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Report on the technical expert review of the first biennial transparency report of Colombia*

Summary

This report presents the results of the technical expert review of the first biennial transparency report of Colombia, conducted by a technical expert review team in accordance with the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. The review took place from 27 to 31 October 2025 in Bogotá.

* In the symbol for this document, 2024 refers to the year in which the original biennial transparency report was submitted, not to the year of publication.

Abbreviations and acronyms

A6.4ER	emission reduction under Article 6, paragraph 4, of the Paris Agreement
AD	activity data
BTR	biennial transparency report
CER	certified emission reduction
CH_4	methane
CICC	Colombian Intersectoral Commission on Climate Change
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CRT	common reporting table
CTF	common tabular format
EEA	European Environment Agency
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ENANDES	Enhancing Adaptive Capacity of Andean Communities through Climate Services
FAO	Food and Agriculture Organization of the United Nations
FX	flexibility
GHG	greenhouse gas
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ITMO	internationally transferred mitigation outcome
LULUCF	land use, land-use change and forestry
MPGs	modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
MRV	measurement, reporting and verification
N_2O	nitrous oxide
NA	not applicable
NDC	nationally determined contribution
NE	not estimated
NF_3	nitrogen trifluoride
NIR	national inventory report
PaMs	policies and measures
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)
SF_6	sulfur hexafluoride
SIIVRA	Integrated Information System on Vulnerability, Risk and Adaptation to Climate Change
TERT	technical expert review team
WM	‘with measures’
WOM	‘without measures’

I. Introduction and summary

A. Introduction

1. This report covers the technical expert review of the BTR1 of Colombia. The review was organized by the secretariat and conducted by the TERT in accordance with the MPGs,[1] particularly chapter VII thereof. Colombia, on a voluntary basis, requested the secretariat to organize a review of the information reported pursuant to chapter IV of the MPGs as part of the technical expert review.[2] The outcome of the voluntary review is presented in annex I.

2. A draft version of this report was transmitted to the Government of Colombia, which provided comments that were taken into account, as appropriate, in this final version of the report.[3]

3. The review was conducted as an in-country review from 27 to 31 October 2025 in Bogotá by the following team of nominated experts from the UNFCCC roster of experts: Alissa Araujo Benchimol (Brazil), Daniela Carolina Da Costa Duarte (Guyana), Paul Duffy (Ireland), Kristina Gonchar (Belarus), Brandon Greenlaw (Canada), Benise Nissa Joseph (Saint Lucia), Newton Paciornik (Brazil) and Anna Romanovskaya (Russian Federation). Paul Duffy and Newton Paciornik were the lead reviewers. The review was coordinated by Javier Hanna Figueroa (secretariat).

4. Developing country Parties seeking to obtain and receive payments for results-based REDD+ actions can submit relevant information and data in a technical annex to the BTR.[4] The submission of the technical annex is voluntary and in the context of results-based payments.[5] The technical annex submitted by Colombia was subject to technical analysis by two LULUCF experts concurrently with the technical expert review.[6] The results of the technical analysis are captured in a separate technical report.[7]

B. Scope

5. The TERT conducted a technical expert review of the information reported in the BTR1 of Colombia as per the scope of the review defined in paragraph 146 of the MPGs and decision 9/CMA.4, consisting of:

(a) Review of the consistency of the information submitted by the Party under Article 13, paragraphs 7 and 9, of the Paris Agreement with the MPGs taking into account the flexibility accorded to the Party under Article 13, paragraph 2, of the Paris Agreement (see chap. II.A below);

(b) Consideration of the Party's implementation and achievement of its NDC under Article 4 of the Paris Agreement (see chap. II.B below);

(c) Identification of areas of improvement[8] for the Party related to implementation of Article 13 of the Paris Agreement (see chap. II.D below);

(d) Assistance in identifying capacity-building needs (see chap. II.E below);

(e) Voluntary review of the information reported by the Party pursuant to chapter IV of the MPGs (see annex I).

[1] Decision 18/CMA.1, annex.
[2] See decision 9/CMA.4, para. 1.
[3] As per para. 162(e) of the MPGs.
[4] See decisions 14/CP.19, para. 7; 1/CP.24, para. 45; and 18/CMA.1, para. 14.
[5] Decision 14/CP.19, para. 8.
[6] See decisions 14/CP.19, paras. 10–14; 1/CP.24, para. 46; and 18/CMA.1, para. 14.
[7] See document FCCC/ETF/TATR.1/2025/COL, available at https://redd.unfccc.int/submissions.html?country=COL.
[8] As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs.

C. Summary

6. Colombia submitted its BTR1 on 31 December 2024, before the deadline of 31 December 2024 mandated in decision 18/CMA.1. Colombia also submitted its CRTs and CTF tables on 31 December 2024, before the deadline of 31 December 2024.[9]

7. A list of the areas of improvement identified on the basis of the review of the consistency of the reported information with the MPGs can be found in the assessment tables.[10]

8. The Party applied flexibility as provided for those developing country Parties that need it in the light of their capacities pursuant to Article 13, paragraph 2, of the Paris Agreement in relation to the NIR of anthropogenic GHG emissions by sources and removals by sinks[11] and the information necessary to track progress in implementing and achieving its NDC.[12] Information on where the flexibility was applied is included in chapters II.A.1–II.A.2 below.

D. Information provided by the Party pursuant to paragraphs 143–145 of the modalities, procedures and guidelines

9. Colombia reported in section 4.9.2 of its BTR (pp.438–442) information on support needed and received for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building. The Party reported on support needed and received for preparing reports pursuant to Article 13 of the Paris Agreement and addressing the areas of improvement identified by the Party. Only qualitative information was provided on support needed. Support is needed primarily for strengthening and maintaining permanent institutional arrangements and national information systems for implementing the enhanced transparency framework under the Paris Agreement; obtaining more complete and disaggregated AD and emission factors for key sectors; implementing tools for monitoring progress towards achieving the NDC, including robust sector-specific indicators; strengthening capacities to quantify the impacts of PaMs; strengthening capacities, methodologies and instruments for assessing climate risks and monitoring adaptation measures; and strengthening capacities to participate in international review processes. Support has been received for 2022–2026 for improving the national GHG inventory system, and improving the mechanisms for delivering technical information on GHG emissions and removals to relevant decision makers with a view to developing policy instruments such as the NDC, as well as for developing the Party's NDCs. Table 1 summarizes the information that Colombia reported in CTF table III.13 on support received, which reflects only the financial support received for Colombia's 2030 MRV Strategic Vision project. The TERT noted that the above-mentioned information reported by the Party is not subject to review as per the scope of the review defined in paragraph 146 of the MPGs.

Table 1
Summary of support received by Colombia for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building
(USD million)

Status of support	*Amount*
Support received for 2022–2026	3.79

Sources: Colombia's BTR1 and CTF table III.13.

[9] The technical expert review was conducted on the basis of the version of the BTR, including the NID, submitted on 5 September 2025.

[10] Contained in document FCCC/ETF/TERR.1/2024/COL/Add.1, available at https://unfccc.int/first-biennial-transparency-reports.

[11] The developing country Party applied flexibility in the light of its capacities with respect to the provisions in paras. 57–58 of the MPGs.

[12] The developing country Party applied flexibility in the light of its capacities with respect to the provisions in paras. 85, 95 and 102 of the MPGs.

II. Technical expert review[13]

A. Review of the consistency of the submitted information with the modalities, procedures and guidelines[14]

1. National inventory report[15]

10. The TERT assessed the information reported in the BTR1 of Colombia and identified areas of improvement relating to consistency with the MPGs, which are described in tables 2–7 of the assessment tables referred to in paragraph 7 above and summarized in table 2.

[13] As per para. 187 of the MPGs.
[14] As per para. 146(a) of the MPGs.
[15] As per para. 150(a) of the MPGs.

