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Report on the technical expert review of the first biennial transparency report of Panama

Summary

This report presents the results of the technical expert review of the first biennial transparency report of Panama, 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 2 to 6 December 2024 in Panama City.

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
A6.4ER	emission reduction under Article 6, paragraph 4, of the Paris Agreement
AD	activity data
BTR	biennial transparency report
CER	certified emission reduction
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
EF	emission factor
GDP	gross domestic product
GHG	greenhouse gas
HWP	harvested wood products
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
NA	not applicable
NAMA	nationally appropriate mitigation action
NDC	nationally determined contribution
NE	not estimated
PaMs	policies and measures
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)
TERT	technical expert review team
Wetlands Supplement	*2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*

I. Introduction and summary

A. Introduction

1. This report covers the technical expert review of the BTR1 of Panama. The review was organized by the secretariat and conducted by the TERT in accordance with the MPGs,[1] particularly chapter VII thereof.

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

3. The review was conducted as an in-country review from 2 to 6 December 2024 in Panama City by the following team of nominated experts from the UNFCCC roster of experts: Britta Maria Hoem (Norway), Medeia Inashvili (Georgia), Nicolo Macaluso (Canada), Juan Luis Martin Ortega (El Salvador), Atsushi Sato (Japan) and Alexander Valencia (Colombia). Nicolo Macaluso and Alexander Valencia were the lead reviewers. The review was coordinated by Nalin Srivastava and Luca Birigazzi (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.[3] The submission of the technical annex is voluntary and in the context of results-based payments.[4] The technical annex submitted by Panama was subject to technical analysis by two LULUCF experts concurrently with the technical expert review.[5] The results of the technical analysis are captured in a separate technical report.[6]

B. Scope

5. The TERT conducted a technical expert review of the information reported in the BTR1 of Panama as per the scope of the review defined in paragraph 146 of the MPGs, 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[7] 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).

C. Summary

6. Panama submitted its BTR1 on 30 June 2024, before the deadline of 31 December 2024 mandated in decision 18/CMA.1. Panama submitted its national inventory document as a stand-alone document on 21 June 2024, before the deadline of 31 December 2024.[8]

[1] Decision 18/CMA.1, annex.
[2] As per para. 162(e) of the MPGs.
[3] See decisions 14/CP.19, para. 7; 1/CP.24, para. 45; and 18/CMA.1, para. 14.
[4] Decision 14/CP.19, para. 8.
[5] See decisions 14/CP.19, paras. 10–14; 1/CP.24, para. 46; and 18/CMA.1, para. 14.
[6] See document FCCC/SBI/ICA/2024/TATR.1/PAN, to be made available upon publication at https://redd.unfccc.int/submissions.html?country=pan.
[7] As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs.
[8] The technical expert review was conducted on the basis of the version of the BTR submitted on 27 September 2024. The Party subsequently submitted revised versions of its CTF tables and CRTs on 10 January 2025, which were not subject to review.

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.[9]

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 national inventory report of anthropogenic GHG emissions by sources and removals by sinks[10] and the information necessary to track progress in implementing and achieving its NDC.[11] 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. Panama reported 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 TERT. Support is needed primarily for preparing national reports, including BTRs, and GHG inventories; using tools and building capacity for improving inventory estimates; improving the national climate transparency platform and implementing the Sustainable Panama: Reduce Your Footprint programme.

10. Support provided to Panama relates to areas such as improving GHG inventory estimates, strengthening institutional capacity to develop a national energy balance, collecting the necessary information for preparing its fourth national communication and second biennial update report and establishing a national climate transparency platform to meet the reporting requirements under the Paris Agreement. Table 1 summarizes the information that Panama reported in its BTR1 on support needed and received. 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 needed and received by Panama for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building

Status of support	*Amount (USD million)*
Support needed from 2024 to 2030	8.25
Support received from 2020 to 2024	1.76

Source: Panama's BTR1.

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

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

[11] The developing country Party applied flexibility in the light of its capacities with respect to the provisions in paras. 85, 92, 95 and 102 of the MPGs.

II. Technical expert review[12]

A. Review of the consistency of the submitted information with the modalities, procedures and guidelines[13]

1. National inventory report[14]

11. The TERT assessed the information reported in the BTR1 of Panama and identified areas of improvement relating to consistency with the MPGs, which are described in tables 1–7 of the assessment tables referred to in paragraph 7 above and summarized in table 2.

