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# Technical analysis of the second biennial update report of Colombia submitted on 28 December 2018

## 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 Colombia, 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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# Abbreviations and acronyms

| | |
|---|---|
| AD | activity data |
| AFOLU | agriculture, forestry and other land use |
| BUR | biennial update report |
| CDM | clean development mechanism |
| CGE | Consultative Group of Experts |
| $CH_4$ | methane |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2$ eq | carbon dioxide equivalent |
| EF | emission factor |
| GHG | greenhouse gas |
| HFC | hydrofluorocarbon |
| ICA | international consultation and analysis |
| IDEAM | Institute of Hydrology, Meteorology and Environmental Studies |
| IE | included elsewhere |
| 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* |
| LULUCF | land use, land-use change and forestry |
| MRV | measurement, reporting and verification |
| NA | not applicable |
| NAMA | nationally appropriate mitigation action |
| NC | national communication |
| NE | not estimated |
| NIR | national inventory report |
| 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 |
| REDD+ | reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70) |
| Revised 1996 IPCC Guidelines | *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* |
| $SF_6$ | sulfur hexafluoride |
| TTE | team of technical experts |
| UNDP | United Nations Development Programme |
| 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. Decision 14/CP.19, paragraph 7, outlines that developing country Parties seeking to obtain and receive payments for results-based actions can submit relevant information and data through the BUR in the form of a technical annex as per decision 2/CP.17, annex III, paragraph 19. Decision 14/CP.19, paragraph 8, outlines that the submission of the technical annex is voluntary and in the context of results-based payments. As mandated by decision 14/CP.19, paragraphs 10–14, the technical annex submitted by Colombia has been subject to technical analysis by two LULUCF experts as part of the technical analysis of the Party's BUR.

5. Colombia submitted its first BUR on 11 December 2015, which was analysed by a TTE in the first round of technical analysis of BURs from non-Annex I Parties, conducted from 29 February to 4 March 2016. After the publication of its summary report, Colombia participated in the second workshop for the facilitative sharing of views, convened in Marrakech on 10 November 2016.

6. This summary report presents the results of the technical analysis of the second BUR of Colombia, 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. The technical report capturing the results of the technical analysis of the technical annex voluntarily submitted by Colombia in the context of results-based payments in accordance with paragraphs 7 and 8 of decision 14/CP.19, referred to in paragraph 4 above, is contained in document FCCC/SBI/ICA/2019/TATR.2/COL.

## B. Process overview

7. In accordance with the mandate referred to in paragraph 2 above, Colombia submitted its second BUR on 28 December 2018 as a stand-alone update report. The submission was made more than two years after the submission of the first BUR.

8. During the technical analysis, the Party clarified that the delay in submission resulted from administrative issues and Colombia's efforts to submit a comprehensive BUR of the highest quality.

9. The technical analysis of the BUR took place from 27 to 31 May 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: Maria Ana Casartelli (Argentina), Carlos Fuller (former member of the CGE from Belize), Renata Patricia Soares Grisoli (Brazil), Agustín José Inthamoussu (Uruguay), Naofumi Kosaka (Japan), Kakhaberi Mdivani (Georgia), Lilian Portillo (former member of the CGE from Paraguay), Marcelo Theoto Rocha (Brazil), Christoph Streissler (Austria) and Silke Christina

Wartmann (Germany). Mr. Rocha and Ms. Wartmann were the co-leads. The technical analysis was coordinated by Sohel Pasha, Nalin Srivastava and Pedro Torres (secretariat).

10. 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 Colombia 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 Colombia's second BUR, the TTE prepared and shared a draft summary report with Colombia on 15 August 2019 for its review and comment. Colombia, in turn, provided its feedback on the draft summary report on 24 October 2019.

11. The TTE responded to and incorporated Colombia's comments referred to in paragraph 10 above and finalized the summary report in consultation with the Party on 18 November 2019.

# II. Technical analysis of the biennial update report

## A. Scope of the technical analysis

12. 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).

13. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Colombia's BUR outlined in paragraph 12 above.

## B. Extent of the information reported

14. The elements of information referred to in paragraph 12(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.

15. 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 14 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.

16. The current TTE noted improvements in reporting in the Party's second BUR compared with that in 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

[1] The consultation was conducted via videoconferencing.

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.

## C. Technical analysis of the information reported

17. The technical analysis referred to in paragraph 12(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, the Party provided an update on its national circumstances, including a description of national and regional development priorities, objectives and circumstances, including information on features of geography, climate and economy that might affect the ability to deal with mitigating and adapting to climate change; information on its political and administrative profile, biodiversity, ecosystems, demographics, development, priorities regarding the United Nations Millennium Development Goals and Sustainable Development Goals, the sectors responsible for most of its emissions, and gender issues; and information regarding national circumstances and constraints on the specific needs and concerns arising from the adverse effects of climate change, as referred to in Article 4, paragraph 8, and, as appropriate, in Article 4, paragraphs 9 and 10, of the Convention.

