not reported on a gas-by-gas basis or in units of mass.
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	Yes	
Decision 17/CP.8, annex, paragraph 12	Non-Annex I Parties are also encouraged, to the extent possible, to undertake any key source analysis as indicated in the IPCC good practice guidance to assist in developing inventories that better reflect their national circumstances.	Yes	
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.	Yes	
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:	Yes	
	(a) HFCs;	Yes	
	(b) PFCs;	Yes	
	(c) SF_6.	Yes	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) CO;	No	
	(b) NO_X;	No	
	(c) NMVOCs.	No	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as SO_X, and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties.	No	
Decision 17/CP.8, annex, paragraph 18	Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO_2 fuel combustion emissions using both the sectoral and the reference approach and to explain any large differences between the two approaches.	Yes	
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories:		
	(a) International aviation;	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	(b) Marine bunker fuels.	No	
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 Second Assessment Report based on the effects of GHGs over a 100-year time-horizon.	NA	The Party used the GWP provided in the IPCC Fourth Assessment Report.
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	Montenegro used the IPCC good practice guidance, the IPCC good practice guidance for LULUCF and the 2006 IPCC Guidelines. Tier 1 and 2 methodologies were used.
	(b) Explanation of the sources of EFs;	Yes	Montenegro used the 2006 IPCC Guidelines as well as country-specific EFs.
	(c) Explanation of the sources of AD;	Yes	Montenegro used mainly national statistical data.
	(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	Emissions of CO, NO_X, NMVOCs and SO_X were not reported. HFC and PFC emissions were not reported on a gas-by-gas basis or in units of mass.
	Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying		

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
Decision 17/CP.8, annex, paragraph 24	assumptions, and to describe the methodologies used, if any, for estimating these uncertainties:		
	(a) Level of uncertainty associated with inventory data;	Partly	Montenegro provided uncertainty estimates for AD and EFs for all major source and sink categories; however, the overall uncertainties on a sectoral level or for the total GHG inventory were not provided.
	(b) Underlying assumptions;	Yes	
	(c) Methodologies used, if any, for estimating these uncertainties.	Yes	

Note: The parts of the UNFCCC reporting guidelines on BURs on reporting information on GHG emissions by sources and removals by sinks in BURs are contained in decision 2/CP.17, 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 Montenegro

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 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 quantitative goals was not reported for some mitigation actions.
	(b) Information on:		
	(i) Methodologies;	Partly	Information on methodologies was not reported for some mitigation actions.
	(ii) Assumptions;	Partly	Information on methodological assumptions was not reported for most mitigation actions.
	(c) Information on:		
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Partly	Information on the steps taken was not reported for some mitigation actions.

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Partly	Information on the implementation of the underlying steps taken was not reported for some mitigation actions.
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Partly	Information on emission reductions was not reported for most mitigation actions, but information on co-benefits was reported for all mitigation actions.
	(e) Information on international market mechanisms.	No	
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, 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 Montenegro

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	
	(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;	Yes	The information reported was the same as in the previous BUR.
	(b) Information on technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Partly	Information on support received for the preparation of the second BUR was not reported.
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		
	(a) Nationally determined technology needs;	Yes	
	(b) Technology support received.	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

Reference documents

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

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