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

Element	*Elements of information to be reported*	*Summary of information reported*	*ID#(s) for the area(s) of improvement identified*[a]
Submission type (para. 12 of the MPGs)	Has the national inventory report been submitted as a stand-alone document?	Yes	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]	2000–2021, 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, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and nitrogen trifluoride[c]	2.G.2, 3.E.4, 4.I.2, 5.A.7, 6.L.10, 6.L.11, 7.W.1, 7.W.3
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 nitrous oxide emissions from sources other than those in the agriculture and LULUCF sectors as a memo item?	No	No areas of improvement were identified

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

Element	*Elements of information to be reported*	*Summary of information reported*	*ID#(s) for the area(s) of improvement identified*[a]
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?	Yes	2.G.2, 5.A.1, 5.A.2, 5.A.3, 5.A.4, 5.A.5, 5.A.6, 6.L.2, 6.L.5, 6.L.6, 6.L.7, 6.L.8, 6.L.9
	Has the Party used other IPCC methodological guidance?	Yes, the Wetlands Supplement and the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*	5.A.4
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 (2000) 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?	Yes	No areas of improvement were identified
	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 approach 1 for the starting year (2000) 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 some sectors	1.2, 5.A.5
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?		
	General	Yes	2.G.2
	Energy	Yes	3.E.4
	IPPU	Yes	4.I.2

Element	*Elements of information to be reported*	*Summary of information reported*	*ID#(s) for the area(s) of improvement identified*[a]
	Agriculture	Yes	5.A.7
	LULUCF	Yes	6.L.3, 6.L.10, 6.L.11
	Waste	Yes	7.W.1, 7.W.2, 7.W.3
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
Methodologies, EFs, parameters and AD (paras. 39–40 and 53–56 of the MPGs)	Has information been reported on categories, gases, methodologies (including the rationale for selecting them), EFs and AD at a disaggregated level for the following sectors?		
	Energy	Yes	No areas of improvement were identified
	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	Yes	No areas of improvement were identified
	Agriculture	Partly	5.A.1, 5.A.2, 5.A.3, 5.A.4, 5.A.6
	LULUCF	Partly	6.L.1, 6.L.4, 6.L.7, 6.L.8
	Waste	Yes	No areas of improvement were identified

[a] See document FCCC/ETF/TERR.1/2024/PAN/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.
[c] Nitrogen trifluoride was reported as "NO" for the entire time series.

2. Information necessary to track progress in implementing and achieving the nationally determined contribution[15]

12. The TERT assessed the information reported in the BTR1 of Panama and identified areas of improvement relating to consistency with the MPGs, which are described in tables 8–14 of the assessment tables referred to in paragraph 7 above and summarized in table 3.

Table 3
Information reported in Panama's submission

Topic	*ID#s for the area(s) of improvement identified*[a]
National circumstances and institutional arrangements (paras. 59–63 of the MPGs)	No areas of improvement were identified
Description of the NDC under Article 4 of the Paris Agreement, including updates (para. 64 of the MPGs)	No areas of improvement were identified
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, 10.2
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)	No areas of improvement were identified

[a] See document FCCC/ETF/TERR.1/2024/PAN/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[16]

13. According to chapter V of the MPGs, developed country Parties shall provide information on financial, technology development and transfer, and capacity-building support needed and received pursuant to Article 13, paragraph 9, of the Paris Agreement, and other Parties that provide support should provide such information and, in doing so, are encouraged to use the MPGs in that chapter.[17] Panama did not provide information on financial, technology development and transfer, or capacity-building support provided under Articles 9–11 of the Paris Agreement in its BTR1.

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

14. In considering Panama's progress in implementing and achieving its NDC, the TERT noted that the NDC[19] comprises multiple targets. In the NDC, Panama established 30 commitments across 11 strategic areas and economic sectors with different target years. These commitments have 35 progress indicators that allow for monitoring progress towards

[15] As per para. 150(b) of the MPGs.
[16] As per para. 150(c) of the MPGs.
[17] As per para. 118 of the MPGs.
[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 first NDC of Panama, submitted on 28 December 2020. The TERT noted that the Party submitted its second NDC on 13 June 2024.

achievement. Of Panama's 30 commitments, 4 are quantitative and 26 are qualitative. Indicators for quantitative targets were developed on the basis of measurable or calculable numerical metrics and values, while those for qualitative targets were progress indicators based on milestones.

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

Table 4
Description of the indicator(s) selected by Panama to track progress in implementing and achieving its nationally determined contribution