Table 2
Information reported in Colombia's national inventory report and review of consistency with the modalities, procedures and guidelines

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
Submission type (para. 12 of the MPGs)	Has the NIR been submitted as a stand-alone document?	No	No areas of improvement were identified
Time series (paras. 57–58 of the MPGs)	What years have been reported and is the time series in accordance with the MPGs?[b]	1990–2021, not in accordance with the MPGs	No areas of improvement were identified
Metrics (para. 37 of the MPGs)	Has the Party used the 100-year global warming potential values from the IPCC Fifth Assessment Report?	Yes	No areas of improvement were identified
	Has the Party used other metrics?	No	No areas of improvement were identified
Gases (paras. 47–49 and 51 of the MPGs)	Which gases have been reported?	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	No areas of improvement were identified
Indirect emissions (para. 52 of the MPGs)	Has the Party reported indirect CO_2 emissions and national totals with and without indirect CO_2?	No	No areas of improvement were identified
	Has the Party reported indirect N_2O emissions from sources other than those in the agriculture and LULUCF sectors as a memo item?	No	No areas of improvement were identified
National circumstances and institutional arrangements (paras. 18–19 of the MPGs)	Has the Party reported information on the functions related to inventory planning, preparation and management?	Yes	No areas of improvement were identified
Methodologies, parameters and data (paras. 20–24 of the MPGs)	Has the Party used the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*?	Partly	3.E.1, 3.E.4, 3.E.6, 4.I.1, 5.A.1, 6.L.7, 6.L.8, 6.L.9, 6.L.10, 6.L.11, 6.L.12, 6.L.15, 6.L.16, 6.L.18, 6.L.19, 7.W.1, 7.W.3, 7.W.9
	Has the Party used other IPCC methodological guidance?	Yes, the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*, the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* and the *EMEP/EEA air pollutant emission inventory guidebook 2019*	6.L.1

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
Key category analysis (paras. 25 and 41–42 of the MPGs)	Has the Party reported a key category analysis?	Yes, a key category analysis was performed using approach 1 and a 95 per cent threshold for level and trend assessment for the starting year (1990) and the latest reporting year (2021) and with and without LULUCF	No areas of improvement were identified
Time-series consistency and recalculations (paras. 26–28 and 43 of the MPGs)	Has the Party reported a consistent time series?	Partly	6.L.3, 6.L.17
	Has the Party provided justification and explanatory information for recalculations?	Yes	No areas of improvement were identified
Uncertainty assessment (paras. 29 and 44 of the MPGs)	Has the Party reported the results of the uncertainty analysis and the methods used, underlying assumptions and trends?	Yes, including level and trend uncertainty, reported using a combination of approaches 1 and 2 for the starting year (1990) and the latest reporting year (2021)	No areas of improvement were identified
QA/QC plan and procedures (paras. 34–36 and 46 of the MPGs)	Has the Party elaborated information on an inventory QA/QC plan, including information on the inventory agency responsible for implementing QA/QC, and current and future QA/QC procedures?	Yes, including information on the inventory agency responsible for implementing QA/QC, an inventory QA/QC plan, general QC procedures and category-specific QC for key categories and for individual categories for which significant methodological changes and/or data revisions have occurred	No areas of improvement were identified
Assessment of completeness (paras. 30–33, 45, 47 and 50 of the MPGs)	Have any areas of improvement for lack of completeness been identified for the following sectors?	Partly	2.G.1
	Energy	Yes	3.E.3
	IPPU	Yes	4.I.4
	Agriculture	Yes	5.A.2, 5.A.3, 5.A.4, 5.A.5
	LULUCF	Yes	6.L.11, 6.L.17
	Waste	Yes	7.W.3, 7.W.5, 7.W.6, 7.W.7
Threshold for reporting significant categories (para. 32 of the MPGs)	For categories reported as “NE” owing to insignificance, has information been reported showing that the likely level of emissions is below the threshold of significance?	NA	No areas of improvement were identified

Element	*Elements of information to be reported*	*Response and its summary, as relevant*	*ID#(s) for the area(s) of improvement identified*[a]
Methodologies, emission factors, parameters and AD (paras. 39–40, 47 and 53–56 of the MPGs)	Has information been reported on categories, gases, methodologies (including the rationale for selecting them), emission factors and AD at a disaggregated level for the following sectors?		
	Energy	Partly	3.E.2, 3.E.5
	Has information been reported on international aviation and marine bunker fuel emissions as two separate entries and such emissions distinctly reported from national totals?	Yes	NA
	Has information been reported indicating how feedstocks and non-energy use of fuels have been accounted for in the inventory, under the energy or IPPU sector?	Yes	NA
	IPPU	Partly	4.I.2, 4.I.3, 4.I.5
	Agriculture	Yes	No areas of improvement were identified
	LULUCF	Partly	6.L.1, 6.L.4, 6.L.5, 6.L.6, 6.L.7, 6.L.8, 6.L.9, 6.L.12, 6.L.13, 6.L.14, 6.L.16, 6.L.18, 6.L.19
	Waste	Partly	7.W.2, 7.W.4, 7.W.5, 7.W.7, 7.W.8, 7.W.10, 7.W.11, 7.W.12

[a] See document FCCC/ETF/TERR.1/2024/COL/Add.1. The areas of improvement referred to in this table comprise only those relating to recommendations in that document.
[b] The developing country Party applied flexibility in the light of its capacities with respect to this provision.

2. Information necessary to track progress in implementing and achieving the nationally determined contribution[16]

11. The TERT assessed the information reported in the BTR1 of Colombia and identified areas of improvement relating to consistency with the MPGs, which are described in tables 8–11 and 13 of the assessment tables referred to in paragraph 7 above and summarized in table 3.

Table 3
Information reported in Colombia's submission

Topic	*ID#(s) for the area(s) of improvement identified*[a]
National circumstances and institutional arrangements (paras. 59–63 of the MPGs)	8.1
Description of the NDC under Article 4 of the Paris Agreement, including updates (para. 64 of the MPGs)	9.1
Information necessary to track progress in implementing and achieving the NDC under Article 4 of the Paris Agreement (paras. 65–79 of the MPGs)	10.1
Mitigation PaMs, actions and plans related to implementing and achieving the NDC under Article 4 of the Paris Agreement[b] (paras. 80–90 of the MPGs)	11.1, 11.2, 11.4
Summary of GHG emissions and removals (para. 91 of the MPGs)	No areas of improvement were identified
Projections of GHG emissions and removals[b] (paras. 92–102 of the MPGs)	13.1, 13.2, 13.3, 13.4

[a] See document FCCC/ETF/TERR.1/2024/COL/Add.1. The areas of improvement referred to in this table comprise only those relating to recommendations in that document.
[b] The developing country Party applied flexibility in the light of its capacities with respect to this provision.

3. Financial, technology development and transfer, and capacity-building support provided[17]

12. According to paragraph 118 of the MPGs, developed country Parties shall provide information pursuant to Article 13, paragraph 9, of the Paris Agreement in accordance with the MPGs contained in chapter V of the annex to decision 18/CMA.1. Other Parties that provide support should also provide such information and, in doing so, are encouraged to use the same MPGs contained in that chapter.

13. Pursuant to Article 13, paragraph 9, of the Paris Agreement, developed country Parties shall and other Parties that provide support should provide information on financial, technology development and transfer, and capacity-building support provided to developing country Parties under Articles 9–11 of the Paris Agreement.

14. Colombia did not consider itself subject to the reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement. Accordingly, the Party did not provide information on financial, technology development and transfer, or capacity-building support provided to developing country Parties under Articles 9–11 of the Paris Agreement in its BTR1.

[16] As per para. 150(b) of the MPGs.
[17] As per para. 150(c) of the MPGs.

B. Consideration of the Party's implementation and achievement of its nationally determined contribution[18]

15. In considering Colombia's progress in implementing and achieving its NDC, the TERT noted that the NDC[19] comprises multiple targets. The NDC comprises three quantitative targets (see table 4), as well as one qualitative target that relates to establishing carbon budgets for 2020–2030 no later than 2023.

16. The indicators that Colombia selected to track progress in implementing and achieving its NDC are described in table 4.