22. Colombia transparently described in its second BUR the existing institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, such as the legal status and roles and responsibilities of the overall coordinating entity, the involvement and roles of other institutions, mechanisms for information and data exchange, the MRV system, QA/QC procedures, provisions for public consultation and other forms of stakeholder engagement, and future improvement plans. IDEAM, an agency of the Ministry of Environment and Sustainable Development, is responsible for the preparation of NCs and BURs and is supported by various ministries and departments, which provide specific information in their areas of responsibility (e.g. on mitigation actions and support). IDEAM is technically and financially supported by UNDP.

23. In paragraph 26 of the summary report on the technical analysis of Colombia's first BUR, the previous TTE noted that the transparency of reporting on institutional arrangements could be enhanced by describing in more detail the institutional arrangements, including how they enable the preparation of BURs, the support needed for the preparation of BURs on a continuous basis, and provisions for public consultation and other forms of stakeholder engagement. The current TTE noted that Colombia included relevant information in its second BUR and commends the Party for enhancing the transparency of its reporting.

24. Colombia reported on its newly established domestic MRV system. It is designed at the national level and covers four main areas: the BUR preparation process; the GHG

inventory system; mitigation, including the preparation of NAMAs; and MRV of climate finance.

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

25. As indicated in table 1 in annex I, Colombia 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.

26. Colombia submitted its second BUR in 2018, and the GHG inventory reported is for 1990–2014, which is consistent with the requirements for the reporting time frame.

27. Colombia submitted an NIR in conjunction with its second BUR. The relevant sections of the NIR were referenced in the BUR and the document was also made publicly available on the UNFCCC website.[2]

28. GHG emissions and removals for the BUR covering the 1990–2014 inventories were estimated using mainly tier 1 and 2 methodologies from the 2006 IPCC Guidelines for all sectors. The TTE commends the Party for using the more recent 2006 IPCC Guidelines.

29. With regard to the methodologies used, information was clearly reported, including the tier level used and sources of AD and EFs for each category, as detailed in paragraphs 36–40 below.

30. Information on the Party's total GHG emissions by gas for 2014 (including LULUCF) is outlined in table 1 in Gg $CO_2$ eq. It shows an increase in emissions of 2.4 per cent since 1990 (209,388.00 Gg $CO_2$ eq). Information on PFCs was not reported. As explained in the BUR, this was because of a lack of data.

Table 1
**Greenhouse gas emissions by gas of Colombia for 2014**

| *Gas* | *GHG emissions (Gg $CO_2$ eq) including LULUCF* | *Change (%) 1990–2014* |
|---|---|---|
| $CO_2$ | 144 317.00 | –10.7 |
| $CH_4$ | 45 123.00 | 56.1 |
| $N_2O$ | 22 827.00 | 21.5 |
| HFCs[a] | 1 891.00 | 2 206.1 |
| PFCs | NE | NA |
| $SF_6$ | 157.00 | 273.8 |
| **Total** | 214 315.00 | 2.4 |

[a] The base year for HFC emissions is 2001, when this gas was first reported.

31. Other emissions reported include 2,301 Gg $NO_X$, 3,823 Gg CO, 2,737 Gg NMVOCs and 9,145 Gg sulfur dioxide.

32. Colombia applied notation keys in tables where numerical data were not provided. The use of notation keys was consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. The TTE noted that Colombia used the notation key "IE" for many categories without providing transparent information as to where those emissions or removals were included (e.g. for categories 1.A.2.b, 3.B.1.b, 3.B.2.b, 3.B.3.b, 3.B.4.b, 3.C.7 and 4.A.2). The TTE also noted that HFC emissions from category 2.F.2 (product uses as substitutes for ozone-depleting substances – foam blowing agents) for the year 2014 were reported using the notation keys "NO" and "IE" in tables 2.11 and 2.19, respectively, of the BUR. During the technical analysis, Colombia clarified that the NIR includes the relevant explanation of the use of notation key "IE" and provided the additional information that some subcategories within category 4.A.2 (unmanaged waste disposal sites) were included in category 4.A.3 (uncategorized waste disposal sites) because the Party cannot currently

[2] https://unfccc.int/BURs.

disaggregate managed and unmanaged solid waste disposal sites. Colombia also clarified that the notation key for category 2.F.2 should be "NO", as reported in table 2.11 of the BUR, not "IE", as reported in table 2.19. Colombia explained that it is making an effort to ensure the correct use of notation keys and the inclusion of information on their use in future BUR submissions. The TTE noted that using notation keys correctly and consistently in the reporting tables and providing an explanation of their use in the BUR would facilitate a better understanding of the information reported.

33. Colombia reported comparable information addressing the tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF and the sectoral reporting tables annexed to the Revised 1996 IPCC Guidelines.

34. The shares of emissions that different sectors contributed to the total GHG emissions excluding the category land (3.B), as reported by the Party, in 2014 are reflected in table 2.

