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Technical analysis of the third biennial update report of Lebanon submitted on 13 October 2019

Summary report by the team of technical experts


Summary

According to decision 2/CP.17, paragraph 41(a), Parties not included in Annex I to the Convention, consistently with their capabilities and the level of support provided for reporting, were to submit their first biennial update report by December 2014. Further, paragraph 41(f) of that decision states that Parties not included in Annex I to the Convention shall submit a biennial update report every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report. As mandated, the least developed country Parties and small island developing States may submit biennial update reports at their discretion. This summary report presents the results of the technical analysis of the third biennial update report of Lebanon, conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

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Abbreviations and acronyms

AD	activity data
AFOLU	agriculture, forestry and other land use
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CGE	Consultative Group of Experts
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
EF	emission factor
GEF	Global Environment Facility
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	<i>Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories</i>
IPCC good practice guidance for LULUCF	<i>Good Practice Guidance for Land Use, Land-Use Change and Forestry</i>
LEDS	low-emission development strategy
LULUCF	land use, land-use change and forestry
MoE	Ministry of Environment of Lebanon
MRV	measurement, reporting and verification
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
NDC	nationally determined contribution
NE	not estimated
non-Annex I Party	Party not included in Annex I to the Convention
N ₂ O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SF ₆	sulfur hexafluoride
TTE	team of technical experts
UNDP	United Nations Development Programme
UNFCCC guidelines for the preparation of NCs from non-Annex I Parties	“Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention”
UNFCCC reporting guidelines on BURs	“UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention”
2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>

I. Introduction and process overview

A. Introduction

1. The process of ICA consists of two steps: a technical analysis of the submitted BUR and a facilitative sharing of views under the Subsidiary Body for Implementation, resulting in a summary report and a record, respectively.
2. According to decision 2/CP.17, paragraph 41(a), non-Annex I Parties, consistently with their capabilities and the level of support provided for reporting, were to submit their first BUR by December 2014. In addition, paragraph 41(f) of that decision states that non-Annex I Parties shall submit a BUR every two years, either as a summary of parts of their NC in the year in which the NC is submitted or as a stand-alone update report. The least developed countries and small island developing States may submit BURs at their discretion.
3. Further, according to paragraph 58(a) of the same decision, the first round of ICA is to commence for non-Annex I Parties within six months of the submission of the Parties' first BUR. The frequency of developing country Parties' participation in subsequent rounds of ICA, depending on their respective capabilities and national circumstances, and the special flexibility for small island developing States and the least developed country Parties, will be determined by the frequency of the submission of BURs.
4. Lebanon submitted its second BUR on 13 October 2017, which was analysed by a TTE in the tenth round of technical analysis of BURs from non-Annex I Parties, conducted from 5 to 9 March 2018. After the publication of its summary report, Lebanon participated in the sixth workshop for the facilitative sharing of views, convened in Katowice, Poland, on 3 and 7 December 2018.
5. This summary report presents the results of the technical analysis of the third BUR of Lebanon, undertaken by a TTE in accordance with the provisions on the composition, modalities and procedures of the TTE under ICA contained in the annex to decision 20/CP.19.

B. Process overview

6. In accordance with the mandate referred to in paragraph 2 above, Lebanon submitted its third BUR on 13 October 2019 as a stand-alone update report. The submission was made within two years of the submission of the second BUR.
7. A desk analysis of Lebanon's BUR was conducted from 9 to 13 March 2020¹ and was undertaken by the following TTE, drawn from the UNFCCC roster of experts on the basis of the criteria defined in decision 20/CP.19, annex, paragraphs 2–6: Selam Kidane Abebe (former member of the CGE from Ethiopia), Thiago de Araújo Mendes (former member of the CGE from Brazil), Fernando Farias (former member of the CGE from Chile), Liviu Gheorghe (Romania), Eduardas Kazakevicius (Lithuania), Mwangi Kinyanjui (Kenya), Orlando Ernesto Rey Santos (Cuba), Hlobosile Sikhosana (Eswatini) and John Steller (United States of America). Mr. Kinyanjui and Mr. Steller were the co-leads. The technical analysis was coordinated by Marion Vieweg-Mersmann, Bhava Dhungana and Hiroaki Odawara (secretariat).
8. During the technical analysis, in addition to the written exchange, through the secretariat, to provide technical clarifications on the information reported in the BUR, the TTE and Lebanon engaged in consultation² on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Lebanon's third BUR, the TTE prepared and shared a draft summary report with Lebanon on 15 June 2020 for its review and comment. Lebanon, in turn, provided its feedback on the draft summary report on 17 September 2020.

¹ Owing to the circumstances related to the coronavirus disease 2019, the technical analysis of the BUR submitted by Lebanon had to be conducted remotely.

² The consultation was conducted via teleconferencing.

9. The TTE responded to and incorporated Lebanon's comments referred to in paragraph 8 above and finalized the summary report in consultation with the Party on 28 September 2020.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

10. The scope of the technical analysis is outlined in decision 20/CP.19, annex, paragraph 15, according to which the technical analysis aims to, without engaging in a discussion on the appropriateness of the actions, increase the transparency of mitigation actions and their effects and shall entail the following:

(a) The identification of the extent to which the elements of information listed in paragraph 3(a) of the ICA modalities and guidelines (decision 2/CP.17, annex IV) have been included in the BUR of the Party concerned (see chap. II.B below);

(b) A technical analysis of the information reported in the BUR, specified in the UNFCCC reporting guidelines on BURs (decision 2/CP.17, annex III), and any additional technical information provided by the Party concerned (see chap. II.C below);

(c) The identification, in consultation with the Party concerned, of capacity-building needs related to the facilitation of reporting in accordance with the UNFCCC reporting guidelines on BURs and to participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention (see chap. II.D below).

11. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Lebanon's BUR outlined in paragraph 10 above.

B. Extent of the information reported

12. The elements of information referred to in paragraph 10(a) above include the national GHG inventory report; information on mitigation actions, including a description of such actions, an analysis of their impacts and the associated methodologies and assumptions, and information on progress in their implementation; information on domestic MRV; and information on support needed and received.

13. According to decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE is to identify the extent to which the elements of information listed in paragraph 12 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs. Specific details on the extent of the information reported for each of the required elements are provided in annex I.

14. The TTE noted improvements in the reporting in the Party's current BUR compared with that in the previous BUR analysed. Information on the GHG inventory, mitigation actions and their effects, and needs and support reported in the Party's third BUR demonstrates that it has taken into consideration the areas for enhancing transparency noted by the previous TTEs in the summary reports on the technical analysis of the Party's previous BURs. Specifically, the Party improved documentation of AD and EFs for the various sectors, upgraded to using the 2006 IPCC Guidelines and GWP values from the AR5, provided recalculated emissions for the time series and documented the effects of the recalculations on emissions for each year, and enhanced the capacity of its local inventory team to support the sustainability of reporting on a continuous basis.

15. Regarding the areas for enhancing understanding of the extent of the information reported in the BUR noted by the previous TTE in the summary report on the technical analysis of the Party's previous BUR, Lebanon identified the areas that were not addressed in its current BUR. They include the lack of an institutionalized GHG inventory team with capacity to track emissions from all sources and sinks, and the lack of a data repository

provided for under law that facilitates data acquisition from all data providers, which are potential areas for enhancing national capacity.

C. Technical analysis of the information reported

16. The technical analysis referred to in paragraph 10(b) above aims to increase the transparency of mitigation actions and their effects, without engaging in a discussion on the appropriateness of those actions. Accordingly, the focus of the technical analysis was on the transparency of the information reported in the BUR.

17. For information reported on national GHG inventories, the technical analysis also focused on the consistency of the methods used for preparing those inventories with the appropriate methods developed by the IPCC and referred to in the UNFCCC reporting guidelines on BURs.

18. The results of the technical analysis are presented in the remainder of this chapter.

1. Information on national circumstances and institutional arrangements relevant to the preparation of national communications on a continuous basis

19. As per the scope defined in paragraph 2 of the UNFCCC reporting guidelines on BURs, the BUR should provide an update to the information contained in the most recently submitted NC, including information on national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis. In their NCs, non-Annex I Parties report on their national circumstances following the reporting guidance contained in decision 17/CP.8, annex, paragraphs 3–5, and they could report similar information in their BUR, which is an update of their most recently submitted NC.

20. In its third BUR Lebanon provided an update on its national circumstances, including the governance system: an NDC committee was established in 2018 to coordinate implementation of Lebanon's NDC. The Party also provided information regarding its population, economic and social profile, climate change education and awareness, water, health and the engagement of non-State actors in climate action. Lebanon refers to its second BUR, submitted in 2017, for information on its geography and climate. Information was provided in textual format and using figures and tables, which provided detailed sectoral information.

21. Lebanon transparently reported in its third BUR information on its existing institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, reporting that the MoE is the national focal point for climate change and mandated to prepare the Party's BURs and NCs. The Climate Change Coordination Unit, supported through multilateral funds, works under the Service of Environmental Technology within the MoE and its responsibilities include coordinating the preparation of BURs and NCs. The BUR does not include a description how other ministries and governmental agencies are involved in the process. During the technical analysis, the Party explained that other ministries and governmental agencies, such as the Ministry of Energy and Water and Ministry of Agriculture, were involved mainly just in preparing the GHG inventory, although some were also involved through stakeholder and bilateral consultations in identifying and tracking the progress of mitigation actions, support received and needed, and capacity-building needs. Lebanon informed the TTE that the absence of formal institutional arrangements hinders the involvement of relevant institutions that could enhance reporting in the BURs, such as the Council for Development and Reconstruction, the Ministry of Public Works and Transportation, the Ministry of Industry, the central bank of Lebanon and the Central Administration of Statistics.

22. The TTE noted that the transparency of the information reported on institutional arrangements could be further enhanced by addressing the areas noted in paragraph 21 above, which could facilitate a better understanding of the information reported on institutional arrangements.

23. Lebanon reported in its third BUR that it currently has no specific methodology for monitoring the progress of mitigation actions, making it difficult to track progress towards committed targets or the economy-wide impacts of mitigation actions, nor any system for systematically tracking climate finance flows. The Party has clarified that, as part of a Capacity-building Initiative for Transparency project, an MRV coordinating entity is due to be established at the MoE. Work has begun with the development of a management information system for climate action platform for the energy sector, which will be expanded in the future to include other sectors. The MoE is also aiming to develop a system that captures climate finance flows from both domestic and international sources. During the technical analysis, the Party explained that the MRV coordinating entity will be responsible for establishing a cross-cutting system that tracks GHG emissions, mitigation and adaptation actions, support received and needed, and capacity-building needs.

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

24. As indicated in table I.1, Lebanon reported information on its GHG inventory in its BUR mostly in accordance with paragraphs 3–10 of the UNFCCC reporting guidelines on BURs and paragraphs 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8.

25. Lebanon submitted its third BUR in 2019 and the GHG inventory reported is for 2015. The GHG inventory is consistent with the requirements for the reporting time frame. During the technical analysis, Lebanon indicated that the GHG inventory conducted for the third BUR was calculated using IPCC software version 2.54.