NDC target	*Indicator*	*Description*
Achieving 30 per cent of installed electricity generation capacity from non-conventional renewable energy sources by 2050	Percentage of the national installed electricity generation capacity (MW) from non-conventional renewable energy sources	The data available from the National Public Utilities Authority on the installed electricity generation capacity from non-conventional renewable energy sources are divided by the total data on installed capacity to obtain the value of the indicator each year. The reference or benchmark year for this indicator is 2014, in which the installed capacity from non-conventional renewable energy sources was 2.1 per cent (57.40 MW of a total of 2,781.88 MW)
Reducing total emissions from the energy sector by at least 11.5 per cent by 2030 and 24.0 per cent by 2050 compared with the baseline scenario	Percentage of GHG emissions (CO_2 eq) reduced compared with the baseline scenario up to 2050	Emissions from the national GHG inventory are compared with the emissions estimated in the 'business as usual' scenario in 2030 (14,248 kt CO_2 eq) and 2050 (15,868 kt CO_2 eq) and the percentage reduction is determined
Restoring 50,000 ha forests by 2050	Number of hectares of forests restored	The number of hectares that have been reforested in 2021–2050 will be determined, as indicated in the national forest restoration plan
Restoring 130,000 ha degraded land by 2050 under agroforestry and silvopastoral systems	Number of hectares of land restored	Hectares that were previously degraded and restored under agroforestry and silvopastoral systems in 2021–2050 will be counted
Integrating blue carbon into national GHG inventories by 2022	Net balance of annual emissions from coastal wetlands (mangroves) estimated	Net emissions from coastal wetlands (mangroves) will be estimated by applying chapter 4 of the Wetlands Supplement
Implementing a NAMA pertaining to rice and formulating and implementing a NAMA pertaining to livestock by 2030	Rice NAMA implemented and emission reductions achieved	The NAMA must be registered in the NAMA registry and a pilot project undertaken with 100 of the country's 2,000 rice producers. The number of producers participating in the NAMA will be the reference for tracking progress in its implementation
	Livestock NAMA formulated	The NAMA must be formulated, validated nationally and registered in the NAMA registry
	Livestock NAMA under implementation	NAMA implementation should be planned and financed, implementation arrangements should be established, activities should be carried out and validated, and results should be published
Developing a national climate change plan for the energy sector by 2025	National climate change plan for the energy sector developed	National climate change plan for the energy sector must be published
Developing and initiating the implementation of a national REDD+ strategy by 2025	National REDD+ strategy published	The national REDD+ strategy must be published
	National REDD+ strategy implemented	The implementation of the national REDD+ strategy is to be initiated

NDC target	*Indicator*	*Description*
Publishing and implementing other national plans, strategies and technical guides related to areas such as integrated watershed management; indicative land-use planning for the Panama Canal watershed; the marine and coastal systems, biodiversity, agriculture, human settlements, municipal, health and infrastructure sectors; and circular economy	National plans, strategies and technical guides developed and implemented	National plans, strategies and technical guides should be published and made operational

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

16. The TERT noted that the contribution of LULUCF to achieving the NDC is not relevant to the Party's baseline scenario, which is used as an indicator for its target relating to energy sector emissions, and that Panama did not use ITMOs, A6.4ERs or CERs from cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement or the mechanism established by Article 6, paragraph 4, of the Paris Agreement towards the achievement of its NDC.

17. Tables 5–9 summarize information on progress in implementing the NDC based on the indicators taking into account the types of Panama's NDC targets, including, where relevant, quantitative values for the base year and the end year of the baseline scenario and implementation period, including the most recent year available and target year.

Table 5
Summary of information on Panama's progress in implementing and achieving its nationally determined contribution: change in energy sector emissions relative to the baseline scenario (percentage)

	Change in GHG emissions (CO_2 eq) from the energy sector relative to the baseline scenario[a]	*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*
Baseline (2021)	NA			
2021	23.1	NA	NA	23.1
Target level (2025)[b]				–8.8
Target level (2030)[b]				–11.5
Target level (2050)[b]				–24.0

Sources: Panama's BTR1 and CTF table 4.

[a] Emission level corresponding to the baseline scenario in 2021, 2030 and 2050 is based on the GHG projections under the 'without measures' scenario.

[b] Target level corresponds to an unconditional NDC target.

18. According to the most recent information on the percentage change in GHG emissions for the energy sector with respect to the baseline scenario up to 2050 provided in Panama's BTR1 and CTF table 4, in 2021 Panama's GHG emissions from the energy sector (13,439.96 kt CO_2 eq) were 23.1 per cent above the baseline scenario (10,909.00 kt CO_2 eq). The TERT noted a 16.4 per cent increase (1,897.26 kt CO_2 eq) in GHG emissions from the energy sector for 2021 relative to 2020 (11,542.70 kt CO_2 eq). The indicator is projected to be 8.8 per cent below the emission level corresponding to the baseline scenario in 2025, 11.5 per cent below the emission level corresponding to the baseline scenario in 2030 and 24.0 per cent below the emission level corresponding to the baseline scenario in 2050.

Table 6
Summary of information on Panama's progress in implementing and achieving its nationally determined contribution: installed electricity generation capacity from non-conventional renewable energy sources (percentage)

	Installed electricity generation capacity from non-conventional renewable energy sources	*ITMOs used towards NDC, as applicable*	*Indicator adjusted for ITMOs used towards NDC, as applicable*
Base year (2014)	2.1		
2021	18.1	NA	18.1
2022	20.0	NA	20.0
2023	21.0	NA	21.0
Target level (2050)[a]			30.0

Sources: Panama's BTR1 and CTF table 4.
[a] Target level corresponds to an unconditional NDC target.

19. According to the most recent information on the percentage of installed electricity generation capacity from non-conventional renewable energy sources provided in Panama's BTR1 and CTF table 4, in 2023 non-conventional renewable energy sources constituted 21.0 per cent of total installed electricity generation capacity (888.16 MW), which is 18.9 per cent above the base-year level and 9.0 per cent below the target level in 2050.