Table 4
Description of the indicators selected by Colombia to track progress in implementing and achieving its nationally determined contribution

NDC target	*Indicator*	*Description*
(1) Emitting a maximum of 169.44 Mt CO_2 eq in 2030, with emissions beginning to decrease between 2027 and 2030	Mitigation required for the goal	Maximum allowable GHG emission goal for 2030, minus the estimated emissions for the last available year of the GHG inventory. If the indicator is equal to or greater than zero, the goal has been met, while a negative value indicates that additional reductions are required to reach the goal
(2) Reducing the change in natural forest area due to deforestation to 50,000 ha/year by 2030	Change in area covered by natural forest	Change in the area covered by natural forest, measured in hectares and reported annually. An indicator value of zero means that the area covered by natural forest remains stable and there was no deforestation during the assessment period, while positive values indicate a loss of natural forest area, interpreted as deforestation
(3) Reducing black carbon emissions by 40 per cent by 2030 compared with the 2014 level	Progress in reducing black carbon emissions	Percentage reduction of black carbon emissions compared with the 2014 level, excluding black carbon emissions associated with forest and grassland fires

Sources: Colombia's BTR1 and CTF tables 1–3.

17. The TERT noted that the contribution of LULUCF to achieving the NDC is included in the Party's target-year level and that Colombia intends to participate in cooperative approaches referred to in Article 6 of the Paris Agreement and the mechanism established by Article 6, paragraph 4, of the Paris Agreement towards the achievement of its NDC.

18. Table 5 summarizes information on progress in implementing the NDC based on indicator 1 (mitigation required for the goal of emitting a maximum of 169.44 Mt CO_2 eq in 2030) taking into account the type of Colombia's NDC target, including quantitative values for the implementation period, including the most recent year available, and target year.

Table 5
Summary of information on Colombia's progress in implementing and achieving its nationally determined contribution based on the indicator mitigation required for the goal of emitting a maximum of 169.44 Mt CO_2 eq in 2030
(Mt CO_2 eq)

	Mitigation required for the goal	*Contribution of LULUCF, as applicable*	*ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Target level*
2020	–105.35	NA	NA	NA	NA

[18] As per para. 146(b) of the MPGs.

[19] The consideration of the Party's implementation and achievement of its NDC is in the context of the NDC submitted by Colombia on 30 December 2020. The TERT noted that the Party submitted a new NDC on 25 September 2025.

	Mitigation required for the goal	*Contribution of LULUCF, as applicable*	*ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Target level*
2021	–110.66	NA	NA	NA	NA
Target year (2030)					0.00

Sources: Colombia's BTR1 and CTF table 4.

19. According to the most recent information on the mitigation required for the goal of emitting a maximum of 169.44 Mt CO_2 eq in 2030 provided in CTF table 4, in 2021 Colombia's mitigation required for the goal was 110.66 Mt CO_2 eq. The indicator is 110.66 Mt CO_2 eq above the emission level corresponding to the fixed target level in 2030 (0.00 Mt CO_2 eq).

20. Table 6 summarizes information on progress in implementing the NDC based on indicator 2 (annual change in area covered by natural forest) taking into account the type of Colombia's NDC target, including quantitative values for the implementation period, including the most recent year available, and target year.

Table 6
Summary of information on Colombia's progress in implementing and achieving its nationally determined contribution based on the indicator change in area covered by natural forest due to deforestation of 50,000 ha/year by 2030
(ha/year)

	Change in area covered by natural forest	*ITMOs used towards NDC, as applicable*	*Indicator adjusted for ITMOs used towards NDC, as applicable*
Base year	NA		
2020	171 685.00	NA	NA
2021	174 103.00	NA	NA
2022	123 517.00	NA	NA
2023	79 256.00	NA	NA
Target level (2030)			50 000.00

Sources: Colombia's BTR1 and CTF table 4.

21. According to the most recent information on the annual change in area covered by natural forest provided in the BTR1 (p.123), in 2023 Colombia's annual change in area covered by natural forest was 79,256.00 ha/year. The indicator is 58.5 per cent (29,256.00 ha/year) above the level corresponding to the target level in 2030.

22. Table 7 summarizes information on progress in implementing the NDC based on indicator 3 (progress in reducing black carbon emissions) taking into account the type of Colombia's NDC target, including quantitative values for the base year and implementation period, including the most recent year available, and target year.

Table 7
Summary of information on Colombia's progress in implementing and achieving its nationally determined contribution based on the indicator progress in reducing black carbon emissions by 40 per cent by 2030 compared with the 2014 level
(%)

	Progress in reducing black carbon emissions	*Contribution of LULUCF, as applicable*	*ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*	*Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable*
NDC base year (2014)	0.0			
2020	5.8	NA	NA	NA
2021	0.2	NA	NA	NA
Target level (2030)				40.0

Sources: Colombia's BTR1 and CTF table 4.

23. According to the most recent information on progress in reducing black carbon emissions provided in CTF table 4, in 2021 Colombia's progress in reducing black carbon emissions was 0.2 per cent. The indicator is 0.2 per cent (0.07 kt) below the level corresponding to the base-year (2014) level (29.04 kt) and 66.3 per cent (11.55 kt) above the level corresponding to the target level of a 40 per cent reduction by 2030.

24. Colombia also reported on its progress in implementing the NDC based on its qualitative target (establishing carbon budgets for 2020–2030 no later than 2023). The Party did not identify an indicator for tracking progress towards this qualitative target. It indicated that in 2024 CICC established that the carbon budgets are the maximal amount of GHG emissions accumulated in five-year periods, covering all GHGs and sectors included in the national inventory. The national carbon budgets, which will be disaggregated into indicative sectoral-level budgets, are to be used as the main instrument for guiding sectoral mitigation goals. The definition does not establish implications of non-compliance. Results and agreements established in relation to the carbon budgets will be communicated by the Party within the framework of its third NDC (2025).

25. Colombia reported information on the actions and PaMs that support the implementation and achievement of its NDC. Table 8 provides a summary of the reported information on the key PaMs of Colombia.

Table 8
Summary of information on key policies and measures reported by Colombia

Sector	*Key PaMs*	*Estimate of expected GHG emission reductions in 2030 (kt CO_2 eq)*	*Estimate of achieved GHG emission reductions in 2025 (kt CO_2 eq)*
Energy			
Energy efficiency	Energy efficiency[a, b]	1 440.00	FX
	Fugitive emissions[a, b]	1 710.00	FX
Energy supply and renewables	Electricity generation[a, b]	7 730.00	FX
Manufacturing industries	Energy efficiency and energy management[a, b]	1 860.00	FX
	Sustainable logistics operations[a, b]	1 470.00	FX
	Sustainable production processes[a, b]	1 310.00	FX
Transport	Motorized freight transport modernization programme[a, b]	1 028.00	FX
	Electric mobility[a, b]	4 041.99	FX
	Implementation of Euro 4 and Euro 6 emission standards for new diesel vehicles[a]	FX	FX
IPPU	Nationally appropriate mitigation action for the domestic refrigeration sector in Colombia[a, b]	3 143.00	FX
Agriculture	Nationally appropriate mitigation action for sustainable cattle farming[a, b]	11 151.00	FX
	Development and consolidation of the production chain of commercial forest plantations[a, b]	10 336.00	FX
LULUCF	Ecological restoration[a, b]	16 937.29	FX
	Replacement of traditional wood-burning stoves with efficient stoves[a, b]	2 292.00	FX

Sector	*Key PaMs*	*Estimate of expected GHG emission reductions in 2030 (kt CO_2 eq)*	*Estimate of achieved GHG emission reductions in 2025 (kt CO_2 eq)*
	Cross-sectoral reduction of deforestation[a, b]	59 183.43	FX
Waste	Comprehensive solid waste management[a, b]	1 313.60	FX

Sources: Colombia's BTR1 and CTF table 5.
[a] Names of PaMs reproduced as reported in Colombia's BTR.
[b] Included in the WM scenario projections.