Table 2
**Shares of greenhouse gas emissions by sector of Colombia in 2014**

| *Sector* | *GHG emissions (Gg $CO_2$ eq)* | *Share[a] (%)* | *Change (%) 1990–2014* |
|---|---|---|---|
| Energy | 82 510.00 | 54.8 | 73.2 |
| AFOLU | 106 853.00 | | –29.3 |
| Livestock (3.A) | 22 823.00 | 15.2 | 21.4 |
| Land (3.B) | 63 700.00 | NA | –44.8 |
| Aggregate sources and non-$CO_2$ emissions sources on land (3.C) | 20 330.00 | 13.5 | 19.8 |
| Industrial processes and product use | 10 538.00 | 7.0 | 139.3 |
| Waste | 14 414.00 | 9.6 | 131.4 |

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

35. Colombia reported information on its use of global warming potential values consistent with those provided by the IPCC in its Second Assessment Report based on the effects over a 100-year time-horizon of GHGs.

36. For the energy sector, Colombia used tier 2 methods in the 2006 IPCC Guidelines together with country-specific EFs to estimate emissions for the two key categories fuel combustion activities (1.A) and fugitive emissions from fuels (solid fuel (1.B.1)), while using tier 1 methods for the key category oil and natural gas (1.B.2). The main source of AD is Colombia's national energy balance, with category-specific information being obtained, as needed, from other data sources, including the Colombian liquid fuel information system, sustainable rural energy plans, the Colombian mining information system and the Colombian oil and gas information system. The BUR clearly indicates that the categories urea-based catalysts (1.A.3.b.vi), abandoned underground mines (1.B.1.a.i.3), uncontrolled combustion and burning coal dumps (1.B.1.b) and transformation of solid fuels (1.B.1.c) could not be estimated owing to a lack of data. Colombia included the estimation of these categories in the medium or long term in the improvement plan in its second BUR. The TTE noted that the Party including the emission estimates for these categories in the BUR would facilitate a better understanding of the information reported.

37. For the industrial processes and other product use sector, most of the information on AD was collected through the annual manufacturing survey, with other national data sources for specific industries being consulted. The Party used tier 2 methods in the 2006 IPCC Guidelines to estimate emissions for the only key category in the sector, $CO_2$ emissions from cement production (2.A.1), as well as for the category $CO_2$ emissions from glass production (2.A.3), while using tier 1 methods for the other categories. The BUR indicates that $SF_6$ emissions from the disposal of electrical equipment (2.G.1.c), $SF_6$ and PFC emissions from other product uses (2.G.2) and $N_2O$ emissions from product uses (2.G.3) were not estimated owing to a lack of data. With the exception of PFCs, information on the efforts that would be made to report these emissions in the future was included in the improvement plan in the BUR. During the technical analysis, Colombia clarified that in order to estimate these

emissions, it would be necessary to implement an information system for compiling the associated AD and in turn establish the necessary institutional arrangements. The TTE noted that the Party including the emission estimates for $N_2O$ and $SF_6$ in the BUR, as well as information on the efforts to be made to estimate PFC emissions in the improvement plan, would facilitate a better understanding of the information reported.

38. For the AFOLU sector (livestock), $CH_4$ emissions from enteric fermentation in cattle (3.A.1.a) and $CH_4$ emissions from manure management in the category other (3.A.2.j) were identified as key categories in the BUR. Colombia estimated the $CH_4$ and $N_2O$ emissions from manure management and $CH_4$ emissions from enteric fermentation in cattle using tier 1 and 2 methodologies in the 2006 IPCC Guidelines. The TTE commends Colombia for improving the country-specific EFs used to estimate the $CH_4$ emissions from enteric fermentation through disaggregation using regional information.

39. For the AFOLU sector (land use), $CO_2$ emissions from several land use and land-use change categories were identified as key categories in Colombia's BUR; the category with the highest level of emissions was $CO_2$ from forest land converted to grassland. The TTE noted that Colombia did not report emissions and removals from non-forest areas not involving the conversion of forest land to other land-use categories. The Party stated in the BUR that this omission in reporting resulted from the lack of a robust monitoring system or tools for implementing methodologies comparable with those used for forest land to identify the land-use changes for other land-use categories. During the technical analysis, Colombia explained that there is a need to strengthen the capacity of the national MRV team so that it can produce complete land use and land-use change matrices. The TTE also noted that the Party did not report estimates of emissions from lime and urea application in the AFOLU sector; Colombia stated in the BUR that it is implementing an improvement plan that will enable it to include these estimates in the next BUR submission. The TTE noted that the Party including the emissions and removals from non-forest areas not involving the conversion of forest land to other land-use categories and emissions from lime and urea application in the GHG inventory estimates in the BUR would facilitate a better understanding of the information reported.