Table 7
Summary of information on Panama's progress in implementing and achieving its nationally determined contribution: forests restored (hectares)

	Forests restored	*ITMOs used towards NDC, as applicable*	*Indicator adjusted for ITMOs used towards NDC, as applicable*
Base year (2020)	0.00		
2021	4 726.00	NA	4 726.00
2022	8 178.00	NA	8 178.00
Target level (2050)[a]			50 000.00

Source(s): Panama's BTR1 and CTF table 4.
[a] Target level corresponds to an unconditional NDC target.

20. According to the most recent information on hectares of forests restored provided in Panama's BTR1 and CTF table 4, 8,178.00 ha was reforested in 2021–2022, which is 83.6 per cent below the target level for 2050.

Table 8
Summary of information on Panama's progress in implementing and achieving its nationally determined contribution: degraded land restored (hectares)

	Degraded land restored	*ITMOs used towards NDC, as applicable*	*Indicator adjusted for ITMOs used towards NDC, as applicable*
Base year (2020)	0.00		
2021	0.00	NA	0.00
2022	850.00	NA	850.00
Target level (2050)			130 000.00

Sources: Panama's BTR1 and CTF table 4.

21. According to the most recent information on hectares of degraded land restored provided in Panama's BTR1 and CTF table 4, approximately 850.00 ha degraded land was restored in Panama in 2021–2022, which is 99.3 per cent below the target level for 2050 (130,000.00 ha).

Table 9
Summary of information on Panama's progress in implementing and achieving its nationally determined contribution: qualitative targets

NDC target	*Indicator*	*Information on starting point*[a]	*Most recent information provided*[b]	*Target year*[c]
Developing a national climate change plan for the energy sector	National climate change plan for energy sector developed	2020	Planning relating to implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently ongoing. The progress towards the NDC target is 37.5 per cent	2025
Developing and initiating the implementation of the national REDD+ strategy	National REDD+ strategy published	2020	The national REDD+ strategy was published on the national climate transparency platform in October 2022, meaning that the first indicator of the NDC target has been fully achieved	2025
	National REDD+ strategy implementation started	2020	Implementation of the national REDD+ strategy is ongoing and the progress towards the NDC target under this indicator is 25 per cent	2025
Developing a national technical guide on climate change for the LULUCF sector	National technical guide on climate change for the LULUCF sector published	2020	The process of planning and identifying funding sources for the guide is ongoing. The progress towards the NDC target is 25 per cent	2025
Developing a climate change plan for integrated watershed management	Climate change plan for integrated watershed management published	2020	The plan is being implemented through the national adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025
Developing the indicative environmental land-use plan for the Panama Canal watershed	Indicative environmental land-use plan for the Panama Canal watershed published	2020	The plan was published in June 2022. As such, the NDC target was achieved	2025
Developing a technical guide on climate change for the marine coastal systems sector	Technical guide on climate change for the marine coastal systems sector published	2020	The guide is being planned and implemented through the national adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025

NDC target	*Indicator*	*Information on starting point*[a]	*Most recent information provided*[b]	*Target year*[c]
Estimating the net balance of annual emissions from coastal wetlands (mangroves) using the Wetlands Supplement	Net balance of annual emissions from coastal wetlands (mangroves) estimated using the Wetlands Supplement	2018	Since 2022, the national GHG inventory has been prepared on the basis of chapter 4 of the Wetlands Supplement. As such, the NDC target has been achieved	2022
Developing the manual of restoration techniques for degraded mangrove areas	Manual of restoration techniques for degraded mangrove areas published	2020	The manual was approved and published in April 2021. As such, the NDC target has been achieved	2025
Developing the climate change guide for the biodiversity sector	Climate change guide for the biodiversity sector published	2020	The guide is being planned and implemented through the national adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025
Updating and implementing the national climate change plan for the agriculture sector	National climate change plan for the agriculture sector updated and published	2019 (the year the plan was approved)	Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025
Initiating implementation of rice NAMA, and formulating and initiating the implementation of livestock NAMA, to the extent of the provision of international support	Rice NAMA implemented, with emission reductions achieved in line with international support received	2020	The rice NAMA has been registered and the first pilot project is currently being implemented. The overall progress towards achieving the NDC target is 46 per cent	2030
	Livestock NAMA formulated	2020	The livestock NAMA is in the planning stage. The overall progress towards achieving the NDC target is 46 per cent	2030
	Livestock NAMA implemented	2020	The livestock NAMA is in the planning stage. The overall progress towards achieving the NDC target is 46 per cent	2030
Creating and making operational an agroclimatic information system for the agriculture sector, establishing a climate data centre and implementing a technical round table	Agroclimatic information system for the agriculture sector created and made operational	2019	The national agroclimatic and statistical information system for the agriculture sector was created in 2022 and is in the process of being made fully operational. The progress towards the NDC target is 46 per cent	2025
Developing a technical guide on	Technical guide on climate change for	2020	The guide is being planned and implemented through the national	2025