26. The TERT noted that PaMs, actions and plans have started to have an impact on GHG emission reductions in the agriculture and LULUCF sectors. In the agriculture sector, PaMs focus on sustainable cattle farming and the production chain of commercial plantations. Emissions in the agriculture sector increased by 46.6 per cent between 1990 and 2021, though compared with other sectors of the economy this was the lowest historical rate of growth in emissions during this period in the country. In the LULUCF sector, PaMs focus on ecological restoration and reducing deforestation. The Party's annual gross deforestation area, which is addressed by its second NDC target (see table 6), decreased by 59.8 per cent between 2018 and 2023 as a result of the implementation of PaMs focused on reducing deforestation. However, the El Niño phenomenon led to higher temperatures in 2018–2019, increasing the number of forest fires and decreasing water availability in reservoirs, and causing emissions from deforestation to increase in 2020–2021. Overall, net emissions in the LULUCF sector decreased by 20.7 per cent between 1990 and 2021, but this sector is still responsible for the largest share of net emissions in the country (34.5 per cent in 2021) when it is taken into account in the national totals. The TERT also noted that Colombia's emissions excluding LULUCF increased by 81.9 per cent between 1990 and 2021, reaching 183,498.92 kt CO_2 eq in 2021. The significant increase in GHG emissions between 1990 and 2021, and particularly between 2019 and 2021, indicates that economic drivers such as increased demand for transportation, increased demand for energy in the manufacturing and construction sectors, high urbanization rates and population growth outpaced the effects of mitigation policies in this period. The TERT notes that the Party might consider strengthening the implementation of existing mitigation actions and planning for additional mitigation actions to address these trends.

27. The TERT noted that Colombia's growing population, which increased by 28.7 per cent from 2001 to 2021, with a particularly significant increase from 2018 to 2019 owing to immigration from the Bolivarian Republic of Venezuela, combined with increasing urbanization rates, transport demand and economic growth, posed a challenge for the Party regarding the achievement of its NDC. For example, emissions from the waste and IPPU sectors steadily increased between 2014 and 2021, largely as a result of population growth. Sustained growth in energy demand has also been observed since 2020, with an increasing number of registered vehicles and a high share of gasoline-powered motorcycles. This increase in energy consumption, which was mainly driven by economic growth and industrial expansion, led to an increase in GHG emissions, with energy sector emissions increasing by 82.4 per cent from 1990 to 2021. With regard to economic growth, the Party's gross domestic product contracted by 7.2 per cent in 2020 compared with the 2019 level owing to the coronavirus disease 2019 pandemic, but the Party experienced a strong recovery, recording economic growth of 10.8 per cent in 2021, which was driven by industry, trade and the provision of health services, which counteracted the effects of mitigation PaMs in the period.

28. As for black carbon emissions, which are addressed by the Party's third NDC target (see table 7), the TERT noted that it remains to be seen whether adopted PaMs, actions and plans additional to mitigation actions in the energy and manufacturing industries and transport, such as the implementation of Euro 4 and Euro 6 emission standards for new diesel vehicles and reduction of burning practices for agricultural residues, have made a contribution to the reduction of black carbon emissions, which decreased slightly (by 0.2 per cent) in 2021 compared with the level in 2014 (the NDC base year).

29. Colombia reported projections for 2025–2030 under the WM scenario.[20] The WM scenario reported by the Party includes PaMs implemented and adopted from 2015 until 2030. In addition to the WM scenario, Colombia reported the WOM scenario. The projected emission levels are presented in table 9. The TERT noted that information on GHG emission projections was not used in considering Colombia's progress in implementing its NDC.

Table 9
Summary of greenhouse gas emission projections for Colombia

	GHG emissions (kt CO_2 eq/year)	*Change in relation to 2020 level (%)*	*Change in relation to 2021 level (%)*
Inventory data 2020	274 792.40	NA	–1.9
Inventory data 2021	280 101.98	1.9	NA
WOM projections for 2030	346 218.16	26.0	23.6
WM projections for 2030	221 318.18	–19.5	–21.0

Sources: Colombia's BTR1, CRTs and CTF tables 7–9.
Note: The projections are for GHG emissions with LULUCF and excluding indirect CO_2 emissions.

30. The TERT noted that for indicator 2 (annual change in area covered by natural forest), in CTF table 10 Colombia provided only an aspirational projection (i.e. a series of values converging towards the target). The TERT also noted that Colombia applied flexibility in accordance with paragraph 102 of the MPGs and did not report a projection for indicator 3 (progress in reducing black carbon emissions).

31. The TERT assessed Colombia's progress towards its targets for 2030. The TERT notes that, for the first target (emitting a maximum of 169.44 Mt CO_2 eq in 2030), an emission reduction of 110.66 Mt CO_2 eq compared with the level in the most recently reported year (2021) is required to reach the target level. The TERT also notes that, for the second target (reducing the change in natural forest area due to deforestation to 50,000 ha/year by 2030), a reduction of 29,256 ha/year compared with the level in the most recently reported year (2023) is needed to reach the target level, and for the third target (reducing black carbon emissions by 40 per cent compared with the 2014 level), an additional reduction of 39.8 per cent compared with the level in the most recently reported year (2021) is needed to reach the target level. However, it notes that there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as it is early in the implementation period (2020–2030). The TERT also notes that regular monitoring of progress against the indicators and the results of mitigation actions will enable the Party to make adjustments as needed as it moves towards achieving the targets.

C. Consideration of the Party's support provided[21]

32. Colombia did not consider itself subject to the reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement and did not report information in its BTR1 on support provided (see para. 14 above).

D. Identification of areas of improvement[22]

33. During the technical expert review, the TERT identified areas of improvement in relation to Colombia's implementation of Article 13 of the Paris Agreement, which are summarized in chapter II.A above and included in the assessment tables referred to in paragraph 7 above.

[20] Note that, as per para. 93 of the MPGs, projections shall not be used to assess progress towards the implementation and achievement of an NDC under Article 4 of the Paris Agreement unless the Party has identified a reported projection as its baseline.
[21] As per para. 146(c) of the MPGs.
[22] As per para. 146(d) of the MPGs.

E. Assistance in identifying capacity-building needs[23]

34. The TERT, in consultation with Colombia, identified the following prioritized needs for capacity-building to facilitate the Party's reporting in its BTR relating to the flexibilities applied by it as per the MPGs:[24]

(a) Strengthening capacity for and supporting the development and reporting of a consistent time series from 1990 to the latest reporting year, which shall be no more than two years prior to the submission of the NIR;

(b) Developing the ability to construct consistent representation of lands and land uses for the entire time series using satellite data and information available from national or international sources;

(c) Enhancing national capacity to facilitate the measurement and reporting of the mitigation impacts of PaMs.

35. Furthermore, in order to facilitate continuous improvement in reporting, the following capacity-building needs were identified during the review:

(a) Further developing the capacity and enhancing knowledge retention of relevant staff in relation to compiling and reporting the GHG inventory, and data management and archiving, including through focused training courses and workshops;

(b) Developing processes for collecting data and estimating GHG emissions for categories for which estimates have not yet been reported or which have previously been reported as "NE";

(c) Supporting the development of expertise in transforming the existing data-collection mechanism (e.g. statistical surveys) into a system for collecting relevant AD and country-specific parameters on the management, generation and composition of urban and rural solid waste and wastewater;

(d) Enhancing national and institutional capacity to develop the ability to understand, evaluate and report on the methodologies and assumptions used to estimate, with the use of modelling tools, the GHG emission reductions or removals expected and achieved by each policy and measure.

36. Colombia also identified the capacity-building support needs in its BTR1 (section 2.7, tables 2.22 and 2.23 (pp.206–212), and section 4.7 (pp.432–436)).

III. Conclusions and recommendations

37. The TERT conducted a technical expert review of the information reported in the BTR1, CRTs and CTF tables of Colombia in accordance with the MPGs.

38. The areas of improvement identified by the TERT on the basis of the review of the consistency of the information reported by Colombia with the MPGs are summarized in chapter II.A above and included in the assessment tables referred to in paragraph 7 above.

39. The TERT considers that, on the basis of a comparison of information on indicators for the most recent reported year (i.e. 2021 for the first and third NDC targets, and 2023 for the second) with the target levels, and taking into account information on mitigation actions, national circumstances and relevant underlying drivers, Colombia did not make the progress expected in 2020–2021 and may face challenges in keeping on track to achieving its NDC targets. The TERT also notes that there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as it is still early in the implementation period (2020–2030). The TERT further notes that, in its BTR1, Colombia recognized the need to accelerate the implementation of its mitigation actions in order to achieve its first NDC target.

[23] As per para. 146(e) of the MPGs.