40. For the waste sector, the AD used included the amounts of solid waste disposed and domestic wastewater treated from the Superintendency of Residential Public Services; the characteristics of waste for incineration and different technologies for industrial wastewater treatment from IDEAM; population projections for Colombia between 1985 and 2020 from the National Administrative Department of Statistics; information on basic sanitation services from the National Quality of Life Survey; and industrial sector information from the annual manufacturing survey. Other national and international sources of AD were also used. Colombia used tier 2 methods in the 2006 IPCC Guidelines to estimate emissions from all key categories except $CH_4$ emissions from wastewater treatment and discharge (4.D). As explained in the BUR, the Party did not report estimates of $CH_4$ and $N_2O$ emissions from the biological treatment of solid waste (4.B) owing to a lack of centralized AD and detailed information on them. An initial estimate of these emissions in the short term is mentioned in the improvement plan. The TTE noted that the Party including $CH_4$ and $N_2O$ emission estimates from the biological treatment of solid waste in the BUR could facilitate a better understanding of the information reported.

41. The NIR provides an update to all GHG inventories reported in previous NCs and BURs. Colombia reported its national GHG inventory as a chapter of the BUR; it contains information that provides an update of the NC3, which addressed anthropogenic emissions and removals for 1990–2012. The update was carried out for all years in the period 1990–2012 using the methodologies contained in the 2006 IPCC Guidelines, thus generating a consistent 24-year time series. The previous national inventory was also prepared using the 2006 IPCC Guidelines.

42. Colombia described in its BUR the institutional framework for the preparation of its 1990–2014 GHG inventory. IDEAM is responsible for the Party's GHG inventory, which was prepared with the support of UNDP, which assisted Colombia in designing its GHG inventory system.

43. Colombia reported a key category analysis was performed for the level of emissions and the trend in emissions using both the tier 1 and the tier 2 approach. The Party provided qualitative information on the results – an overview – in table 2.26 of the BUR. Of the 49 key categories identified using any assessment, 20 were identified as key categories considering all four assessments. During the technical analysis, Colombia clarified that it had not reported quantitative results of the key category analysis for the sake of conciseness, but it would include them in the next BUR. The TTE noted that the Party including quantitative results of the key category analysis in the BUR would facilitate a better understanding of the information reported.

44. The BUR provides information on QA/QC measures for sectors other than AFOLU and limited information on the QA measures undertaken for the AFOLU sector. Colombia explained that the QA measures for the AFOLU sector were carried out by experts from the SilvaCarbon cooperation programme. During the technical analysis, Colombia clarified that it could not report the results of the QA for the AFOLU sector because the process was under way while the BUR and NIR were being prepared. The TTE noted that the Party including the QA measures undertaken for the AFOLU sector in the BUR would facilitate a better understanding of the information reported.

45. Colombia reported information on $CO_2$ emissions from fuel combustion using both the sectoral and the reference approach. However, the information pertaining to the reference approach was reported only for the year 2014. Colombia included in the BUR the reasons for the difference of 11.0 per cent between the estimates made using the sectoral and reference approaches, which included aggregation of the information. Aggregation precludes the identification of the majority of the non-energy uses of fossil fuels. During the technical analysis, Colombia clarified that this explanation is based on results that are not yet final and that it would include a recalculation of the entire time series using the reference approach following a refinement of the method as an immediate action in the improvement plan.

46. Information was reported separately on international aviation and marine bunker fuels.

47. Colombia reported information on the uncertainty assessment (level and trend) of its national GHG inventory. The uncertainty analysis was based on both the tier 1 approach and the tier 2 approach (Monte Carlo simulation) and covers all source and sink categories and all direct and indirect GHGs. The results obtained, as reported in the BUR, reveal that the level uncertainty (measured as the contribution to variance) for the inventory total is between –4.82 and +6.94 per cent and the trend uncertainty is 8.38 per cent. The TTE commends Colombia for providing in its BUR detailed information on the uncertainty values for different categories.

48. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 32, 36, 37, 39, 40, 43 and 44 above.

49. In paragraphs 30 and 34–37 of the summary report on the technical analysis of Colombia's first BUR, the previous TTE noted a number of areas where the transparency of reporting could be enhanced. These include the reporting of emissions for certain categories (1.A.3.b.v, 1.A.3.e.i, 1.B.1.a.i.3, 2.F.4, 2.F.5 and land-use conversion categories of lands other than natural forests (4.B)); information on trend-based key category analysis; information on uncertainty; and detailed information on QA/QC procedures for all sectors. The TTE noted that Colombia took into consideration these areas for improvement in its 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

50. As indicated in table 2 in annex I, Colombia reported in its BUR, completely in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible. In chapter 3 of its BUR, Colombia presents information on its mitigation actions, including a comprehensive description of strategies, sectoral plans, NAMAs (organized by three stages of implementation: under design, formulated and under implementation), REDD+ activities and

projects under the CDM. The TTE commends the efforts made by Colombia to provide extensive and detailed information on its mitigation actions in its BUR, which enhances the transparency of the reported information.