26. GHG emissions and removals for the BUR covering the 2015 inventory were estimated using tier 1 methodology from the 2006 IPCC Guidelines, applying default EFs and AD from national and international sources, as appropriate. The representation of most land-use areas and land conversions followed the tier 3 approach based on national definitions.

27. Information on AD and EFs used and their sources was clearly reported in the BUR, including for energy industries, manufacturing industries, transport and other in the energy sector; mineral industries and non-energy products from solvent and other product use in the industrial processes and product use sector; livestock, land and aggregate sources and non-CO₂ emissions from land in the AFOLU sector; and solid waste and wastewater in the waste sector.

28. Information on the Party's total GHG emissions by gas for 2015 is outlined in table 1 in Gg CO₂ eq, as reported in table 9 of the BUR. Following the Party's move to using the 2006 IPCC Guidelines, recalculated emissions excluding land (category 3.B) increased from 9,233.38 Gg CO₂ eq in 1994 to 27,107.66 Gg CO₂ eq in 2015, implying a gross increase in emissions of approximately 300 per cent and an annual rate of increase of 6 per cent since 1994.

Table 1
Greenhouse gas emissions by gas of Lebanon for 2015

<i>Gas</i>	<i>GHG emissions (Gg CO₂ eq) including land^a</i>	<i>GHG emissions (Gg CO₂ eq) excluding land^a</i>
CO ₂	21 805.42	25 116.80
CH ₄	1 325.87	1 325.87
N ₂ O	664.98	664.98
HFCs	NA	NA
PFCs	NA	NA
SF ₆	NA	NA
Other	NE	NE
Total	23 796.28	27 107.66

^a 2006 IPCC Guidelines AFOLU category 3.B.

29. Information on nitrogen oxides, carbon monoxide and non-methane volatile organic compounds was not reported in Lebanon's BUR. The Party provided relevant clarification during the technical analysis, informing the TTE that it is in the process of establishing the expertise and necessary systems for estimation of emissions for these gases, but that technical and administrative challenges led to delays. Lebanon will include the information in subsequent reports.

30. Lebanon applied notation keys in tables where numerical data were not provided. The use of notation keys was consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties.

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

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

Table 2

Shares of greenhouse gas emissions by sector of Lebanon for 2015

<i>Sector</i>	<i>GHG emissions excluding land^a (Gg CO₂ eq)</i>	<i>% share</i>	<i>% change 1994–2015</i>
Energy	23 012.71	84.9	263
Industrial processes	2 284.35	8.4	94
AFOLU	-2 431.43	NA	NA
Livestock (category 3.A)	593.81	2.2	2
Land (category 3.B)	-3 311.38	NA	-8
Aggregate sources and non-CO ₂ emissions sources on land (category 3.C)	286.14	1.1	43
Waste	930.64	3.4	5

^a 2006 IPCC Guidelines AFOLU category 3.B (land).

33. Lebanon reported information on its use of GWP values consistent with those provided by the IPCC in its AR5 based on the effects over a 100-year time-horizon of GHGs. The Party identified improvements in the information reported, such as the adoption of GWP values from the AR5 for converting estimates of CH₄ and N₂O emissions to CO₂ eq. The TTE commends Lebanon for converting estimates of CH₄ and NO₂ emissions to CO₂ eq using GWP values from the AR5.

34. For the energy sector, information was clearly reported on tier levels, AD and their sources, EFs, key categories, notation keys used and other information specific to the sector. Tier 1 methodology from the 2006 IPCC Guidelines was adopted for estimating all GHG emissions from energy industries, manufacturing industries and construction, commercial and other industries. Tier 1 methodology was also used for the transport sector in estimating CO₂ emissions from mobile combustion. Disaggregation of vehicles by technology, fuel and operating conditions allowed the use of tier 2 methodology for estimating emissions of CH₄ and N₂O in the transport sector.

35. For the industrial processes sector, information was clearly reported on tier levels, AD and their sources, EFs, key categories, notation keys used and other information specific to the sector. Emissions were calculated for major sources, namely cement, lime and glass production, and the Party clearly identified sources that do not occur, such as chemical and metal industry, and those for which estimation methods are still under development.

36. Information on product uses as substitutes for ozone-depleting substances (HFCs), PFCs, SF₆ and emissions from food and beverage was reported as "NE" in Lebanon's BUR. However, the Party provided relevant clarification in its BUR concerning steps being taken towards reporting emissions from these sources in the future.

37. Information on solvent use was not reported in Lebanon's BUR. However, the Party provided relevant clarification in its BUR on time constraints and uncertainties associated with the data available, and stated that these emissions will be included in the next BUR.

38. For categories 3.A and 3.C under the 2006 IPCC Guidelines AFOLU sector, N₂O from agricultural soils and CH₄ from enteric fermentation were identified as key categories and the most relevant emissions sources in the sector. Lebanon used EFs from the 2006 IPCC Guidelines. The TTE commends the Party for providing actual AD in the BUR, such as the number of livestock and the amount of fertilizer used, as this facilitated a better understanding of the information reported.

39. For land (category 3.B), Lebanon reported annual GHG emissions and removals for 1994–2015. Overall, the net removals from land (category 3.B) have decreased owing to a decreasing forest area. Lebanon used a national land-use classification method that aligns with the IPCC land-use categories. In 2015, the LULUCF sector was a net sink with –3,311.38 Gg CO₂ eq derived from the land-use classes settlements (–1,350.54 Gg CO₂ eq), cropland (–1,165.71 Gg CO₂ eq) and forest land (–795.12 Gg CO₂ eq). However, the TTE noted that the conversion of forests to settlements was reported as a net sink. During the technical analysis, the Party clarified that, owing to a lack of national estimates, it assumed no change in initial biomass carbon stocks for the total areas of forest and cropland converted to settlements, while annual biomass carbon growth and annual biomass carbon loss were accounted for, leading to a likely misrepresentation of actual emissions. Lebanon confirmed that this is an area for improvement, and it aims to capture more accurate estimates of GHG emissions from land-use conversions in its next BUR.