[24] For a complete list of the capacity-building needs identified by the TERT in consultation with the Party, see table 15 in document FCCC/ETF/TERR.1/2024/COL/Add.1.

40. The TERT notes that PaMs, actions and plans have started to have an impact on GHG emission reductions in the agriculture and LULUCF sectors. In the energy, IPPU and waste sectors, GHG emissions have increased, which indicates that economic drivers such as increased demand for transportation, increased demand for energy in the manufacturing and construction sectors, high urbanization rates and population growth have outpaced the implementation of mitigation PaMs in the short term. The TERT also notes that PaMs, actions and plans, in particular the implementation of PaMs focused on reducing deforestation, contributed to a 59.8 per cent decrease in the annual gross deforestation area, which is under the Party's second NDC target, from 2018 to 2023. As for reducing black carbon emissions under the Party's third NDC target, the TERT notes that it remains to be seen whether adopted PaMs, actions and plans, such as those in the transport and agriculture sectors, have made a contribution to the reduction of these emissions, which decreased slightly (by 0.2 per cent) in 2021 compared with the level in 2014 (the NDC base year).

41. Colombia did not consider itself subject to reporting obligations applicable to developed country Parties pursuant to Article 13, paragraph 9, of the Paris Agreement and, in accordance with the MPGs, did not report information on financial, technology development and transfer, or capacity-building support provided under Articles 9–11 of the Paris Agreement in its BTR1.[25]

42. Regarding the implementation of Article 13 of the Paris Agreement and transparency-related activities, Colombia required support for the second phase of its 2030 MRV Strategic Vision project and for developing its BTRs and national communications with the aim of improving its capacity for estimating and reporting GHG emissions and removals. The Party received support for 2022–2026 for strengthening its national GHG inventory system and improving the mechanisms for providing technical information on GHG emissions and removals to relevant decision makers to inform the development of policy instruments such as the NDC. The amount of support received for 2022–2026 through multilateral channels totalled USD 3.79 million; however, this amount refers only to the financial support received for Colombia's 2030 MRV Strategic Vision project.

43. In consultation with Colombia, the TERT identified reporting-related needs for capacity-building support relating to the flexibilities applied by the Party as per the MPGs that could facilitate the Party's preparation of subsequent BTRs. For Colombia, the main reporting-related needs for capacity-building support are strengthening capacity for and supporting the development and reporting of a consistent time series from 1990 to the latest reporting year, which shall be no more than two years prior to the submission of the NIR; developing the ability to construct consistent representation of lands and land uses for the entire time series using satellite data and information available from national or international sources; enhancing national capacity to facilitate the measurement and reporting of the mitigation impacts of PaMs; and enhancing national and institutional capacity to develop the ability to understand, evaluate and report on the methodologies and assumptions used to estimate, with the use of modelling tools, the GHG emission reductions or removals expected and achieved by each policy and measure.

[25] As per para. 118 of the MPGs.

Annex I

Outcome of the review conducted on a voluntary basis of the information reported by the Party in its first biennial transparency report pursuant to chapter IV of the modalities, procedures and guidelines

I. Summary of reported information

1. In its BTR1 Colombia provided information related to climate change impacts and adaptation under Article 7 of the Paris Agreement pursuant to chapter IV of the MPGs and, as per paragraph 1 of decision 9/CMA.4, on a voluntary basis, requested the secretariat to organize a review of that information as part of the technical expert review pursuant to chapter VII of the MPGs.

2. In accordance with chapter IV of the MPGs, Colombia provided information on its climate change impacts; risks and vulnerabilities; adaptation priorities and barriers to implementing adaptation action; and cooperation, good practices, experience and lessons learned in relation to climate change impacts and adaptation, which is summarized in table I.1.

Table I.1
Summary of information on vulnerability and adaptation to climate change reported by the Party

Priority adaptation sector or area	*Vulnerability and adaptation measures reported*	*Challenges and constraints*	*Cooperation, good practices, experience and lessons learned*
Agriculture[a]	Vulnerability: Reduction in agricultural and fishing yields; reduction in meat and milk production; and an increase in food production costs and food prices. Adaptation measure: The Party is enhancing agroclimatic data generation and communication through an agricultural risk management information system; promoting sustainable water management; enhancing rice production technologies; diversifying production through seed conservation, resistant crop varieties, sustainable silvopastoral systems, and resilient agroforestry systems; and fortifying rural disaster response and recovery.	There is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Hosting community agroclimatic round tables and engaging with Indigenous communities under the ENANDES project, and promoting food security for Awá and Afrodescendent communities on the Colombia–Ecuador border.
Commerce, industry and tourism	Vulnerability: Damaged infrastructure, equipment and machinery as a result of extreme weather events, and increased costs and variability of energy, water and communication services. Adaptation measure: The Party is promoting adaptation actions among enterprises, including in tourism, through the use of project portfolios, capacity-building programmes and guidelines.	There is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Developing a toolbox for climate-resilient investments and strengthening businesses' capacity for climate risk management.
Energy	Vulnerability: Energy infrastructure integrity under threat from droughts,	There is a need to enhance sectoral vulnerability data;	Promoting community-level solar energy and

Priority adaptation sector or area	*Vulnerability and adaptation measures reported*	*Challenges and constraints*	*Cooperation, good practices, experience and lessons learned*
	sea level rise, landslides, heatwaves and forest fires, and increasing costs of and variability in energy services. Adaptation measure: The Party is building resilient infrastructure; embedding climate considerations in planning processes; developing information systems; and researching new technologies.	institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	sustainable heating under the ENANDES project with Argentina, Bolivia (Plurinational State of), Chile, Ecuador and Peru.
Environment, biodiversity and ecosystem services[a]	Vulnerability: Impacts on species distribution and viability, mobility, health and ecological processes. Adaptation measure: The Party is carrying out watershed management; promoting ecosystem-based adaptation, nature-based solutions and ecological corridors; developing early warning systems; enhancing wildfire management and environmental licensing; reducing urban and peri-urban ecosystem degradation; and conducting ecosystem restoration, rehabilitation and conservation.	There is a need to further mainstream and scale up ecosystem-based adaptation and nature-based solutions across sectors and territories; and a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Promoting community-led early warning systems though the ENANDES project; adjusting processes to local circumstances; ensuring long-term sustainability of the results of ecosystem services implementation and capacity retention; developing guidelines for climate change mainstreaming in watershed management; and developing a national public–private nature-based solution network.
Health[a]	Vulnerability: Increase in vector transmission from changes in temperature and precipitation, and cases of drowning and injuries as a result of extreme weather events. Adaptation measure: The Party is carrying out epidemiological surveillance; conducting awareness campaigns on disease prevention; building resilient health institutions and services; embedding climate considerations in planning processes; and creating a sectoral climate change committee.	There is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Prioritizing climate change within the health sector.
Housing, cities and territory[a]	Vulnerability: Disaster risks for settlements owing to a lack of climate change considerations in land-use planning and adaptation measures in high-risk areas. Adaptation measure: The Party is embedding resilience considerations in land-use planning; introducing incentives for construction of resilient buildings; protecting high-risk settlements; enhancing urban drainage; promoting ecosystem-based adaptation and nature-based solutions for territorial management (e.g. green/blue	There is a need to enhance alignment between land-use planning and climate change; sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and	Developing guidelines for mainstreaming climate change considerations in subnational planning.