NDC target	*Indicator*	*Information on starting point*[a]	*Most recent information provided*[b]	*Target year*[c]
climate change for human settlements	human settlements published		adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	
Implementing the Reduce Your Municipal Footprint programme	Reduce Your Municipal Footprint programme operationalized	2020	Work is ongoing at the national level to measure the carbon footprint of 11 municipalities and the water footprint of 6 municipalities. The progress towards the NDC target is 38 per cent	2025
Developing a climate change plan for the health sector	Climate change plan for the health sector published	2020	The plan is being planned and implemented through the national adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025
Developing a climate change plan for the infrastructure sector	Climate change plan for the infrastructure sector published	2020	The plan is being planned and implemented through the national adaptation plan project, with funding from the Green Climate Fund. Planning for implementing and achieving the NDC target has been completed and financing has been obtained. The development of compliance arrangements aimed at facilitating implementation is currently under way. The progress towards the NDC target is 46 per cent	2025
Integrating climate change aspects in public investment projects by implementing the climate change technical guide for public investment infrastructure projects	Climate change aspects integrated into public investment projects	2020	The Ministry of Environment adopted the technical guide on climate change for planning, prefeasibility and feasibility of public investment projects in June 2022. Thus, the NDC target has been achieved	2025
Updating the environmental impact assessment regulations to incorporate climate risk management, adaptation measures and carbon footprint	Environmental impact assessment regulations updated and published	2020	The regulations for the environmental impact assessment process were updated through an executive decree in March 2023. Thus, the NDC target has been achieved	2025

NDC target	*Indicator*	*Information on starting point*[a]	*Most recent information provided*[b]	*Target year*[c]
reduction for projects				
Updating the eco-labelling executive decree	Eco-labelling executive decree updated	2020	Technical review of the decree is awaiting completion. The progress towards the NDC target is 62.5 per cent	2025
Operationalizing the circular economy centre of the National Council of Private Enterprise	Circular economy metrics and indicators generated and clearly defined	2020	The good practice guide for corporate sustainability, which includes information on circular economy metrics and indicators, was approved in 2022. The NDC target has thus been achieved	2025
Developing and operationalizing the Sustainable Panama: Reduce Your Footprint programme, with 100 registered organizations reporting	Sustainable Panama: Reduce Your Footprint programme developed, with 100 registered organizations reporting	2020	The corporate carbon aspect of the programme has 227 registered organizations, while the corporate water aspect has 79 registered organizations. In 2022, 101 organizations reported their carbon footprint and 15 their water footprint, while in 2023, 137 organizations reported their carbon footprint. Thus, the NDC target has been achieved	2025
Developing a national climate change plan for the circular economy for the long term and achieving 10 per cent progress in its implementation	National climate change plan for the long-term circular economy published	2020	A road map to creating the plan is currently under public consultation. The progress towards the NDC target is 16.7 per cent	2022
	10 per cent progress achieved in the implementation of the plan	2020		
Updating the regulations for environmental audits and environmental management plans to include disaster risk management, adaptation measures and carbon footprint reduction	Environmental audit and adaptation and management plan regulations updated to incorporate disaster risk management, adaptation measures and carbon footprint reduction, and published	2020	Updated regulations for evaluating environmental audits and adaptation and management plans are under public consultation. The progress towards the NDC target is 67.5 per cent	2022
Improving, expanding and strengthening the system for collecting and evaluating information on damage to include slow onset events resulting from climate change	System for the collection and evaluation of information on damage expanded and in use	2020	In June 2022, a tool for disaster risk management in Panama was adopted. Although it does not yet have the functionality to monitor slow onset events, it is expected that an entity will assume responsibility for its operation and maintenance. The progress towards the NDC target is 16.7 per cent	2025
Establishing and implementing the national climate transparency platform	National climate transparency platform established and implemented	2020	The main portal of the platform was officially launched in February 2022. In December 2023, the project concluded with the creation of four functional modules. The NDC target has thus been achieved	2025

Sources: Panama's BTR1 and CTF table 4.

[a] The starting year refers to the year before the policy and measure, action, plan or project, as relevant, was first implemented.

[b] The Party defined its progress towards the relevant qualitative NDC target using six progress indicators (planning for achieving the commitment completed, financing obtained, development and compliance arrangements established, activities implemented, open and participatory validation process undertaken and document approved and published), assigning 16.7 per cent weightage to each progress indicator. The overall progress towards the NDC target is given as the weighted sum of the progress (percentage) towards each of the progress indicators.

[c] The target year refers to the year in which target is planned to be achieved (i.e. achieving a progress of 100 per cent on the basis of the six progress indicators).

22. According to the most recent information on the qualitative indicators provided in the BTR and CTF table 4, most of these indicators have a start year of 2021 and an end year of 2025. The TERT noted that, for a few indicators (e.g. relating to the publication of the national REDD+ strategy, the indicative plan for environmental land-use planning for the Panama Canal watershed and the net balance in annual emissions from coastal wetlands (mangroves)), the targets have been achieved.