40. For the waste sector, information was clearly reported on tier levels, AD and their sources, EFs, key categories, notation keys used and other information specific to the sector. Solid waste disposal sites were identified as the main source of emissions and a tier 2 approach based on the 2006 IPCC Guidelines was used to estimate emissions for 2015 and the recalculated time series. During the technical analysis, Lebanon explained that the recalculated emissions from solid waste resulted in a 34 per cent change in the emission estimate for 1994. A review of factors that could have contributed to this change was conducted and further research is ongoing. Results to date suggest that an improvement in the generation of AD is required for this sector.

41. The BUR provides an update to all GHG inventories reported in previous NCs and BURs. The information reported provides an update of the Party's second BUR, which addressed anthropogenic emissions and removals for 2013. The update was carried out for 1994–2015 using the methodologies contained in the 2006 IPCC Guidelines, thus generating a consistent 22-year time series. The previous national inventory was prepared using the Revised 1996 IPCC Guidelines. The Party identified improvements in the information reported, such as the use of GWP values from the AR5, documentation of AD and EF sources in a disaggregated manner, use of national EFs as opposed to default values for the energy sector, reconstruction of emission trends rather than use of interpolation in estimating emissions from managed soils, and improved AD for waste management.

42. Lebanon described in its BUR the institutional framework for the preparation of its 2015 GHG inventory. The Party reported that the MoE is the governmental body responsible for its climate change policy and GHG inventory, which was prepared with the support of the GEF, which assisted Lebanon in designing its GHG inventory system. The Party identified improvements in the information reported and used the opportunity to prepare its third BUR using the modalities, procedures and guidelines for the enhanced transparency framework in order to make it easier to transition to preparing the biennial transparency report. During the technical analysis, Lebanon clarified that, although the development of the GHG inventory for the third BUR was project based, the Party plans to improve data access and sharing by establishing an MRV unit, initially working in the energy sector, where the most data are available.

43. Lebanon clearly reported that a key category analysis was performed for the level of, and trend in, emissions. Key categories include CO₂ emissions from energy industries, road transport and manufacturing industries, which were identified as key in the 2015 inventory and the 1994–2015 trend assessment. The Party identified improvements in the information

reported, such as the use of approach 1, as described in volume 1, chapter 4, of the 2006 IPCC Guidelines, to identify key categories.

44. The BUR provides information on QA/QC measures for all sectors. Information was reported on the limitations that resulted in a partial QA/QC process, such as the reliance on ad hoc arrangements because of the limited availability of experts for the various sectors. The Party identified specific requirements for integrating and streamlining QA/QC in future reporting, such as the systematic implementation and documentation of general and sector-specific QA/QC plans that include timelines and allocated responsibilities. The TTE commends the Party for providing these plans.

45. Lebanon clearly reported information on CO₂ fuel combustion using both the sectoral and the reference approach. The information reported indicates that combustion emissions under the sectoral and reference approach equal 22,803 and 23,558 Gg CO₂ eq, respectively. The difference between the estimates calculated using the two approaches was reported as 755 Gg CO₂ eq, which equates to 3.31 per cent. The Party identified improvements in the reporting, such as improving transport AD, regarding gasoline and diesel consumption in particular, and harmonizing the EFs used for the two approaches.

46. Information was clearly reported on international aviation and marine bunker fuels. The Party obtained the AD from the Ministry of Energy and Water and reported them as a memo item in the BUR for emissions from jet kerosene (international aviation), gasoline (domestic aviation) and marine bunkers.

47. Information on the uncertainty assessment (level) of its national GHG inventory was not reported in Lebanon's third BUR. The Party clarified in its BUR that the move to using the 2006 IPCC Guidelines and time constraints affecting the GHG inventory teams did not allow for the calculation of uncertainty for all sectors. During the technical analysis, the Party identified this as a priority activity for the next BUR.

48. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 29, 37 and 47 above, which could facilitate a better understanding of the information reported on GHG inventories.

49. In paragraph 45 of the summary report on the technical analysis of the Party's second BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be further enhanced, namely by providing AD and EFs used, using notation keys, including in the IPCC sectoral reporting tables, reporting on EFs used for the energy sector, reporting emissions of HFCs, PFCs and SF₆, including information on land-use changes, describing the procedures for collecting and archiving data and reporting on uncertainty assessment. The current TTE noted the improvements referred to in paragraphs 25, 26, 27, 30, 31, 33, 34, 35 and 42 above and commends the Party for enhancing the transparency of its reporting.

3. Mitigation actions and their effects, including associated methodologies and assumptions

50. As indicated in table I.2, Lebanon reported in its BUR, mostly in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.

51. The information reported provides a clear overview of the Party's mitigation actions and their effects. In its BUR Lebanon reported information on its national context and framed its national mitigation actions in the context of its NDC targets and LEDS, which is being prepared with the support of UNDP. The Party clearly noted that no major national legislation directly addresses climate change action; nor is mainstreaming climate change a legislative requirement. However, according to the BUR, the Climate Change Coordinating Unit at the MoE has succeeded in mainstreaming efforts for several key initiatives such as the National Water Sector Strategy, the Ministry of Agriculture Strategy and the National Renewable Energy Action Plan. Most of the mitigation actions are in the energy and forestry sectors, although there are also individual projects that have been or will be implemented in the transport and agriculture sectors. Actions are also planned for wastewater treatment and solid waste management.