51. The information reported provides a clear and comprehensive overview of the Party's mitigation actions and their effects. In its BUR, which includes information on national context and changes thereto, Colombia provided updated information on the background of climate change mitigation in the country, including a detailed timeline for the period 2000–2018. According to the information on the climate change planning and management tools provided in chapter 3.3, the main public policy tools for the mitigation of climate change in Colombia are the Colombian Low Carbon Development Strategy, the Integrated Strategy to Control Deforestation and Manage Forests, integrated sectoral climate change management plans, integrated territorial climate change management plans and Colombia's nationally determined contribution. These tools encompass specific actions and/or goals for achieving national targets to reduce GHG emissions. Most of the mitigation actions are in the energy sector. Colombia's nationally determined contribution establishes an unconditional target of a 20 per cent reduction in its total emissions by 2030 relative to the 'business as usual' scenario, excluding the mitigation actions implemented since 2015. Colombia also has a conditional target of a reduction in emissions of 20–30 per cent by 2030, subject to the provision of international support. Based on the information provided in tabular format in the BUR, the expected emission reduction from the implementation of these mitigation actions is approximately 421 Mt $CO_2$ eq by 2030.

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

53. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Colombia clearly reported the names of mitigation actions or groups of actions, coverage (sector and gases) and progress indicators in chapters 3.3 and 3.4 of the BUR. A description of mitigation actions, as well as information on quantitative goals, was clearly reported in the BUR. Quantitative or qualitative goals were also included for the mitigation actions that are in their initial stages.

54. In its BUR, Colombia provided information on 22 mitigation actions that are part of its integrated sectoral climate change management plans (tables 3.4 to 3.9) and on 15 NAMAs (tables 3.11 to 3.26). The information on each mitigation action included the agency responsible for its implementation and a description of the action's, scope, sector, time frame, GHGs covered, objectives, goals, indicators, methodologies and assumptions, measures taken or envisaged, progress in implementation, and results. Colombia reported the main sectors or areas of the mitigation actions as being energy efficiency, energy generation, energy demand management, sustainable transport, industry, sustainable construction, fugitive emissions, commercial forest plantations, renovation and maintenance of technical production systems of cocoa, process improvement in the industrial processes and product use sector, and solid and liquid waste management. The main gases covered are $CO_2$, $CH_4$ and $N_2O$. The mitigation actions in energy efficiency (e.g. strengthening the Programme for Rational and Efficient Use of Energy), transport (e.g. transit-oriented development in Colombia and integral improvement of cargo transportation) and forestry (e.g. the Integrated Strategy to Control Deforestation and Manage Forests and the low-emissions development strategy for the panela production chain) are the most significant measures, with the highest expected emission reductions.

55. The information reported for the energy sector includes the methodologies used for estimating the impacts of the mitigation actions. Details on the underlying assumptions were clearly reported in the BUR, including for those mitigation actions that are under design or in their initial stages of implementation. The mitigation actions are mainly in the areas of improvements in energy efficiency, promotion of renewable energy sources, and transport. The objectives of the mitigation actions and the information on the steps taken to implement them were clearly reported, including for those mitigation actions that are in their initial stages of implementation. The Party reported that all its mitigation measures were derived mostly from projects that are ongoing or planned. The Party also reported information on the results achieved from the implementation of its mitigation actions, as estimated outcomes, and on their potential co-benefits. The mitigation measure with the most significant results is

the Industrial Pilot Project, a NAMA aiming to promote industrial energy efficiency that is currently being implemented. Of the 209 individual industrial energy efficiency projects under this overarching NAMA, 47 have already been implemented, including 32 low- and 15 high-investment projects. The projects implemented, with a total investment of USD 2,319,000, have generated energy savings of 25,208 MWh and GHG reductions of 10,002 t $CO_2$ eq. The Industrial Pilot Project NAMA has also strengthened the capacity of 782 people, including entrepreneurs, technology providers and members of financial institutions, through specialized workshops, diplomas, short courses, virtual tools and business missions.

56. Colombia reported information on mitigation actions in sectors other than energy, including forestry, agriculture, waste, and industrial processes and product use. These mitigation actions, addressing mainly $CO_2$, $CH_4$ and $N_2O$, are under design or in their initial stages of implementation, with a period of implementation up to 2030 and national territorial coverage. The information reported includes the methodologies used for estimating the impacts of the mitigation actions and the assumptions. The objectives of the mitigation actions and information on the steps taken to implement them were clearly reported, including for those actions that are in their initial stages of implementation.

57. Colombia provided information on its participation in international market mechanisms as a Party to the Kyoto Protocol. Colombia reported that of 104 CDM projects approved by its designated national authority, 72 have been registered under the UNFCCC, with 26 of them having been issued 14,175,843 certified emission reductions. Most of the CDM projects are in the waste and energy sectors and address $CO_2$ and $CH_4$ emissions.