23. For the majority of Panama's indicators for its qualitative targets, the phases related to planning and obtaining financing have been completed, those related to establishing compliance arrangements are about 75 per cent completed and implementation of activities has just started. For some indicators (e.g. relating to the eco-labelling executive decree and environmental audit and adaptation and management plan regulations), compliance arrangements have been fully established and significant progress has been made in implementing activities. For others (e.g. relating to the national climate change plan for the long-term circular economy and the system for the collection and evaluation of information on damage), only the planning stage has been completed.

24. Panama reported information on the actions and PaMs that support the implementation and achievement of its NDC. Table 10 provides a summary of the reported information on the key PaMs of Panama.

Table 10
Summary of information on key policies and measures reported by Panama

Sector	*Key PaMs*
Policy framework and cross-sectoral measures	Framework law on climate change
	National climate change policy
	National strategy for inclusive socioeconomic development, low emissions and resilience to climate change
	National climate action plan
	National carbon compensation programme
	Public investment projects with integrated climate change aspects
	Sustainable Panama: Reduce Your Footprint programme
	Sustainable taxonomy
Energy	National climate change plan for the energy sector
	Energy transition agenda
Energy efficiency	Executive decree on eco-labelling
Agriculture	National climate change plan for the agriculture sector
	Rice NAMA
	Livestock NAMA
LULUCF	National REDD+ strategy
	National forest restoration plan 2021–2025
	National technical guide on climate change for the LULUCF sector (forests)
Waste	Long-term national climate change plan for the circular economy

Sector	*Key PaMs*
Other	Climate change plan for the infrastructure sector
	Climate change plan for the health sector

Sources: Panama's BTR1 and CTF table 5.

25. The TERT noted that the GHG emissions for the energy sector (see table 5) were up by 23.1 per cent relative to the baseline scenario in 2021, which indicates that economic factors such as growth in GDP, energy demand, consumption and population outpaced the short-term impact of PaMs in 2020–2021, particularly the 2020 energy transition agenda and the national climate change plan for the energy sector. Additionally, the increase is explained by the incorporation of natural gas into the national energy supply and the sharp rise in coal consumption due to the commissioning of a thermal plant in the mineral industry in 2018. The TERT notes that the Party might consider strengthening the implementation of existing mitigation actions and planning for additional mitigation actions in the energy sector to address this trend.

26. The TERT noted that Panama has a constantly growing population that is mostly concentrated in urban areas and the capital city. It is the narrowest and most elongated country in the Central American isthmus and characterized by low intertropical latitudes with moderately high temperatures and high humidity throughout the year, as well as abundant rainfall, but without severe storms or hurricanes. With hydroelectric plants accounting for a large part of the country's electricity generation, changes in rainfall patterns influence emissions from the energy sector, with emissions from the consumption of fossil fuels to generate electricity increasing considerably when water resources are scarce. Panama's GDP increased by 13.6 per cent between 2021 and 2022, primarily due to the effective implementation of the country's economic reactivation strategy following the coronavirus disease 2019 pandemic. The trends show that the above-mentioned factors have outpaced the mitigation measures put in place for the energy sector (see para. 18 above).

27. The TERT noted that the implementation of PaMs in Panama has started to positively impact non-GHG indicators related to some sectors. In the energy sector, the 2020 energy transition agenda has contributed to an increase in the installed capacity of renewable energy sources (see table 6). In the LULUCF sector, PaMs such as the national forest restoration plan 2021–2025 have contributed to the expansion of secondary forest cover and the area of degraded land restored under agroforestry and silvopastoral systems, and increased removals from the LULUCF sector (see tables 7–8). However, the TERT notes that the Party might consider strengthening the implementation of existing mitigation actions and planning for additional mitigation actions to increase the rate of restoration of degraded land under agroforestry and silvopastoral systems.

28. Panama reported projections for 2030–2035 under the 'with existing measures' scenario.[20] In addition to the 'with existing measures' scenario, Panama reported the 'with additional measures' and 'without measures' scenarios. Panama reported projections only for illustrative purposes and applied the flexibility provided for in paragraphs 92 and 102 of the MPGs regarding the reporting of projections. The TERT noted that information on GHG emission projections was not used in considering Panama's progress in implementing its NDC.

29. The TERT considers that, on the basis of a comparison of information on the reported indicators in the most recent reported years with the base-year level and target level, and taking into account information on mitigation actions:

(a) Panama is making progress towards achieving its NDC targets relating to achieving 30 per cent of installed electricity generation capacity from non-conventional renewable energy sources by 2050 and restoring 50,000 ha forests by 2050;

[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.

(b) Panama did not make the progress expected in 2020–2021 and may face challenges keeping on track to achieving its NDC targets relating to reducing total GHG emissions from the energy sector by at least 11.5 per cent by 2030 and 24.0 per cent by 2050 compared with the baseline scenario and restoring 130,000 ha degraded land under agroforestry and silvopastoral systems by 2050.