52. The Party reported a summary of its sectoral mitigation actions in tabular format, in accordance with decision 2/CP.17, annex III, paragraph 11, for actions in the energy, transport, agriculture and LULUCF sectors. Some of the actions listed in the agriculture and LULUCF sectors included adaptation-related activities. However, the list of mitigation actions reported in tabular format was not exhaustive, and further mitigation actions were reported in narrative format. During the technical analysis, the Party clarified that information on some sectoral mitigation actions was not complete and so could not be reported in tabular format.

53. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Lebanon clearly reported the names of mitigation actions or groups of actions. Some of the actions, such as pursuing NDC targets, de-risking solar and wind energy investment, and projects and actions in the energy, transport and LULUCF sectors, included detailed descriptions with information on the nature of the actions, their coverage, quantitative goals and progress indicators.

54. Information on coverage (gases), quantitative goals and progress indicators was not reported in Lebanon's BUR for the following mitigation actions: LEDS, the National Energy Efficiency and Renewable Energy Action (although the TTE notes that this information is reported for several individual projects funded through the Action), the Lebanon Energy Efficiency and Renewable Energy Finance Facility, the National Transport Policy 2014, the Solid Waste Management Strategy and its road map, and certain pilot projects related to water pumping and irrigation using renewable energy in the agriculture sector. Coverage (gases) and progress indicators were not reported for the Greater Beirut Public Transport Project or the NAMA for the transport sector. Coverage (gases) was not reported for the NAMA for the waste sector. The reason for these omissions was not clearly presented in the BUR.

55. Lebanon reported on the ongoing development of its LEDS as a cross-cutting measure. The BUR clearly reports the objectives of the measure and states that the LEDS will provide an opportunity for synchronizing national goals.

56. Information on progress of implementation, methodologies and assumptions, steps taken and estimated outcomes was not reported in relation to the LEDS. During the technical analysis, Lebanon shared information on the progress of implementation of the LEDS. The Party clarified that the remaining missing information cannot be provided as it is not reported by the relevant entities. Lebanon noted that it will make efforts to report such information in the future.

57. The energy sector mitigation actions focused mainly on improving energy efficiency and promoting renewable energy sources. Some of these actions, such as the National Energy Efficiency and Renewable Energy Action and the Lebanon Energy Efficiency and Renewable Energy Finance Facility, are ongoing. Lebanon clearly reported information on methodologies, assumptions, objectives of the actions and steps taken or envisaged to achieve those actions for most of the mitigation actions in the energy sector. Nine individual projects funded through the National Energy Efficiency and Renewable Energy Action and by other donors achieved GHG emission reductions of 433.44 Gg CO₂ eq in 2015. Five projects related to improving energy efficiency and promoting renewable energy in public power production were completed in 2013–2015, with an expected annual GHG emission avoidance of 685.25 Gg CO₂ eq. Two planned renewable energy de-risking instruments are projected to reduce Lebanon's GHG emissions by around 15,000 Gg CO₂ eq over 20 years.

58. Information on the estimated outcomes of certain individual projects as well as methodologies and assumptions used were not reported for the National Energy Efficiency and Renewable Energy Action or the Lebanon Energy Efficiency and Renewable Energy Finance Facility in the BUR, nor was the reason for this clearly presented in the BUR. The methodologies and assumptions used for estimating the impact of the energy efficiency measures in public power production were also not clearly stated; and neither the steps envisaged nor the progress of implementation was clearly stated for the Lebanon Energy Efficiency and Renewable Energy Finance Facility or for the de-risking instruments. For some of the individual projects promoting renewable energy and energy efficiency, information on the steps envisaged or the results achieved was lacking.

59. During the technical analysis, the Party provided a brief description of the methodologies and assumptions used for estimating the impact of the energy efficiency measures in public power production, and clarified the progress of implementation of de-risking renewable energy investment instruments. Under the NDC support project managed by UNDP, the study on de-risking the renewable energy sector is being revised on the basis of the most recent economic and financial circumstances in Lebanon. The updated study is expected to be published by the end of 2020. The Party explained that the plans will make renewable energy cost-effective and more reliable, reducing dependence on fuel imports and improving the affordability of the energy mix. By de-risking solar and wind investments, Lebanon aims to reduce GHG emissions by 15.2 Mt over a 20-year period. The Party also clarified that the remaining missing information cannot be provided as it is not reported by the entities implementing these actions. Lebanon noted that it will make efforts to report this information in subsequent BURs.

60. The transport sector mitigation actions focused mainly on promoting public transport solutions and increasing the fuel efficiency of vehicles. In the long term, the National Transport Policy 2014 aims to restructure freight transport. Lebanon clearly reported objectives, assumptions and steps envisaged for the mitigation actions in the transport sector. The Greater Beirut Public Transport Project is the main action under implementation and is expected to deliver annual emission reductions of 1.2 Mt CO₂ eq over the 20 years of the project lifetime. The planned NAMA for the transport sector, promoting fuel-efficient and low-emission vehicles, is expected to reduce GHG emissions by around 11,000 Gg CO₂ eq by 2030. The Government has introduced a tax incentive scheme and is currently seeking technical and financial support for the full implementation of the NAMA.

61. Information on quantitative goals, progress indicators, estimated emission reductions, including methodologies and assumptions, and progress in implementing the National Transport Policy 2014 was not reported in the BUR, nor was the reason for these omissions clearly presented in the BUR. The description of the Greater Beirut Public Transport Project did not include the methodology for calculating the reported figures or the progress of implementation. The description of the NAMA for transport did not elaborate on the methodologies or assumptions used for calculating the reported figures.

