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

Summary

This report presents the results of the technical expert review of the first biennial transparency report of Lebanon, 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, and capacity-building needs identified by the Party and by the technical expert review team in consultation with the Party during the review. The review took place from 9 to 13 March 2026 in Bonn.

* 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

2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
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
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CRT	common reporting table
CTF	common tabular format
EF	emission factor
F-gas	fluorinated gas
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
N ₂ O	nitrous oxide
NA	not applicable
NDC	nationally determined contribution
NE	not estimated
NID	national inventory document
PaMs	policies and measures
QA/QC	quality assurance/quality control
TERT	technical expert review team

I. Introduction and summary

A. Introduction

1. This report covers the technical expert review of the BTR1 of Lebanon. 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 on 28 May 2026 to the Government of Lebanon, which did not provide any comments.²
3. The review was conducted as a centralized review from 9 to 13 March 2026 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Sander Akkermans (Kingdom of the Netherlands), Hakan Aydogan (Türkiye), Celeste Gabriela Gonzalez Pereira (Paraguay), Medea Inashvili (Georgia), Lisa Francine Louvouandou (Congo), Marco Orsini (Belgium) and Enkeleda Shkurta (Albania). Medea Inashvili and Marco Orsini were the lead reviewers. The review was coordinated by Roman Payo, Lornaliza Kogler and GaEun Lee (secretariat).
4. Applying the flexibility provided to those developing country Parties that need it in the light of their capacities,³ Lebanon chose to undergo a centralized instead of an in-country review.

B. Scope

5. The TERT conducted a technical expert review of the information reported in the BTR1 of Lebanon 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 improvement⁴ 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. Lebanon submitted its BTR1 on 31 December 2024, on the deadline mandated in decision 18/CMA.1. Lebanon submitted its NID as a stand-alone document on 31 December 2024, on the deadline. Lebanon also submitted its CRTs and CTF tables on 31 December 2024, on the deadline.
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.⁵
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

¹ Decision 18/CMA.1, annex.

² As per para. 162(e) of the MPGs.

³ As per paras. 158–159 of the MPGs.

⁴ As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs.

⁵ Contained in document FCCC/ETF/TERR.1/2024/LBN/Add.1, available at <https://unfccc.int/first-biennial-transparency-reports>.

Agreement in relation to the national inventory report of anthropogenic GHG emissions by sources and removals by sinks.⁶ 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. Lebanon reported information on support received for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building. The Party reported on support received for preparing reports pursuant to Article 13 of the Paris Agreement, including for strengthening governance structures, institutional capacities and data-collection mechanisms for preparing the BTR. Table 1 summarizes the information that Lebanon reported in CTF table III.13 on support 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 received by Lebanon for implementing Article 13 of the Paris Agreement and transparency-related activities, including for transparency-related capacity-building

(USD million)

<i>Status of support</i>	<i>Amount</i>
Support received and planned to be received from 2018 to 2027	7.44

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

II. Technical expert review⁷

A. Review of the consistency of the submitted information with the modalities, procedures and guidelines⁸

1. National inventory report⁹

10. The TERT assessed the information reported in the BTR1 of Lebanon 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.

⁶ The developing country Party applied flexibility in the light of its capacities with respect to the provisions in paras. 48 and 57 of the MPGs.

⁷ As per para. 187 of the MPGs.

⁸ As per para. 146(a) of the MPGs.

⁹ As per para. 150(a) of the MPGs.

Table 2

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

<i>Element</i>	<i>Information to be reported</i>	<i>Response and summary as relevant</i>	<i>ID#(s) for the area(s) of improvement identified^a</i>
Submission type (para. 12 of the MPGs)	Has the national inventory report been submitted as a stand-alone document?	Yes	No areas of improvement relating to recommendations 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	2011 and 2020–2022, in accordance with the MPGs	No areas of improvement relating to recommendations 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 relating to recommendations were identified
	Has the Party used other metrics?	No	No areas of improvement relating to recommendations were identified
Gases (paras. 48–49 of the MPGs)	Which gases have been reported? ^b	CO ₂ , CH ₄ , N ₂ O, HFCs	1.1
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 relating to recommendations were identified
	Has the Party reported indirect N ₂ O emissions from sources other than those in the agriculture and LULUCF sectors as a memo item?	No	NA
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 relating to recommendations were identified
Methodologies, parameters and data (paras. 20–24 of the MPGs)	Has the Party used the 2006 IPCC Guidelines?	Yes	6.L.1, 4.I.3
	Has the Party used other IPCC methodological guidance?	No	No areas of improvement relating to recommendations were identified
Key category analysis (paras. 25, 41 and 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 2011 and the latest	2.G.1