Priority adaptation sector or area	*Vulnerability and adaptation measures reported*	*Challenges and constraints*	*Cooperation, good practices, experience and lessons learned*
	infrastructure, urban wetlands and riparian buffers); strengthening the role of institutions and knowledge management; introducing risk transfer mechanisms; and developing early warning systems.	evaluation; and action led by Indigenous communities.	
Marine and coastal areas	Vulnerability: Threats to port infrastructure and operations from gales, floods, erosion, storm surges, tropical storms, landslides, droughts, sea level rise and salinization. Adaptation measure: The Party is embedding ecosystem-based adaptation and nature-based solutions in coastal land-use planning and resource management; preserving and restoring mangroves, beaches, dunes and seagrass beds; enhancing conservation of marine ecosystems and protected areas; managing coastal erosion; and strengthening fishing regulations.	Outdated sectoral policies are not aligned with national adaptation targets, and there is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Developing guidelines for mainstreaming ecosystem-based adaptation in integrated coastal management.
Transport	Vulnerability: Road closures as a result of flooding and landslides. Adaptation measure: The Party is enhancing risk management through the use of geographic information systems, and developing green infrastructure construction guidelines.	There is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Developing information tools for climate risk management in transport.
Water and sanitation[a]	Vulnerability: Impacts of rainfall deficits and surplus on water, sewerage and sanitation services, technologies and infrastructure. Adaptation measure: The Party is promoting public–private investments in resilient water, sanitation and sewerage systems and enhancing wastewater treatment and wastewater reuse.	There is a need to enhance sectoral vulnerability data; institutional technical skills; finance and technology needs assessments; financial resources; the monitoring and evaluation system to be fully operational; subnational inter-institutional coordination; adaptation road maps; project-level monitoring and evaluation; and action led by Indigenous communities.	Promoting community-level water management though the ENANDES project.

[a] Thematic target under the United Arab Emirates Framework for Global Climate Resilience.

3. Colombia provided a description of its adaptation strategies, policies, plans and goals; the actions it has taken to integrate adaptation into national policies and strategies; and its progress in implementing adaptation action, and information on its monitoring and evaluation of adaptation actions and processes, which is summarized within the context of the iterative adaptation cycle in table I.2.

Table I.2
Summary of information on the iterative adaptation cycle

Dimensions	*Information on the progress reported*
Impact, vulnerability and risk assessment	In December 2023, Colombia updated its capacity-adjusted municipal disaster risk index, evaluating excessive rainfall and rainfall deficit for 2016–2019. In 2024, the Party prepared climate change scenarios on the basis of the latest shared socioeconomic pathways from the Sixth Assessment Report of the IPCC, projecting changes over 2021–2100 compared with the 1981–2010 historical period for precipitation, temperature (maximum, medium and minimum), relative humidity, wind velocity and radiation. In addition, in 2024 Colombia published a climate change impact analysis for 2015 and 2019 based on five components (hazard, vulnerability, sensitivity, adaptive capacity and risk) for three dimensions (water resources, human health, and biodiversity and ecosystem services).
Planning	At the national level, Colombia's adaptation planning framework is based on four legal and policy instruments in accordance with law 1931 of 2018: (a) The adaptation communication presented as part of the Party's 2020 NDC, which established 30 adaptation targets up to 2030; (b) Law 2169 of 2021, which established 12 complementary adaptation targets for achieving climate resilience, reinforces the intersectoral and inter-institutional integration of climate action across all levels of government, and promotes coordination between the public and private sectors; (c) The National Climate Change Policy of 2017, which is aimed at incorporating climate change considerations in public and private sector decision-making, fostering resilient development by reducing risks and creating opportunities for empowering communities, and promoting research, education and community participation in planning, implementing and monitoring adaptation action; (d) The National Climate Change Adaptation Plan of 2016, which is aimed at reducing climate change risk and lessening the associated socioeconomic impacts. At the sectoral level, Colombia's adaptation planning framework is based on sectoral climate change management plans. Colombia currently has seven adopted plans (for the agriculture; commerce, industry and tourism; defence; energy; finance; health; and housing, cities and territory sectors) and formally adopted equivalent instruments for two sectors (road network and marine ports). Although adaptation planning documents exist for water and sanitation and the environment, the corresponding sectoral climate change management plans have not yet been formally adopted. Adaptation planning documents are not in place for the coastal and marine zone sector, but the sector has environmental and sustainable development policies in place that indirectly contribute to adaptation in the sector. At the subnational level, 31 of Colombia's 32 departments have developed a comprehensive territorial climate change management plan. The Party is also actively mainstreaming the nexus of climate resilience, sustainable development, gender equity and Indigenous knowledge through: (a) The National Development Plan for 2022–2026; (b) The 2050 long-term climate strategy; (c) A public policy on gender equality for women, adopted in 2022, and its gender and climate change toolkit; (d) A country vision on gender and climate change; (e) The gender and climate change action plan of 2023; (f) A just transition strategy; (g) A draft national Indigenous plan for climate mitigation, adaptation and resilience.
Implementation	In section 3.5.3 of the BTR1 (pp.371–379), Colombia reported the progress of implementation in 2020–2024 for 28 of its 30 NDC adaptation targets; the remaining two targets were still under consolidation when the BTR1 was under preparation. The Ministry of Environment and Sustainable Development is developing the implementation and monitoring plan for law 2169 of 2021 with a view to tracking the progress of implementation of the Party's 12 complementary adaptation targets (a completion date for the plan has not yet been set).

Dimensions	*Information on the progress reported*
Monitoring, evaluation and learning	Under the National Climate Change Information System, Colombia is developing its national adaptation monitoring and evaluation system, which centres on a tool called SIIVRA. As an NDC target, Colombia aims to render SIIVRA and the monitoring and evaluation system fully operational under the National Climate Change Information System by 2028. The conceptual design of SIIVRA features two modules (risk and adaptation) which, once operational, will be used to generate results every two years: (a) The risk module will track climate change risk indicators at the municipal level across five components (hazard, vulnerability, sensitivity, adaptive capacity, and risk) across eight dimensions (biodiversity and ecosystem services, cultural patrimony, disaster risk, food security and agricultural production, human health, infrastructure, settlements and water resources); (b) The adaptation module will track the progress of implementation of adaptation measures using strategic, tactical and operative indicators, as well as evaluating the effectiveness of adaptation measures using results indicators. Colombia has also designed the +Clima Platform, a tool under the National Climate Change Information System. The tool, which is not yet fully operational, is aimed at automating reporting and promoting public access to information on the progress of implementation and effectiveness of priority adaptation actions. In addition, the capacity-adjusted municipal disaster risk index, which is updated every four years, is a tool that will support the monitoring and evaluation system by ranking and comparing municipal risks for excessive rainfall and rainfall deficit.

4. Colombia provided information on averting, minimizing and addressing loss and damage related to climate change impacts, as summarized in table I.3.

Table I.3
Summary of information related to averting, minimizing and addressing loss and damage

Dimensions	*Information reported*
Observed and potential climate change impacts	Extreme events: Colombia's capacity-adjusted municipal disaster risk index enables the consideration of historical and current climate change risks posed by extreme events at the municipal level. Updated in 2023, the latest municipal disaster risk index results show that Colombia is highly vulnerable to economic and non-economic loss and damage resulting from extreme hydrometeorological phenomena. More than 80 per cent of disasters between 1998 and 2023 originated from hydrometeorological events, of which 35 per cent were associated with rainfall deficits (droughts and forest fires), and 50 per cent with excessive rainfall (floods, landslides and torrential downpours). Slow onset events: Colombia has established a comprehensive methodology for developing climate change scenarios under the latest shared socioeconomic pathways from the Sixth Assessment Report of the IPCC at a geospatial resolution of 10 km^2. Updated in 2024, the latest scenario results, which extend to 2100, report that average temperatures are projected to increase by 1.2–5.0 °C towards the end of the century, with the most significant impacts expected in the Catatumbo, Amazon and Andean regions. Precipitation is projected to increase in the Andean, Pacific and Amazon regions but to decrease significantly (by up to 44 per cent) in the Caribbean and Orinoquía regions. Relative humidity is projected to decrease countrywide, most notably in the Orinoquía and Amazon regions. Wind speed is projected to decrease in general, except for some increases in the northern Caribbean and La Guajira regions. Global radiation is projected to increase in the central region of the country, especially in the Andean, Orinoquía and Amazon regions, while slight decreases are expected in the Caribbean region.
Activities	Colombia has established a comprehensive approach under the National Climate Change Policy, National Climate Change Adaptation Plan, and National Disaster Risk Management Plan for understanding, preventing, reducing and managing loss and damage associated with hydrometeorological events, which involves mobilizing resources and human capital while fostering cooperation across organizations, sectors and territories under the National Disaster Risk Management System.