62. During the technical analysis, Lebanon shared the assumptions used for estimating the impacts of the Greater Beirut Public Transport Project and the NAMA for transport, and clarified the goals of and progress in implementing the National Transport Policy 2014. Emission estimates for the Greater Beirut Public Transport Project were calculated as part of the environmental and social impact assessment, and assumptions for a range of variables were provided for different types of vehicle. The National Transport Policy 2014 aims to ensure an integrated transport system with affordable prices and diversified modes of land transport available for passengers and freight. Further, it aims to reduce the financial load on the national budget of transport activities, apply specific standards to the infrastructure in order to conserve natural landscapes, ensure public road safety, maintain and protect the existing infrastructure and build a network of experts and competent entrepreneurs in the transport and logistics field. In 2015, the Institutional Capacity Development of the Railway and Public Transportation Authority project was launched in collaboration with UNDP. The project's total budget of USD 1,288,300 was provided by the Government. The project, which concluded in 2019, succeeded in developing a master plan and a two-year implementation strategy for public transportation, and updating the institutional and technical structural capacities of the Railway and Public Transportation Authority and providing the necessary support so that it can coordinate and manage ongoing and potential technical projects.

63. The agriculture sector mitigation actions focused mainly on pilot projects related to water pumping and irrigation using renewable energy. Information on the progress of implementation of these mitigation projects and results achieved was not reported in the BUR; nor was the reason for this clearly presented in the BUR. During the technical analysis, the Party clarified that the missing information cannot be provided as it is not reported by the entities implementing these actions. Lebanon noted that it will make efforts to report such information in subsequent BURs.

64. The forestry and land-use mitigation actions focused on afforestation and reforestation projects and initiatives, including managing wildfire risk. The estimated results achieved from the implemented projects in 2015 amounted to emission removals of 1.7 Gg CO₂ eq. Lebanon clearly reported information on the methodologies and assumptions used for estimating the reported removals and results achieved.

65. Information on the envisaged steps of ongoing projects, such as the Jezzine reforestation project, and on activities to assist reforestation and forest development activities conducted in partnership with local communities and others was not reported. The reason for this was not clearly presented in the BUR. During the technical analysis, the Party clarified that the progress and future steps of the afforestation and reforestation projects depend on the availability of bilateral or multilateral funds. Lebanon also noted that progress in implementing afforestation initiatives for 2016–2019 will be reported in subsequent BURs.

66. Two mitigation actions were reported with brief descriptions for the waste sector, namely the Solid Waste Management Strategy and its road map, adopted on 2 August 2019, and the NAMA for the waste sector. The latter focuses on collecting and using landfill gas and implementing a waste-to-energy facility, aiming to achieve cumulative GHG emission reductions of around 3,600 Gg CO₂ eq by 2030.

67. Information on the assumptions and methodologies used for estimating the reported emission reduction, implementation progress, and the expected results of the Solid Waste Management Strategy was not reported in the BUR; nor was the reason for this clearly presented in the BUR. During the technical analysis, Lebanon provided information on the methodology and assumptions used and progress of implementation for the NAMA for the waste sector. The Party also shared the objectives of the Solid Waste Management Strategy and its road map. Lebanon clarified that the remaining missing information cannot be provided as it is not reported by the entities implementing these actions. The Party noted that it will make efforts to report such information in subsequent BURs.

68. Lebanon transparently reported the lack of a specific methodology for monitoring the progress of actions. However, it provided detailed estimates of annual and accumulated emission reductions or CO₂ removals for the energy and forestry sectors. The methodology used for calculating the emission reductions resulting from the identified mitigation actions was based on the 2006 IPCC Guidelines. The Party noted that there might be overlaps between the various reported mitigation actions and so the potential for double counting presents challenges in aggregating the impact of emission reductions across all the mitigation actions in various sectors. Annual emission reduction or CO₂ removal figures were reported for some projects, whereas only cumulative figures are available for other projects. The largest emission reductions are reported for actions in the energy sector, with the estimated annual emission avoidance exceeding 1,100 Gg CO₂ eq, which is equivalent to around 4 per cent of the total GHG emissions in 2015. Mitigation actions in the transport sector are also expected to contribute significantly to achieving the NDC targets in the future. Expected or achieved emission reductions in the other sectors are modest.

69. Lebanon provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. Lebanon documented seven clean development mechanism projects approved by its designated national authority that have been submitted to the Executive Board of the clean development mechanism, six of which have been registered. No certified emission reductions have been issued to date. The BUR lists the registered projects, including their title, the parties involved, methodologies and estimated emission reductions.

70. Lebanon reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Lebanon is in the process of developing and designing a domestic MRV system for mitigation actions. Lebanon is currently mapping all climate actions, including mitigation actions, as part of its NDC Partnership Plan, in order to assess needs and gaps. Also, as part of a Capacity-building Initiative for Transparency project, an MRV unit is due to be established at the MoE to establish a systemized approach to collecting mitigation information. Part of this systemization has already begun with developing a management information system for

climate action platform for the energy sector, with a view to expanding the platform in the future to include other sectors.

71. The TTE noted that the transparency of the information reported on mitigation actions could be further enhanced by addressing the areas noted in paragraphs 54, 56, 58, 61, 63, 65 and 67 above, which could facilitate a better understanding of the information reported on mitigation actions.

72. In paragraph 56 of the summary report on the technical analysis of Lebanon's second BUR, the previous TTE noted areas where the transparency of the reporting on mitigation actions could be further enhanced, namely related to providing information on the mitigation potential of reported actions and involvement in international market mechanisms. The current TTE noted the improvements referred to in paragraphs 57, 60, 64, 66 and 69 above and commends the Party for enhancing the transparency of its reporting.