<i>Element</i>	<i>Information to be reported</i>	<i>Response and summary as relevant reporting year (2022) and with and without LULUCF</i>	<i>ID#(s) for the area(s) of improvement identified^a</i>
Time-series consistency and recalculations (paras. 26–28, 43 and 57 of the MPGs)	Has the Party reported a consistent time series?	No	1.1
	Has the Party reported recalculations and provided justification and explanatory information for them?	Yes, in relation to its 2021 biennial update report submission under the Convention	No areas of improvement relating to recommendations 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 inventory year (1994) and the latest reporting year (2022)	No areas of improvement relating to recommendations 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	2.G.2
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.3
	Energy	Yes	3.E.10
	IPPU	No	No areas of improvement relating to recommendations were identified
	Agriculture	Yes	5.A.4, 5.A.5, 5.A.6, 5.A.7, 5.A.8
	LULUCF	Yes	6.L.1, 6.L.4, 6.L.5
Threshold for reporting significant categories (para. 32 of the MPGs)	Waste	Yes	7.W.5, 7.W.7
	Are the estimated emissions for all categories and in total for all gases and categories reported insignificant below the relevant thresholds?	Yes	No areas of improvement relating to recommendations were identified

<i>Element</i>	<i>Information to be reported</i>	<i>Response and summary as relevant</i>	<i>ID#(s) for the area(s) of improvement identified^a</i>
Methodologies, EFs, parameters and AD (paras. 39, 40 and 53–56 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?	No	NA
	Has information been transparently reported on categories, gases, methodologies (including the rationale for selecting them), EFs and AD at a disaggregated level for the following sectors?		
	Energy	Partly	3.E.2, 3.E.4, 3.E.5, 3.E.6, 3.E.8, 3.E.9
	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.1, 4.I.2, 4.I.4, 4.I.5
	Agriculture	Partly	5.A.2, 5.A.3, 5.A.6, 5.A.9
	LULUCF	Partly	6.L.2, 6.L.3, 6.L.6
Waste	Partly	7.W.1, 7.W.2, 7.W.3, 7.W.4, 7.W.8	

^a See document FCCC/ETF/TERR.1/2024/LBN/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 contribution¹⁰

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

Table 3

Information reported in Lebanon's submission

<i>Topic</i>	<i>ID#(s) for the area(s) of improvement identified^a</i>
National circumstances and institutional arrangements (paras. 59–63 of the MPGs)	8.2
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)	10.1–10.10
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, 11.3
Summary of GHG emissions and removals (para. 91 of the MPGs)	No areas of improvement relating to recommendations were identified
Projections of GHG emissions and removals ^b (paras. 92–102 of the MPGs)	No areas of improvement relating to recommendations were identified

^a See document FCCC/ETF/TERR.1/2024/LBN/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 provided¹¹

12. Lebanon does 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 BTR1.¹²

B. Consideration of the Party's implementation and achievement of its nationally determined contribution¹³

13. In considering Lebanon's progress in implementing and achieving its NDC, the TERT noted that the NDC¹⁴ comprises conditional and unconditional targets to reduce emissions below a projected baseline, which are accompanied by a number of objectives relating to renewable energy and energy efficiency. Under its unconditional target, Lebanon aims to (1) reduce its total GHG emissions (all sectors, including LULUCF and excluding F-gases) by 20 per cent by 2030 and use energy efficiency measures to reduce its power demand by 3 per cent by 2030 compared with a 'business as usual' scenario and (2) generate 18 per cent of its power demand and 11 per cent of the building sector's heat demand from renewable energy by 2030. Under its conditional target, Lebanon aims to: reduce its total GHG emissions by 31

¹⁰ As per para. 150(b) of the MPGs.

¹¹ As per para. 150(c) of the MPGs.

¹² As per para. 118 of the MPGs.

¹³ As per para. 146(b) of the MPGs.