Dimensions	*Information reported*
Institutional arrangements	Institutional arrangements for loss and damage in Colombia are framed within the nexus of climate change and disaster risk management, as defined by the National Climate Change System and the National Disaster Risk Management System. To operationalize this integrated approach to climate change and disaster risk management, Colombia intends to strengthen coordination between the institutions and key actors under each system, namely by enhancing the fluid articulation between CICC, the National Council for Disaster Risk Management, the territorial councils for risk management, the CICC committees and the regional climate change nodes. Colombia is also considering establishing an inter-institutional advisory group on loss and damage within the National Climate Change System, which may be linked to CICC and the regional climate change nodes.

II. Areas of improvement identified during the technical expert review of the reporting in the Party's first biennial transparency report on climate change impacts and adaptation under Article 7 of the Paris Agreement pursuant to chapter IV of the modalities, procedures and guidelines

5. The TERT assessed the information reported on climate change impacts and adaptation under Article 7 of the Paris Agreement pursuant to chapter IV of the MPGs in the BTR1 of Colombia and identified areas of improvement relating to consistency with the MPGs, which are described in table I.4. All encouragements contained in the table are for the next BTR, unless otherwise specified.

Table I.4
Areas of improvement of the reporting on climate change impacts and adaptation under Article 7 of the Paris Agreement

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
I.4.1	Specified in paragraph 106(a) of the MPGs	The description of Colombia's national circumstances with regard to transport, energy, telecommunications, and water and sanitation infrastructure provided in the BTR1 (section 3.1.4, pp.249–250) is not consistent with the level of detail provided for the description of the country's biogeophysical characteristics (pp.246–247), demographics (pp.246–248), economy (p.249) and adaptive capacity (p.250). During the review, Colombia confirmed that it has data and statistics of its transportation, energy, telecommunications, water, and sanitation infrastructure, and provided the TERT with a summary of key available data. The TERT encourages Colombia to provide in the BTR available information, as appropriate, on its national circumstances with regard to infrastructure (e.g. for transport, energy, telecommunications, and water and sanitation) to a level of detail consistent with the information provided on the country's biogeophysical characteristics, demographics, economy and adaptive capacity.
I.4.2	Specified in paragraph 107 of the MPGs	The TERT noted that section 3.2.2 of the BTR1 (pp.282–323) provides information on the vulnerability analysis results for only three dimensions of SIIVRA (biodiversity and ecosystem services, human health and water resources) and that the BTR1 does not transparently explain why information on the five other dimensions (cultural patrimony, disaster risk, food security and agricultural production, infrastructure, and settlements) is omitted. Moreover, section 3.2.1 of the BTR1 (p.264) includes the results of the capacity-adjusted municipal disaster risk index, but does not (1) specify the year(s) for which the index was calculated, (2) describe the methodology used to elaborate the index, (3) report associated uncertainties and challenges or (4) adequately cross-reference supporting documents where such information can be found. Furthermore, section 3.2.1 of the BTR1 (p.265) reports climate change scenarios and adequately cross-references the supporting methodological document; however, neither the BTR1 nor the supporting methodological document provide information on the uncertainties and challenges associated with preparing the scenarios.

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		During the review, Colombia clarified that its 2020 NDC established the goal of developing SIIVRA by 2028, which was reaffirmed in law 2169 of 2021. Therefore, Colombia presented in its BTR1 vulnerability results from SIIVRA for three initial dimensions (biodiversity and ecosystem services, human health, and water resources), as information was available for those dimensions only at the time of BTR preparation. The five remaining dimensions, which were omitted because there were no operational results yet available, are being progressively strengthened in line with the national planning horizon. The Party provided the TERT with a detailed supporting methodological document on the preparation of the capacity-adjusted municipal disaster risk index, and clarified that the reported risk index results cover 2016–2019 and that the reported values were validated, but that uncertainties were not estimated owing to the high resolution of the variables required for calculating the index and the limited time and resources available for collecting and processing data. Colombia also clarified that uncertainties were not calculated for the reported climate change scenarios owing to the type of statistical downscaling methodology applied, and to limited time, data, and availability of computational, human and financial resources. The TERT encourages Colombia to provide information in the BTR, as appropriate, on the vulnerability analysis for all dimensions of SIIVRA, or to clarify in the BTR why comparable and consistent information was not reported for all dimensions. The TERT also encourages Colombia to provide information in the BTR or include adequate cross-references for supporting documents, as appropriate, on the calculation year(s) for the capacity-adjusted municipal disaster risk index, the methodological approach used to elaborate the index and the uncertainties and challenges associated with its preparation, or clarify in the BTR on the reasons for not reporting such information. The TERT further encourages Colombia to provide information in the BTR, or include adequate cross-references to supporting documents, as appropriate, on the uncertainties and challenges associated with the preparation of climate change scenarios, or to clarify in the BTR the reasons for not reporting such information.
I.4.3	Specified in paragraphs 107(b) and 109(b) of the MPGs	With regard to Colombia's sectoral vulnerabilities and sectoral adaptation goals, actions, objectives, undertakings, efforts and plans, the scope of adaptation sectors was reported inconsistently across section 3 of the BTR1. The TERT was unable to identify the reason why certain adaptation sectors were included in or omitted from different parts of section 3. Specifically, figure 3.16 (pp.280–281) identifies nine adaptation sectors (agriculture; commerce, industry and tourism; environment; health; housing, cities and territory; marine ports; mining and energy; road networks; and water and sanitation); table 3.8 (pp.347–349) only identifies five adaptation sectors (agriculture; commerce, industry and tourism; defence; housing, cities and territory; and mining and energy); and section 3.4.2 (p.350) identifies nine sectors, some of which differ from those identified in figure 3.16 (agriculture; commerce, industry and tourism; defence; energy; finance; health; housing, cities and territory; marine ports; and road networks). In addition, environment is reported as a stand-alone sector in figure 3.16, but included as the environment and sustainable development sector under the national-level adaptation priorities reported in section 3.3.1 of the BTR1 (pp.330–336). During the review, Colombia clarified that the inconsistencies with regard to which adaptation sectors were included in or omitted from different parts of section 3 of the BTR were the result of varying levels of data availability, availability of vulnerability analyses or developed adaptation actions, and degree to which sectoral instruments were formalized at the time of reporting. Specifically, the Party confirmed that it has formally adopted sectoral climate change management plans for seven sectors (agriculture; commerce, industry and tourism; defence; energy; finance; health; and housing, cities and territory) and equivalent instruments for two other sectors (road network and marine ports). The water and sanitation and environment sectors also have adaptation planning documents in place, but their corresponding sectoral climate change management plans have not yet been formally adopted. Although the coastal and marine zone sector does not have adaptation planning documents in place, it has environmental and sustainable development policies in place that indirectly contribute to

ID#	*Reporting requirement*	*Description of area of improvement with recommendation or encouragement*
		adaptation efforts. Colombia also explained that table 3.8 of the BTR only includes the five sectors for which specific adaptation actions have been developed, while figure 3.16 presents the nine sectors for which information on vulnerability was available when the BTR1 was prepared. Colombia also confirmed that environment is a stand-alone sector but was included in section 3.3.1 of the BTR1 as a priority area for action and point of reference. The TERT encourages Colombia, as appropriate, to define a consistent scope of adaptation sectors and provide complete information on vulnerabilities and adaptation goals, actions, objectives, undertakings, efforts and plans for all sectors, clearly distinguishing this from the national-level information reported, or to clarify in the BTR the reasons for not reporting this information consistently across sectors.

III. Assistance in identifying capacity-building needs[1]

6. In order to facilitate continuous improvement of the reporting in the BTR on climate change impacts and adaptation under Article 7 of the Paris Agreement pursuant to chapter IV of the MPGs, the following capacity-building needs were identified during the review:

(a) Developing the technical and institutional capacities of sectoral entities to generate consistent sectoral information, at a comparable level of detail across sectors, on the four components of vulnerability (hazards, impacts, sensitivity and adaptive capacity) by applying standardized methodologies, implementing intersectoral harmonization of data and validation processes, and providing training;

(b) Developing technical and institutional capacities to establish mechanisms for tracking and monitoring the implementation of sector-specific adaptation actions;

(c) Strengthening technical capacities for monitoring, evaluating and learning with a view to tracking progress towards adaptation outcomes in line with the global goal on adaptation;

(d) Strengthening technical capacity to collect, analyse and report information related to enhancing understanding, action and support to avert, minimize and address loss and damage associated with the impacts of climate change.