4. Constraints and gaps, and related technology, financial, technical and capacity-building needs, including a description of support needed and received

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

74. Lebanon clearly reported information on constraints and gaps, in accordance with decision 2/CP.17, annex III, paragraph 14. Information on constraints and gaps is referred to in the chapters on the GHG inventory, mitigation actions and support received, and is also provided on a sectoral basis (tables 102–108 of the BUR). Constraints and gaps related to the GHG inventory include the absence of country-specific EFs, the small size of the GHG inventory team, difficulties in conducting uncertainty assessment and time constraints. Some of these gaps were already identified by previous TTEs and some remain according to the BUR, including the lack of a legal and institutional framework for collecting AD and difficulties in implementing a general and sectoral QA/QC plan. Regarding mitigation, Lebanon explained that it is preparing its LEDS and that a number of activities relating to the LEDS are under way across ministries and third-party institutions. However, many of these sector-based efforts are not explicitly tied to the LEDS, and Lebanon recognizes the need for enhanced capacity to coordinate these activities.

75. Lebanon explained that gaps and needs that have been identified and compiled through the ICA process in order to improve its reporting and those identified by the TTE during the ICA of the first and second BURs are reflected in table 100 of the third BUR. According to table 100, most of these needs are still valid, even though some have been addressed since the first BUR. Lebanon reported in its BUR that, given the iterative nature of submissions under the UNFCCC, improvements are always possible, especially in the light of the newly adopted modalities, procedures and guidelines with which Lebanon is planning to comply. Examples of gaps and needs addressed for the second BUR and partially addressed for the third BUR are improved processes and incentives for facilitating private sector collaboration for data collection for the GHG inventory; and the need for developing progress indicators to calculate emission reductions resulting from incomplete projects, which remains mostly unaddressed.

76. Lebanon reported its financial, technical and capacity-building needs on a sectoral basis, but the Party is yet to identify specific capacity-building or financial needs, or to then categorize or prioritize those needs according to a nationally endorsed and standardized system. During the technical analysis, the Party clarified that capacity-building needs are being identified on an ad hoc basis when support is being provided to undertake the assessment and not in a regular, institutionalized manner. For example, through the NDC Partnership, support was provided to organize a workshop in 2019 to identify sectoral needs, including technical, financial and capacity-building needs, and to prepare the NDC Partnership Plan. Currently, Lebanon is finalizing the preparation and validation of detailed plans, which identify its short-term needs (up to three years) for each prioritized sector (energy, transport, water, agriculture, forestry and overall climate finance). These plans should better inform the capacity-building needs of Lebanon to enhance its response to

climate change. A more systematic approach is needed to evaluate and respond to needs of partner agencies in a continuous manner.

77. Lebanon reported information on financial resources, in accordance with decision 2/CP.17, annex III, paragraph 15. Climate finance from multilateral and bilateral sources plays an important role in advancing climate action in Lebanon. It has contributed to the implementation of sectoral policies and programmes and supported initiatives of governmental and non-governmental institutions. In its BUR, Lebanon reported that, as part of enabling activities for the preparation of its NC4 and third BUR, it received USD 852,000 from the GEF. Financial and technical support received for general climate change related projects includes finance from the NDC Support Programme to enhance NDC implementation and synchronize with the Sustainable Development Goals, increase mitigation investment by the public and private sectors, and mainstream gender in the NDC. Specific support for energy-related climate change projects from member countries of the Organisation for Economic Co-operation and Development is detailed in table 97 of the BUR, such as USD 85,000 from France for education and training on renewable energy.

78. Lebanon reported that the MoE has attempted to identify and track climate change related activities in Lebanon and their related financing, but limited information is available for estimating the overall support that Lebanon is receiving for climate action because no single entity is responsible for tracking and reporting on climate change projects and related expenditure. Therefore, the tables in its third BUR do not provide a comprehensive overview of the financial, technical and capacity-building support received in relation to climate change in the country. In addition, the funds identified do not include domestic support from the Government, such as loans, for the implementation of mitigation measures, owing to the unavailability of comprehensive data. During the technical analysis, the Party recognized that a more systematic approach is required to provide information on a continuous basis.

79. Lebanon did not report information on nationally determined technology needs with regard to the development and transfer of technology in accordance with decision 2/CP.17, annex III, paragraph 16. In table 100 of its BUR, Lebanon recognizes that gaps and needs previously identified in its first and second BURs regarding the tracking of technology transfer carried out within the country have not been addressed for its third BUR. During the technical analysis Lebanon explained that the technology needs assessment activity planned under the NC4 has not yet been initiated, owing to a six-month delay in starting the project. The activity is expected to be completed by the end of 2020 and the results will be presented in the subsequent BUR.

80. The TTE noted that the transparency of the information reported on needs and support received could be further enhanced by addressing the areas noted in paragraphs 76 and 79 above, which could facilitate a better understanding of the information reported on needs and support received.

81. In paragraphs 59–61 of the summary report on the technical analysis of the Party's second BUR, the previous TTE noted areas where the transparency of the reporting on constraints and gaps and related financial, technical and capacity-building needs could be further enhanced. The current TTE noted the improvements referred to in paragraph 75 above and commends the Party for enhancing the transparency of its reporting.

D. Identification of capacity-building needs

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

(a) Developing technical capacity to collect, process and harmonize data from both private and public sources to estimate the climate impacts of groups of actions or of overlapping mitigation actions to avoid double counting. Universities and research institutions could be involved in this capacity-building effort to ensure the continuity and sustainability of the acquired capacity;

(b) Developing capacity to identify nationally determined technology needs, beyond the support currently provided for the NC4;

(c) Establishing capacity-building activities to support Lebanon in identifying which technology transfer qualifies as climate change support and how best to track such activities from donor funds and the private sector;

(d) Enhancing national capacity for strengthening the engagement of ministries and agencies in the preparation of the next BUR and future climate reports.