¹⁴ The consideration of the Party's implementation and achievement of its NDC is in the context of the NDC submitted by Lebanon on 16 March 2021. The TERT noted that the Party submitted a new NDC on 30 September 2025.

per cent by 2030 and to use energy efficiency measures to reduce its power demand by 10 per cent by 2030 compared with a ‘business as usual’ scenario; and generate 30 per cent of its power demand and 16.5 per cent of the building sector’s heat demand from renewable energy by 2030. Lebanon only started to calculate F-gas emissions (HFCs from refrigeration and air conditioning) in 2019, meaning that F-gas emissions were not included in the ‘business as usual’ emission projections for the NDC. The indicator therefore does not consider F-gases.

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

Table 4

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

<i>NDC target</i>	<i>Indicator</i>	<i>Description</i>
Reduce GHG emissions (including LULUCF and excluding F-gases) by 20 per cent, or 7,790 kt CO ₂ eq (unconditional), and by 31 per cent, or 12,075 kt CO ₂ eq (conditional), by 2030 compared with a ‘business as usual’ scenario	Total GHG emissions (including LULUCF and excluding F-gases)	Economy-wide national total GHG emissions, including net emissions and removals from LULUCF but excluding F-gases.
Increase the percentage of total national power demand met by renewable energy to 18 per cent (unconditional) and 30 per cent (conditional) by 2030	Percentage of total national power demand met by renewable energy	The percentage of total national power demand met by renewable energy is the share of power produced from renewables (including hydropower, solar power and landfill gas) in a given year in the total national power demand in the same year
Increase the percentage of heat demand in the building sector met by renewable energy to 11 per cent (unconditional) and 16.5 per cent (conditional) by 2030	Percentage of heat demand in the building sector met by renewable energy	The percentage of heat demand in the building sector met by renewable energy is the share of heat produced for the building sector from renewables (e.g. solar water heaters) in a given year in the total national heat demand of the building sector in the same year
Use energy efficiency measures to reduce total national power demand by 3 per cent (unconditional) and 10 per cent (conditional) by 2030 compared with a ‘business as usual’ scenario	Percentage reduction in total national power demand resulting from energy efficiency measures	The percentage reduction in total national power demand is calculated as the power demand resulting from the energy efficiency measures in place in a given year as compared with the power demand estimated for the same year under a ‘business as usual’ scenario

Sources: Lebanon’s BTR1, CTF tables 1–3 and information provided by the Party during the review.

15. The TERT noted that the contribution of LULUCF to achieving the NDC is included in the Party’s baseline scenario and target-year level and that Lebanon 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.

16. Tables 5–6 summarize information on progress in implementing the NDC based on the indicators total GHG emissions (including LULUCF and excluding F-gases) and percentage of total national power demand met by renewable energy taking into account the type of Lebanon’s NDC targets, including quantitative values for the end year of the baseline scenario, implementation period, including the most recent year available, and target year. No information was reported for the indicators percentage reduction in total national power demand resulting from energy efficiency measures and percentage of heat demand in the building sector met by renewable energy.

Table 5

Summary of information on Lebanon's progress in implementing and achieving its nationally determined contribution based on total greenhouse gas emissions, including land use, land-use change and forestry and excluding fluorinated gases

(kt CO₂ eq)

	<i>Total GHG emissions (including LULUCF and excluding F-gases)</i>	<i>Contribution of LULUCF, as applicable</i>	<i>ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable</i>	<i>Indicator adjusted for contribution of LULUCF and ITMOs, A6.4ERs and/or CERs used towards NDC, as applicable</i>
Baseline (2030)	38 948.00			
Baseline (2022) ^a	28 362.69			
2021	16 503.73	NA	NA	16 503.73
2022	15 611.80	NA	NA	15 611.80
Target level (2030) ^b				31 159.91

Sources: Lebanon's BTR1 and CTF table 4.1, and information provided by the Party during the review.

^a Emission level corresponding to the baseline scenario in 2022 is based on GHG emissions under a 'business as usual' scenario.

^b Target level corresponds to an unconditional NDC target.

17. According to the most recent information on total GHG emissions provided in the submission, in 2022 Lebanon's total GHG emissions including LULUCF and excluding F-gases were 15,611.80 kt CO₂ eq. The indicator is 45.0 per cent below the emission level corresponding to the baseline scenario in 2022 and 59.9 per cent below the emission level corresponding to the target level in 2030.