30. The TERT also considers that, on the basis of information on progress towards achieving the indicators for its qualitative targets, the phases related to planning and obtaining financing have been completed, those related to establishing compliance arrangements are about 75 per cent completed and implementation of activities has just started (see para. 23 above). Given that the target year for most of these indicators is 2025, Panama did not make the expected progress and may face challenges keeping on track to achieving its NDC targets in those cases. The TERT further notes that, for a few indicators, Panama has either achieved the target level (100 per cent) or made significant progress (60 per cent or above) and is thus on track to achieving the related NDC targets (see para. 22 above).

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

31. Panama did not report information in its BTR1 on support provided (see para. 13 above).

D. Identification of areas of improvement[22]

32. During the technical expert review, the TERT identified areas of improvement in relation to Panama'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.

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

33. The TERT, in consultation with Panama, identified the following prioritized needs for capacity-building to facilitate the Party's reporting in its BTR:[24]

(a) Efficiently using the common reporting format tool;

(b) Reporting accurate and consistent information in the BTR and national inventory report by strengthening the QA/QC process;

(c) Improving data collection and derivation to facilitate use of the method (tier level) for assessing key categories recommended in the relevant IPCC guidelines (e.g. categories 1.A fuel combustion, 1.B fugitive emissions from fuels, 2.F product uses as substitutes for ozone-depleting substances, 3.A enteric fermentation, 4.G HWP, 5.A solid waste disposal and 5.C incineration and open burning of waste);

(d) Collecting data and understanding the methods in the relevant IPCC guidelines needed for estimating GHG emissions currently reported as "NE" or demonstrating that such estimates would be insignificant in terms of level as defined in paragraph 32 of the MPGs (e.g. for categories 1.B.2.b fugitive emissions from the production of natural gas, 2.F.4 product uses as substitutes for ozone-depleting substances (aerosols), 2.F.5 product uses as substitutes for ozone-depleting substances (solvents), 4(III) direct nitrous oxide emissions from nitrogen mineralization/immobilization, 5.B biological treatment of solid waste, 5.C.1 waste incineration and 5.D.2 industrial wastewater);

(e) Analysing the time-series consistency of fuels in the energy balance to improve the accuracy of energy sector data collection and ensuring the availability of reliable data to

[21] As per para. 146(c) of the MPGs.
[22] As per para. 146(d) of the MPGs.
[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 14 in document FCCC/ETF/TERR.1/2024/Add.1.

support the estimation of emissions from the energy sector using both the reference and the sectoral approach;

(f) Identifying sources of AD that will enable better differentiation between national and international navigation emissions and developing country-specific EFs to enhance the accuracy of emission estimates;

(g) Collecting detailed AD needed for estimating F-gas emissions in key categories using a higher-tier level;

(h) Collecting AD needed for estimating emissions of aerosols and solvents or demonstrating that such estimates would be insignificant in terms of level as defined in paragraph 32 of the MPGs;

(i) Enhancing data on livestock used for the agriculture sector by collecting feed data, including by designing a sampling strategy that represents the different regions of the country and variability of cattle in the country; developing a system for collecting and updating data and trends pertaining to livestock productivity across the country (e.g. weight, weight gain, milk productivity) to enable use of enhanced characterization for the estimation of gross energy and the methane conversion rate for different cattle groups across the time series; estimating the nitrogen excretion rate for different cattle groups; and incorporating changes in the average cattle body weight across the time series;

(j) Collecting historical and current data on the production, import and export of semi-finished HWP, including sawnwood, wood-based panels and paper and paperboard, in order to support the estimation of emissions and removals associated with carbon stock changes in HWP using the tier 1 method from the 2006 IPCC Guidelines, or justifying the insignificance of HWP, if applicable;

(k) Developing methods for estimating areas subject to land-use conversion before 2000 to generate AD on total land area under conversion in order to correctly calculate carbon stock changes in mineral soils across the time series;

(l) Improving the calculation of country-specific growth ratio(s) for “rastrojos”, for both pioneer trees that transition to secondary forest and other ecosystems that remain “rastrojos” for more than five years;

(m) Identifying and selecting appropriate models for the construction of the baseline for the country’s circumstances, understanding the data requirements for those models and learning how to operate the models;

(n) Enhancing the definition and description of indicators for tracking progress towards the NDC, developing them using higher-quality data and more detailed methodologies and accounting approaches, and enhancing tracking and reporting of the indicators;

(o) Identifying and assessing interactions between PaMs, as well as costs and non-GHG mitigation benefits;

(p) Designing more detailed and specific PaMs, collecting data relevant to assessment of their progress, including their GHG emission impact, aggregating PaMs as appropriate, and assessing how each policy or measure contributes to achieving each NDC target;

(q) Assessing the long-term impact of PaMs on emissions and integrating PaMs into long-term emissions scenarios;

(r) Assessing the economic and social impacts of PaMs;

(s) Defining projection scenarios and describing projections in the BTR and their contribution to the achievement of NDC targets;

(t) Selecting and applying appropriate models by sector for developing projections, gathering sufficient and reliable data and determining appropriate assumptions and parameters for running the models, and reporting information related to those elements in the BTR;

(u) Including the impact of PaMs in emissions scenarios and defining relevant assumptions in line with national circumstances and context;

(v) Undertaking sensitivity analyses for projections;

(w) Using projections to develop indicators for NDC progress tracking;

(x) Using the latest national GHG inventory as a basis for developing projections consistently under all scenarios for at least 15 years beyond the next year ending in zero or five;

(y) Reporting projections on a sectoral and gas-by-gas basis, with and without LULUCF, and presenting projections relative to actual inventory data for the preceding years;

(z) Understanding the provisions of the MPGs, especially those related to tracking progress towards the NDC.