58. Colombia reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. Further, Colombia reported consistently with the voluntary general guidelines for domestic MRV of domestically supported NAMAs contained in decision 21/CP.19. Colombia reported on the newly implemented MRV system and the National Registry of Emission Reductions. The National System of Climate Change defines the elements to be considered in the MRV system for monitoring the implementation of the integrated sectoral climate change management plans and the NAMAs. As per a decision of the Ministry of Environment and Sustainable Development, the two approaches to be used by the MRV system are monitoring of GHG emissions and of GHG emission reductions and increases in removals. The National Registry of Emission Reductions compiles information from REDD+ projects and programmes, CDM projects, NAMAs and the national registry of low carbon projects.

59. In paragraphs 42–43 and 45–46 of the summary report on the technical analysis of Colombia's first BUR, the previous TTE noted a number of areas where the transparency of reporting could be further enhanced: the reason for the recalculation of the potential emission reductions; the expected time frame (i.e. start and end dates) for assessing mitigation actions and information on how the actions relate to the sectoral and national total emissions; gases covered for mitigation actions established as voluntary commitments under the Cancun Agreements; and methodologies and assumptions related to mitigation actions. Further, in paragraph 58 of the same report, the previous TTE noted that the transparency of reporting on the MRV system could be further enhanced by including information on the progress made in MRV arrangements. The current TTE noted that Colombia took into consideration these areas of improvement in chapter 3 of 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

60. As indicated in table 3 in annex I, Colombia 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.

61. Colombia reported information on constraints and gaps, and related financial, technical and capacity-building needs, in accordance with decision 2/CP.17, annex III, paragraph 14. The Party reported that its financial, technical and capacity-building needs are in the areas of preparation of BURs, NCs and the GHG inventory; mitigation; and adaptation. Colombia reported in the BUR its need to establish technical teams with the relevant sectoral

expertise to prepare reports under the Convention as well as to enhance capacity at the sectoral and subnational level in using the information contained in those reports. Regarding GHG inventories, it will be necessary to consolidate and enhance the capacity of a permanent team within IDEAM to prepare them and also to improve the GHG inventory web platform. Regarding mitigation, building the technical capacity to calculate baselines and trends for mitigation actions, NAMAs and REDD+ activities is needed, as is strengthening the technical capacity to implement the MRV system and the information dissemination system. Colombia also needs to establish an MRV system together with a system for the dissemination of information for adaptation. The Party noted the need for financial assistance to implement all these activities.

62. Colombia 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 chapter 5.3 of its BUR, Colombia reported updated information for the period 2015–2017 on support received from both bilateral and multilateral sources according to the source of the support and including the thematic area of cooperation (adaptation, mitigation, REDD+ or reporting), the support received (in United States dollars) and the number of initiatives. Colombia reported that it received USD 124,067,819 from bilateral sources for 30 initiatives, USD 87,389,722 from multilateral funds and institutions for 21 initiatives, USD 14,668,750 from international financial institutions for 13 initiatives, and USD 380,940,654 from other multilateral sources for 8 initiatives for a total of USD 607,066,945 for 72 initiatives for adaptation, mitigation, REDD+ and integrated actions.

63. Colombia did not report information on nationally determined technology needs with regard to the development and transfer of technology and on technology support received, in accordance with decision 2/CP.17, annex III, paragraph 16. During the technical analysis, Colombia clarified that the national entities and MRV system that currently collect the information on technology and capacity-building needs face constraints in identifying and reporting the technology needs for the implementation of the territorial and sectoral climate change management plans, including constraints relating to the criteria for categorizing and differentiating financial, technical and technology needs in a standardized manner. The Party explained that it did not undertake a technology needs assessment owing to its rapidly changing technology needs; it placed a greater focus on implementing the technologies that had already been identified as needed. The TTE noted that the Party including an explanation for its lack of a technology needs assessment in the BUR could facilitate a better understanding of the information reported.

64. The TTE noted that the transparency of the information reported on needs and support received could be further enhanced by addressing the areas noted in paragraph 63 above.

65. In paragraph 49 of the summary report on the technical analysis of Colombia's first BUR, the previous TTE noted that the transparency of reporting could be further enhanced by associating values with the needs related to the preparation of BURs, NCs and the national GHG inventories, and with mitigation and adaptation needs. The current TTE noted that Colombia took into consideration this area of improvement in chapter 5 of the second BUR and commends the Party for enhancing the transparency of the information reported.

### 5. Any other information

66. Colombia reported some information on adaptation actions that may lead to GHG emission reductions, without providing estimations of such reductions. During the technical analysis, Colombia clarified that no efforts had previously been made to quantify the mitigation effects of the adaptation measures because they were implemented through programmes developed with the intention of enhancing adaptive capacity. Colombia is setting up a process to quantify, on an ongoing basis, the $CO_2$ emission reduction impacts of such measures.

67. Colombia reported on its initiatives to address issues related to gender inclusiveness in the national response to climate change, noting the different nature of climate change impacts on men and women. In 2017, IDEAM implemented measures to address these issues.