Table 6

Summary of information on Lebanon's progress in implementing and achieving its nationally determined contribution based on the percentage of total national power demand met by renewable energy

(%)

	<i>Percentage of total national power demand met by renewable energy</i>	<i>ITMOs used towards NDC, as applicable</i>	<i>Indicator adjusted for ITMOs used towards NDC, as applicable</i>
2021	4	NA	4
2022	12	NA	12
Target level (2030) ^a			18

^a Target level corresponds to an unconditional NDC target.

18. According to the most recent information on the percentage of total national power demand met by renewable energy provided in CTF table 4.2, in 2022 that percentage in Lebanon was 12 per cent. The indicator is 6 percentage points below the level corresponding to the target level in 2030.

19. Regarding the indicator percentage reduction in total national power demand resulting from energy efficiency measures, the TERT noted that Lebanon reported in its BTR1 percentages pertaining to the change in power demand but did not identify the underlying drivers, whereas the target specifically refers to reductions achieved through the use of energy efficiency measures. Regarding the indicator percentage of heat demand in the building sector met by renewable energy, the Party indicated that it is exploring the most appropriate methodology for reporting this information.

20. Lebanon reported limited information on the actions and PaMs that support the implementation and achievement of its NDC. It did not report mitigation co-benefits resulting from adaptation actions and economic diversification plans. Table 7 provides a summary of the reported information on the key PaMs of Lebanon.

Table 7
Summary of information on key policies and measures reported by Lebanon

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of expected GHG emission reductions in 2030 (kt CO₂ eq)</i>	<i>Estimate of GHG emission reductions achieved in 2022 (kt CO₂ eq)</i>
Energy			
Renewable energy	Installation of solar photovoltaic irrigation pumps on grape and fruit farms, replacing diesel pumps and saving about 6,000 l diesel/day, thereby reducing fuel costs and emissions	35.39	–
	Installation of solar photovoltaic systems at 122 public schools across Lebanon with systems ranging from 6 to 20 kWp	12.42	–
	Solar energy pilot projects in public buildings	4.23	–
Energy efficiency	Installation of solar photovoltaic systems, solar water heaters, light-emitting diode lighting and variable frequency drives at public hospitals to improve energy efficiency and renewable energy use	29.69	–
	Installation of a 137 kW solar water pumping system in Koura, northern Lebanon	13.05	–
Transport	Tax incentives for hybrid electric vehicles and electric vehicles under law 79/2018 (Article 55)	–	–
LULUCF	National Afforestation and Reforestation Programme	–	30.70
	National Forest Fire Management Strategy	–	220.86

Sources: Lebanon's BTR1 and CTF table 5, and information provided by the Party during the review.

21. Lebanon reported that between 2019 and 2022 its national circumstances were significantly affected by severe economic and financial crises, exacerbated by the coronavirus disease 2019 pandemic and regional instability. These developments resulted in declining public services, including electricity production and distribution, and increased reliance on informal energy supply systems, such as the generation of decentralized diesel-based electricity. In addition, the arrival of 1.5 million displaced people in Lebanon due to regional turmoil has placed additional pressure on national resources and infrastructure, which may affect the country's capacity to implement climate mitigation and adaptation action in the near future.

22. The TERT noted that these national circumstances have also influenced recent emission trends. The Party reported a 32 per cent decrease in GHG emissions and removals between 2019 and 2022, with the most significant reductions observed in the energy sector. This trend is attributable to declining economic activity and reduced fuel availability, which led to a lower energy demand and more than offset the effect of population growth following the arrival of displaced people due to regional turmoil.

23. The Party reported PaMs in the energy sector, including renewable energy and energy efficiency initiatives, with an estimated total emission reduction potential of 120.29 kt CO₂ eq by 2030. In the transport sector, Lebanon has introduced tax incentives for hybrid and electric vehicles, although the total expected emission reductions resulting from these tax incentives were not reported. The TERT noted that GHG emissions in the energy sector decreased by 11.9 per cent between 2011 and 2022; however, it is difficult to ascertain the extent to which these reductions can be attributed to the impact of PaMs, actions and plans, as opposed to changes in national circumstances, including economic conditions.

24. GHG emissions in the agriculture and waste sectors increased by 14.6 and 25.4 per cent respectively between 2011 and 2022, which indicates that economic drivers such as increased demand for food and population growth (including growth following the arrival of displaced people due to regional turmoil) have outpaced the impact of mitigation PaMs in the short term. However, aggregated emissions from the agriculture and waste sectors only accounted for 10.4 per cent of total emissions excluding LULUCF in 2022, meaning that the increase in emissions from these sectors did not significantly affect total emissions excluding LULUCF, which decreased by 12.3 per cent between 2011 and 2022.