34. Panama also identified the capacity-building support needs in its BTR1 (annex, tables A1.1 and A4.7).

III. Conclusions and recommendations

35. The TERT conducted a technical expert review of the information reported in the BTR1, national inventory document and CTF tables of Panama in accordance with the MPGs.

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

37. The TERT considers that, on the basis of a comparison of information in the most recent reported year with the base-year level and target level, and taking into account information on mitigation actions, Panama is making progress towards its NDC targets for some quantitative indicators (i.e. share of non-conventional renewable energy sources in total installed electricity generation capacity and hectares of forests restored). However, for the other two quantitative indicators, namely percentage change in GHG emissions from the energy sector relative to the baseline and hectares of degraded land restored under agroforestry and silvopastoral systems, Panama did not make the progress expected in 2020–2021 and may face challenges keeping on track to achieving its NDC targets.

38. For most of Panama's indicators for its qualitative targets, the TERT considers that the phases related to planning and obtaining financing have been completed, those related to establishing compliance arrangements are about 75 per cent completed and implementation of activities has just started (see para. 23 above). Given that the target year for most of these indicators is 2025, however, Panama did not make the expected progress and may face challenges keeping on track to achieving its NDC targets. The TERT also notes that, for a few indicators, Panama has either achieved the target level (100 per cent) or made significant progress (60 per cent or above) and is thus on track to achieving the related NDC targets (see para. 22 above).

39. The TERT notes Panama's efforts to adopt and implement PaMs aligned with its NDC targets. Notably, the early implementation of actions such as the 2020 energy transition agenda and the national forest restoration plan 2021–2025 have contributed to the achievement of a 21.0 per cent share of non-conventional renewable energy sources in total installed electricity generation capacity and 8,178 ha forest restoration. However, GHG emissions from the energy sector were up by 23.1 per cent relative to the 'business as usual' scenario in 2021, which indicates that economic factors such as growth in GDP, energy demand, consumption and population outpaced the short-term impact of PaMs in 2020–2021.

40. Panama did not report information on financial, technology development and transfer, or capacity-building support provided under Articles 9–11 of the Paris Agreement in accordance with the MPGs in its BTR1.[25]

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

41. Regarding the implementation of Article 13 of the Paris Agreement and transparency-related activities, Panama required support for preparing national reports, including BTRs, and GHG inventories; using tools and building capacity for improving inventory estimates; improving the national climate transparency platform and implementing the Sustainable Panama: Reduce Your Footprint programme. Support provided to Panama relates to areas such as improving GHG inventory estimates, strengthening institutional capacity to develop a national energy balance, collecting the necessary information for preparing its fourth national communication and second biennial update report and establishing a national climate transparency platform to meet the reporting requirements under the Paris Agreement. The amount of support needed in 2024–2030 totalled USD 8.25 million, whereas support received in 2020–2024 through various channels totalled USD 1.76 million.

42. In consultation with Panama, the TERT identified reporting-related needs for capacity-building support that could facilitate the Party's preparation of subsequent BTRs. For Panama, the main reporting-related needs for capacity-building support are improving data collection in order to facilitate its use of the method (tier level) for assessing key categories that is recommended in the relevant IPCC guidelines and improve completeness of its inventory; enhancing the development, definition, description and tracking of indicators for assessing progress towards the NDC; designing more detailed and specific PaMs and collecting data relevant to assessment of their progress, including their GHG emission impact; and preparing and reporting projections in line with the requirements of the MPGs.

Annex

Documents and information used during the review

A. Reference documents

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

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

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

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.

B. Additional information provided by the Party

Responses to questions during the review were received from Melani Paulette Acosta Chin (Ministry of Environment of Panama), including additional material. The following references were provided by Panama and may not conform to UNFCCC editorial style as some have been reproduced as received:

Ministry of Environment, Panama. 2022. *Guía de Buenas Prácticas Para la Sostenibilidad Empresarial*. Available at https://www.gacetaoficial.gob.pa/pdfTemp/29642_A/GacetaNo_29642a_20221012.pdf.

Ministry of Environment, Panama. 2022. *Guia Técnica de Cambio Climatico para Planificacion Prefactibilidad Factibilidad de Proyectos de Inversion Publica.* Available at https://www.gacetaoficial.gob.pa/pdfTemp/29565_A/92314.pdf.