## D. Identification of capacity-building needs

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

(a) Improving the QA/QC process by reviewing the notation keys used in the GHG inventory; by ensuring the correct transcription and consistent use of notation keys in the summary tables; and by providing transparent information on the use of notation keys in the BUR;

(b) Accessing financial resources to implement the improvement plans related to the systematic collection and compilation of country-specific AD and EFs, which will enable the tier 2 methodology to be used for key categories (e.g. oil and natural gas (1.B.2) and industrial wastewater treatment and discharge (4.D.2));

(c) Refining the estimation of emissions using the reference approach and strengthening of the AD collection process for national statistics at the appropriate level of disaggregation for the reference approach in order to better explain the differences in the results obtained between the reference and the sectoral approach;

(d) Supporting the improvement plan for the estimation of PFC emissions by facilitating the exchange of experience with other countries regarding the tools for collecting information on the consumption and use of PFCs (e.g. information on consumers, products and quantity consumed) and the entities responsible for collecting and disseminating information;

(e) Strengthening the MRV team to enable it to produce – using consistent methodologies and existing information – an analysis of forest degradation and a complete land use and land-use change matrix for the six IPCC land-use categories;

(f) Improving the EFs for forest land and for the conversion of forest land to non-forest land-use categories through the national forest inventory;

(g) Improving the uncertainty estimates by implementing a capacity-building programme for the entities providing AD in order to enable them to provide the uncertainty ranges associated with AD so as to avoid the need for expert consultation; by implementing a programme to estimate EFs together with their uncertainty ranges; and by optimizing the uncertainty estimation processes for the two methods currently used by Colombia through designing and implementing an information technology platform for managing and calculating the national GHG inventory;

(h) Strengthening the capacity to collect information on technology and capacity-building needs at the subnational level in a standardized manner;

(i) Strengthening the capacity of national entities and the MRV system to identify and report the technology needs for implementing the territorial and sectoral climate change management plans, including identifying the criteria for categorizing and differentiating the financial, technical and technology needs in a standardized manner.

69. The TTE noted that, in addition to those identified during the technical analysis, Colombia reported several capacity-building needs in tables 1–4 of its BUR (chapter 5), including those involving the need for financial resources, covering the following areas:

(a) Preparation of BURs;

(b) Preparation of NCs;

(c) Preparation of GHG inventories;

(d) Mitigation (calculating baselines and trends, and implementing the MRV system and the information dissemination system);

(e) Adaptation (establishing an MRV system and an information dissemination system).

70. In paragraph 59 of the summary report on the technical analysis of Colombia's first BUR, the previous TTE, in consultation with Colombia, identified capacity-building needs.

In its second BUR, Colombia 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 of Colombia 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, including an NIR; 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; the level of support received to enable the preparation and submission of BURs; domestic MRV; and any other information relevant to the achievement of the objective of the Convention. During the technical analysis, additional information was provided by Colombia on the emission estimates, including the AD used; constraints and challenges in the future improvement of the GHG inventory; national studies used in the MRV of mitigation actions; and challenges and constraints in the reporting of nationally determined technology needs and provision of technology support. The TTE concluded that the information analysed is mostly transparent.

72. Colombia reported information on the institutional arrangements relevant to the preparation of its BURs. IDEAM, an agency of the Ministry of Environment and Sustainable Development, is responsible for the preparation of NCs and BURs and is supported by various ministries and departments, which provide specific information in their areas of responsibility (e.g. on mitigation actions and support). IDEAM is technically and financially supported by UNDP. Colombia has taken significant steps to create institutional arrangements that allow for the sustainable preparation of its BURs. These include organizational improvements and knowledge-sharing procedures to facilitate sectoral information transfer. The TTE commends Colombia for the progress made and noted that the ongoing improvement of the overall MRV system for GHG emissions and reductions and for finance, as outlined in the BUR, would contribute to achieving sustainable reporting to the secretariat.

73. In its second BUR, submitted in 2018, Colombia reported information on its national GHG inventory for 1990–2014. 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. Estimates of PFCs were not provided owing to difficulties in obtaining the necessary data, as clarified by the Party in its BUR. The inventory was developed on the basis of the 2006 IPCC Guidelines. The total GHG emissions for 2014 were reported as 236,973.00 $CO_2$ eq (excluding the land category (3.B)) and 214,315.00 $CO_2$ eq (including the land category (3.B)). Of the 49 key categories identified using any assessment, 20 were identified as key categories considering all four assessments (level and trend assessments using tier 1 and 2 approaches) with $CO_2$ and the energy sector identified as the main gas and sector, respectively.