25. In the waste sector, Lebanon reported policy developments aimed at improving solid waste management and reducing CH₄ emissions, including its law on solid waste management (law 80/2018), the approval of the National Solid Waste Management Authority in 2024 and the upcoming introduction of a National Solid Waste Management Strategy, awaiting final approval. These initiatives are expected to strengthen the sector and support future emission reductions in line with the NDC.

26. In the forestry sector, Lebanon reported the implementation of programmes such as the National Afforestation and Reforestation Programme and the National Forest Fire Management Strategy.

27. Lebanon applied the flexibility provided for in paragraph 92 of the MPGs and did not report projections.

28. The TERT notes that, according to the information provided by the Party, in 2022 Lebanon achieved a reduction in its emissions of 45.0 per cent with respect to the level corresponding to the baseline scenario in 2022 and of 59.9 per cent with respect to the level corresponding to the target level in 2030. However, Lebanon did not report updated assumptions and values underlying the baseline scenario that reflect its evolving national circumstances. The TERT also notes that, with regard to the share of renewable electricity in total power demand, an increase of 6 percentage points is needed to reach the target level compared with the level in the most recent reported year (i.e. 2022). The TERT further notes that there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as data are available only for a limited number of years in the implementation period (2021–2022). The TERT notes that regular monitoring of emissions, use of renewable energy (both power and heat in buildings), the impact of energy efficiency measures and the results of mitigation actions allow adjustments to be made as needed towards achieving the NDC.

C. Consideration of the Party's support provided¹⁵

29. Lebanon does 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 financial, technology transfer and development, and capacity-building support provided to developing country Parties under Articles 9–11 of the Paris Agreement (see para. 12 above).

D. Identification of areas of improvement¹⁶

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

¹⁵ As per para. 146(c) of the MPGs.

¹⁶ As per para. 146(d) of the MPGs.

E. Assistance in identifying capacity-building needs¹⁷

31. The TERT, in consultation with Lebanon, 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:¹⁸

(a) Enhancing technical capacity for producing GHG projections, including by collecting relevant data and receiving training on the development of 'with measures' projections for all GHG emissions and removals;

(b) Enhancing technical capacity for improving estimation of and reporting on the impacts of PaMs by selecting appropriate models, determining assumptions and parameters, evaluating results, assessing how each policy or measure contributes to achieving the NDC targets and reporting on PaMs and their impacts in line with the MPGs.

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

(a) Enhancing technical capacity to complete the transfer of time-series data from version 2.69 to version 2.930 of the IPCC inventory software by checking data previously transferred and correcting any errors; ensuring the transfer of remaining data (for 1994 onward); recovering, estimating and extrapolating time-series data covering 1990 (base year) to 1994 and inputting these data into the software; and checking the accuracy of data that have been fully migrated;

(b) Enhancing the existing inventory QA/QC plan to ensure its proper functioning, including to facilitate the identification and correction of discrepancies between the NID and CRTs (e.g. as regards selection of categories and use of notation keys), inconsistencies within the CRTs (e.g. use of different notation keys for the same data or parameters within the same category and the use of "included elsewhere" without an explanation in the relevant documentation box) and inconsistencies within the NID;

(c) Enhancing institutional arrangements and technical capacity to develop a national energy balance to enable the appropriate allocation of fuel consumption to the relevant energy sector category or subcategory, thereby improving the accuracy and completeness of emission estimates for the energy sector, and developing country-specific EFs to support the use of higher-tier methods for estimating emissions for key categories in accordance with the 2006 IPCC Guidelines;

(d) Enhancing institutional arrangements and technical capacity to improve approaches to collecting or estimating data on privately owned generators for residential properties, including developing methodologies or surveys to better estimate their number, installed capacity, operating hours and fuel consumption;

(e) Enhancing institutional arrangements and technical capacity to carry out a new census and establish mandatory reporting by industrial establishments to improve the collection of AD and facilitate greater time-series consistency;

(f) Enhancing technical capacity to apply higher-tier methodologies for estimating emissions and removals for key categories in accordance with the 2006 IPCC Guidelines, developing country-specific parameters (e.g. nitrogen excretion rates, feed digestibility factors, manure management fractions and residue management fractions) and strengthening institutional coordination and formal data-sharing arrangements between relevant ministries and agencies to collect the appropriate AD;

(g) Enhancing institutional arrangements and technical capacity to develop a structured and periodic livestock survey for collecting detailed data on animal characteristics, feeding practices, productivity parameters and manure management systems; establishing a centralized and integrated livestock and agricultural database linking data from the Ministry of Environment with data from the Ministry of Agriculture; and improving systems for

¹⁷ As per para. 146(e) of the MPGs.