7. Colombia also identified capacity-building support needs in table 3.15 of its BTR1 (pp.395–396) to facilitate reporting in the BTR on climate change impacts and adaptation under Article 7 of the Paris Agreement pursuant to chapter IV of the MPGs, which were further refined by Colombia during the review as follows:

(a) Enabling improvement of the quality and coverage of climate and vulnerability data to enhance the analysis of climate change risks;

(b) Integrating climate goals into territorial environmental planning instruments, thereby enabling the alignment of territorial policy instruments with adaptation targets;

(c) Promoting projects that integrate nature-based solutions and local knowledge;

(d) Enabling standardization of indicators and improving monitoring, evaluation and learning systems for evaluating the impacts of adaptation measures.

[1] As per para. 146(e) of the MPGs.

Annex II

Documents and information used during the review

A. Reference documents

BTR1 of Colombia. Available at https://unfccc.int/first-biennial-transparency-reports.

BTR1 CTF tables of Colombia.
Available at https://unfccc.int/first-biennial-transparency-reports.

CRTs of Colombia. Available at https://unfccc.int/first-biennial-transparency-reports.

EEA. 2019. *EMEP/EEA air pollutant emission inventory guidebook 2019: Technical guidance to prepare national emission inventories*. Luxembourg: Publications Office of the European Union. Available at https://www.eea.europa.eu/publications/emep-eea-guidebook-2019.

FAO. 1961. *FAO Yearbook of Forest Products 1961*. Rome, Italy: FAO. Available at https://openknowledge.fao.org/items/c4ea85b7-45a0-4991-8fb9-9d436880113f.

"Guidance for operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement". Decision 5/CMA.3. FCCC/PA/CMA/2021/10/Add.2. Available at https://unfccc.int/documents/460951.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at http://www.ipcc-nggip.iges.or.jp/public/2006gl.

IPCC. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/.

IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. E Buendia, K Tanabe, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/.

"Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement". Annex to decision 18/CMA.1. FCCC/PA/CMA/2018/3/Add.2. Available at https://unfccc.int/documents/193408.

NDC of Colombia. Available at https://unfccc.int/NDCREG.

"Reviews on a voluntary basis of the information reported pursuant to decision 18/CMA.1, annex, chapter IV, and respective training courses needed". Decision 9/CMA.4. FCCC/PA/CMA/2022/10/Add.2. Available at https://unfccc.int/documents/626570.

B. Additional information provided by the Party

Responses to questions during the review were received from Leonardo Pineda (Institute of Hydrology, Meteorology and Environmental Studies of Colombia), including additional material. The following references were provided by Colombia and may not conform to UNFCCC editorial style as some have been reproduced as received:

Congreso de Colombia. 2021. *Ley No 2169 de 22 de diciembre de 2021 por medio de la cual se impulsa el desarrollo bajo en carbono del país mediante el establecimiento de metas y medidas mínimas en materia de carbono neutralidad y resiliencia climática y se dictan otras disposiciones*. Bogotá, Colombia: Sistema Único de Información Normativa. Available at https://www.suin-juriscol.gov.co/viewDocument.asp?id=30043747.

Departamento Administrativo Nacional de Estadística. 2016. *Guía para la estimación de la Cuenta de emisiones al aire por procesos de producción y utilización de materiales.*

Available at http://www.dane.gov.co/files/investigaciones/pib/ambientales/cuentas_ambientales/cuenta-ambiental-economica-flujos-materiales/Guia-metodologica-cuenta-ambiental-y-economica-de-flujos-de-materiales.pdf.

Departamento Administrativo Nacional de Estadística. 2024. *Encuesta nacional de calidad de vida*. Bogotá (Colombia). Available at https://www.dane.gov.co/index.php/estadisticas-por-tema/salud/calidad-de-vida-ecv/encuesta-nacional-de-calidad-de-vida-ecv-2024.

Departamento Nacional de Planeación. 2019. *Indice municipal de riesgo de desastres ajustado por capacidades*. Bogotá, Colombia: Departamento Nacional de Planeación. Available at https://www.dnp.gov.co/LaEntidad_/subdireccion-general-prospectiva-desarrollo-nacional/direccion-ambiente-desarrollo-sostenible/Paginas/indice-municipal-de-gestion-de-riesgo-ajustado-por-capacidades.aspx.

Engineering Construction Group. 2016. *Diseño, Construcción e Implementación de un Modelo para la Gestión de la Información del Balance Energético Colombiano, que involucre componentes de: Gobierno de Bodega Datos, Calidad de Datos, Mecanismos de Intercambio de Datos con Terceros, Bodega de Datos, Reportes, Uso y Apropiación*. Bogotá D.C. (Colombia). Available at https://www1.upme.gov.co/DemandayEficiencia/Documents/Metodologia_BECO.pdf.

EcoRegistry. 2025. *Doña Juana Landfill Gas to Energy Project.* Available at https://www.ecoregistry.io/projects/CDC-51.

Farfán Valencia, Fernando. 2014. *Agroforestería y Sistemas Agroforestales con Café*. Manizales, Caldas (Colombia): FNC – Cenicafé.

Incombustion Union Temporal. 2016. *Consultoría Técnica Para El Fortalecimiento y Mejora De La Base De Datos De Factores De Emisión De Los Combustibles Colombianos – FECOC.* Medellin (Colombia). Available at https://app.upme.gov.co/Calculadora_Emisiones1/new/Informe_Final_FECOC_Correcciones_UPME_FunNatura.pdf.

Instituto de Hidrología, Meteorología y Estudios Ambientales. 2024. *Escenarios de cambio climático de la cuarta comunicación de Colombia*. Bogotá, Colombia: Instituto de Hidrología, Meteorología y Estudios Ambientales, Ministerio de Ambiente y Desarrollo Sostenible, Programa De Las Naciones Unidas Para El Desarrollo, Fundación Natura y Proyecto GEF-CBIT "Transparencia Climática Colombia". Available at https://www.scribd.com/document/786812155/Escenarios-de-Cambio-Climatico-de-La-Cuarta-Comunicacion-Nacional-de-Colombia.

J.L. Ellis. 2007. *Prediction of Methane Production from Dairy and Beef Cattle.* Available at https://www.journalofdairyscience.org/article/S0022-0302(07)71795-2/fulltext.

Ministerio de Minas y Energia. 2021. *Resolución Número 40350 de 29 Oct 2021.* Bogotá D.C. (Colombia). Available at https://pigccme.minenergia.gov.co/public/assets/files/res_40350_2021.pdf.

Proyecto Biocarbono. 2023. *Factores de emisión y captura para SAF cacao promisorios y manual de campo validados*. Available at https://biocarbono.org/wp-content/uploads/2024/09/Factores_captura_emision_ajustado-y-manual-de-campo-validado.pdf#page=35.57.

Proyecto GEF-CBIT "Transparencia Climática Colombia". Available at https://visualizador.ideam.gov.co/portal/apps/storymaps/stories/660ec48de9454157b54adc074b1f38fd.

SCS Engineers for U.S. EPA Landfill Methane Outreach Program. 2010. *Colombia Landfill Gas Model.*

Swisscontact. 2020. *Guía Metodológica Para La Estimación De Emisiones De Maquinaria Móvil No De Carretera.* Lima (Perú). Available at https://programacalac.com/wp-content/uploads/2020/05/Gu%C3%ADa-inventario-emisiones-vfinal.pdf.

Swisscontact. 2021. *Primer Inventario De Emisiones De Fuentes Móviles De Uso Fuera De Carretera En Colombia*. Bogotá D.C. (Colombia).

Unidad de Planeación Minero Energética. 2016. *Propuesta Para El Cálculo Del Factor De Emisión Del Carbón Colombiano Para Estimar Las Emisiones Fugitivas Procedentes De La Extracción Del Carbón En Colombia*. Available at https://docs.upme.gov.co/SIMEC/SIMCO/Cifras-Sectoriales/EstudiosPublicaciones/Informe_factores_emision_carbon_21_09_2016.pdf.