74. Colombia reported information on mitigation actions and their effects. The mitigation actions presented include those formulated under the Colombian Low Carbon Development Strategy, sectoral mitigation action plans, NAMAs and CDM projects. Colombia reported 37 mitigation actions that are planned or ongoing in several sectors, including waste, energy, forestry and agriculture. The key mitigation actions are in energy efficiency, sustainable transport, waste management and forestry. Among these, the mitigation actions in energy efficiency (e.g. strengthening the Programme for Rational and Efficient Use of Energy), transport (e.g. transit-oriented development in Colombia and integral improvement of cargo transportation) and forestry (e.g. the Integrated Strategy to Control Deforestation and Manage Forests and the low-emissions development strategy for the panela production chain) are the most significant measures with the highest expected emission reductions. Colombia reported that if the mitigation actions reported in its BUR are implemented, the cumulative GHG emission reductions achieved will be approximately 421 Mt $CO_2$ eq by 2030.

75. Colombia reported information on key constraints, gaps and related needs. The BUR clearly identifies the financial, technical and capacity-building needs related to preparing reports and improving the national GHG inventory, as well as to mitigation and adaptation actions. During the technical analysis, Colombia provided additional information on key challenges and needs, such as constraints in identifying and reporting the technology needs. Colombia also reported that it had established an MRV system for monitoring the financial support received. Information on technology needs and technology needed and received was not reported in the BUR.

76. The TTE, in consultation with Colombia, identified the nine 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. Colombia prioritized all the capacity-building needs (see para. 68 above).

# Annex I

## Extent of the information reported by Colombia 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 Colombia**

| *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 | Colombia submitted its second BUR in December 2018; the GHG inventories reported are for years 1990 to 2014. |
| 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 | Colombia used the 2006 IPCC Guidelines. |
| Decision 2/CP.17, annex III, paragraph 5 | The updates of the section on national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF; any change to the EF may be made in the subsequent full NC. | 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: | Yes | |
| | (a) The tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF; | Yes | Comparable information was reported in the BUR. |
| | (b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines. | Yes | Comparable information was reported in the BUR. |
| 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 | |
| Decision 2/CP.17, annex III, paragraph 9 | The inventory section of the BUR should consist of an NIR as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National greenhouse gas inventories), including: | Yes | |
| | (a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not | Yes | Comparable information was reported in annex 2.3 of the NIR. |

| *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); | | |
| | (b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and $SF_6$). | Yes | Comparable information was reported in annex 2.3 of the NIR. |
| Decision 2/CP.17, annex III, paragraph 10 | Additional or supporting information, including sector-specific information, may be supplied in a technical annex. | Yes | The Party submitted an NIR and REDD+ technical annex. |
| 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; | No | Colombia provided information using notation keys, but it did not report estimates of PFC emissions owing to a lack of data. |
| | (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; | Yes | |
| | (b) $NO_X$; | Yes | |
| | (c) NMVOCs. | Yes | |
| Decision 17/CP.8, annex, paragraph 17 | Other gases not controlled by the Montreal Protocol, such as sulfur oxides, and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties. | Yes | The Party reported sulfur dioxide emissions. |
| Decision 17/CP.8, annex, paragraph 18 | Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report $CO_2$ fuel combustion emissions using both the sectoral and the reference approach and to explain any large differences between the two approaches. | Yes | The Party reported information on the reference approach only for the year 2014. |
| Decision 17/CP.8, annex, paragraph 19 | Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report | | |

| *Decision* | *Provision of the reporting guidelines* | *Yes/partly/no/NA* | *Comments on the extent of the information provided* |
|---|---|---|---|
| | 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 global warming potential provided by the IPCC in its Second Assessment Report based on the effects of GHGs over a 100-year time-horizon. | Yes | |
| 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 | Colombia used the 2006 IPCC Guidelines. A combination of tier 1 and 2 methodologies was used for all sectors. |
| | (b) Explanation of the sources of EFs; | Yes | Colombia used a combination of default and country-specific EFs. |
| | (c) Explanation of the sources of AD; | Yes | Colombia used national sources of AD. |
| | (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 | Colombia did not provide estimates for categories other than those included in the 2006 IPCC Guidelines. |
| | (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. | Yes | |
| | 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; | Yes | |
| | (b) Underlying assumptions; | Yes | |
| | (c) Methodologies used, if any, for estimating these uncertainties. | Yes | |

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

| *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; | Yes | |
| | (b) Information on: | | |
| | (i) Methodologies; | Yes | |
| | (ii) Assumptions; | Yes | |
| | (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 | The Party reported information on quantitative goals and progress indicators for most of the mitigation |

| *Decision* | *Provision of the reporting guidelines* | *Yes/partly/no* | *Comments on the extent of the information provided* |
|---|---|---|---|
| | | | actions in the energy, transport, waste and forestry sectors. |
| | (e) Information on international market mechanisms. | Yes | |
| Decision 2/CP.17, annex III, paragraph 13 | Parties should provide information on domestic MRV arrangements. | Yes | |

*Note*: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on mitigation actions in BURs are contained in decision 2/CP.17, annex III, 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 Colombia**

| *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 | |
| | (b) Information on technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR. | Yes | |
| Decision 2/CP.17, annex III, paragraph 16 | With regard to the development and transfer of technology, non-Annex I Parties should provide information on: | | |
| | (a) Nationally determined technology needs; | No | |
| | (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

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