¹⁸ 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/LBN/Add.1.

collecting data on manure management pathways, including data on storage duration, treatment systems, composting and land application practices;

(h) Strengthening technical capacity to use advanced remote-sensing tools to better distinguish between complex land-use changes (thus reducing the need for interpolation) and ensure time-series consistency and the accuracy of emission estimates relating to land-use changes;

(i) Enhancing the collection of AD on solid waste composition by identifying all pathways of hazardous and clinical waste streams and their proportional distribution by pathway; recalculating the composition of municipal and industrial waste that is landfilled, incinerated or treated in any other way; and reporting emissions from hazardous and clinical waste streams separately in the CRTs (under category 5.E other);

(j) Enhancing technical capacity in relation to the Party's indicators for tracking progress towards the NDC (in particular indicators for tracking the percentage of heat demand in the building sector met by renewable energy and the percentage reduction in power demand resulting from energy efficiency measures), developing methods for defining the indicators in measurable terms consistently with paragraph 65 of the MPGs; establishing comprehensive data sets of disaggregated information on renewable versus non-renewable heat sources and on the share of the reduction in power demand that is specifically attributable to energy efficiency measures; and integrating the indicators into a regular monitoring and reporting framework for NDC tracking.

33. Lebanon also identified the capacity-building support needs in its BTR1 (pp.21, 22, 23, 31, 44, 101, 102 and 107 and tables 21 and 29).

III. Conclusions and recommendations

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

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

36. The TERT considers that, on the basis of a comparison of information on the two available indicators (total GHG emissions including LULUCF but excluding F-gases and the percentage of the power demand met by renewable energy) for the most recent reported year (i.e. 2022) with the corresponding values under the 'business as usual' scenario in 2022 and target level in 2030, and taking into account information on mitigation actions, relevant national circumstances and underlying drivers, there are not yet enough data to sufficiently assess the Party's progress in implementing the NDC, as data are available only for a limited number of years in the implementation period (2021–2030).

37. The TERT notes that PaMs, actions and plans have started to have an impact on GHG emission reductions in the energy sector. However, the TERT notes that it is difficult to provide a robust appraisal of the impact of PaMs, actions and plans over 2019–2022, given the severe economic crisis experienced by Lebanon, which has significantly affected economic activity, energy demand and emission trends in the country. The TERT also notes that PaMs, actions and plans have started to have an impact on the increase in the percentage of power demand met by renewable energy, while the impact on the percentage of heat demand in the building sector met by renewable energy and the percentage reduction in power demand resulting from energy efficiency measures has not yet been quantified.

38. Lebanon does not consider itself subject to the 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 to developing country Parties under Articles 9–11 of the Paris Agreement in its BTR1.

39. Regarding the implementation of Article 13 of the Paris Agreement and transparency-related activities, Lebanon required support for tracking progress towards the NDC and using

the 2006 IPCC Guidelines. The amount of support needed was not reported, whereas support received or planned to be received in 2018–2027 through various channels totalled USD 7.44 million.

40. In consultation with Lebanon, 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 Lebanon, the main reporting-related needs for capacity-building support are completing the transfer of time-series data from a previous to the latest version of the IPCC inventory software, producing GHG projections, improving estimation of and reporting on the impacts of PaMs, and enhancing the existing inventory QA/QC plan.

Annex

Documents and information used during the review

A. Reference documents

BTR1 of Lebanon. Available at <https://unfccc.int/first-biennial-transparency-reports>.

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

CRTs of Lebanon. Available at <https://unfccc.int/first-biennial-transparency-reports>.

“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>.

“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 Lebanon. Available at <https://unfccc.int/NDCREG>.

NID of Lebanon. Available at <https://unfccc.int/first-biennial-transparency-reports>.

B. Additional information provided by the Party

Responses to questions during the review were received from Lea Kai (Ministry of Environment of Lebanon), including additional material.