83. The TTE noted that, in addition to those identified during the technical analysis, Lebanon reported several capacity-building needs in its BUR, covering the following areas:

(a) Improving AD collection for the waste sector for using the first-order decay method so that the identified high level of uncertainty can be reduced;

(b) Enhancing national capacity for identifying gaps and constraints in a more institutional manner and better translating them into specific financial, technology and capacity-building needs;

(c) Improving knowledge on the tracking of climate change financial resources and identification and quantification of support needed, with the support of enhanced methodology for the data gathering and reporting process and improved capacity of the technical staff responsible for providing data;

(d) Strengthening national capacity for tracking the technology transfer carried out within the country and developing a methodology or other systematic approach for estimating the costs of actual technologies and conducting cost–benefit analysis;

(e) Enhancing national capacity for developing indicators for technology projects and an approach to reporting comprehensively on different types of support.

84. In paragraphs 62–63 of the summary report on the technical analysis of Lebanon’s second BUR, the previous TTE, in consultation with Lebanon, identified and prioritized capacity-building needs. In its third BUR, Lebanon reflected that some of those capacity-building needs have been addressed. In table 100 of its third BUR, the Party reported the progress towards addressing each of the previously identified capacity-building needs. Though some needs, such as those involving enhancement of the GHG inventory team and associated institutions, have been met, many have only been partially addressed or not addressed at all, on the basis of the new priorities for capacity-building referred to in paragraphs 82–83 above. For example, Lebanon prioritized moving to using the 2006 IPCC Guidelines over building capacity for uncertainty assessment. During the technical analysis, the Party explained that the capacity-building needs that had been identified in the previous BUR but had not yet been reported as having been achieved in the current BUR will be prioritized in order to enhance future reporting.

III. Conclusions

85. The TTE conducted a technical analysis of the information reported in the third BUR of Lebanon in accordance with the UNFCCC reporting guidelines on BURs and concludes that the information reported is mostly consistent. It provides an overview of national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis; the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol, including a national inventory report; mitigation actions and their effects, including associated methodologies and assumptions; constraints and gaps and related financial, technical and capacity-building needs, including a description of support needed and received; the level of support received to enable the preparation and submission of BURs; domestic MRV; and any other information relevant to achieving the objective of the Convention. During the technical analysis, additional information was provided by Lebanon on proposed improvements to the institutional arrangements for data collection and sharing that will help to overcome barriers to reporting identified in the third BUR. The TTE concluded that the information analysed is mostly transparent.

86. Lebanon reported an update on the institutional arrangements relevant to the preparation of its BURs. The Party reported on the institutional arrangements relevant to the

preparation of its NCs and BURs on a continuous basis, the role of the MoE and the overall coordination efforts, including the development of an MRV system, including a responsible MRV unit, to track climate change finance flows, measure the progress of climate policies against its NDC goals and identify needs to strengthen climate reporting processes.

87. In its third BUR, submitted in 2019, Lebanon reported information on its national GHG inventory for 2015. This included GHG emissions and removals of CO₂, CH₄ and N₂O for all relevant sources and sinks but not for precursor gases. The inventory was developed on the basis of the 2006 IPCC Guidelines for individual key categories. The total GHG emissions for 2015 were reported as 27,107.66 CO₂ Gg eq (excluding LULUCF) and 23,796.28 Gg CO₂ eq (including LULUCF). Four key categories and main gases were identified, with energy industries and CO₂ being the main category and gas, respectively, specifically subcategories 1.A.1 energy industries, 1.A.3.b road transportation, 1.A.2 manufacturing industries and construction, and 1.A.4 other sectors. Estimates of fluorinated gases were not provided owing to difficulties in obtaining the necessary data and time constraints, as clarified by the Party during the technical analysis.

88. Lebanon reported information on mitigation actions and their effects in both tabular and narrative format in the context of NDC targets and its future LEDS. Most of the mitigation actions are in the energy and forestry sectors, though individual projects were, or will be, implemented in the transport and agriculture sectors. There are also plans for action in the waste sector. The mitigation actions generally focus on promoting energy efficiency and renewable energy, a modal shift towards less carbon-intensive passenger transport, afforestation and reforestation, and landfill gas capture. For many actions the Party reported the progress of implementation and the results achieved, including emission reductions and estimated outcomes. The highest emission reduction was reported for actions in the energy sector, with the estimated annual emission avoidance exceeding 1,100 Gg CO₂ eq in 2015, which is equivalent to around 4 per cent of the total GHG emissions in 2015. In the future, mitigation actions in the transport sector are also expected to contribute significantly to achieving NDC targets. Expected or achieved emission reductions in other sectors are modest. Lebanon also reported information on its domestic international market mechanisms and MRV arrangements.

89. Lebanon reported information on key constraints, gaps and related needs, including information on constraints and gaps related to the GHG inventory, mitigation actions and support received. Limited information was reported on the technical and capacity-building support received. The Party also reported that it received financial support of USD 852,000 from the GEF as part of enabling activities for preparing its NC4 and third BUR. The information provided by the Party does not differentiate between financial, technical and capacity-building needs, and information on nationally determined technology needs was not reported. The Party clearly identified the reasons for these limitations, including the absence of proper methodologies and the need for a more systematic approach. Capacity-building needs were identified in these areas.

90. The TTE, in consultation with Lebanon, identified the four capacity-building needs listed in chapter II.D above that aim to facilitate reporting in accordance with the UNFCCC reporting guidelines on BURs and participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention. Lebanon prioritized all the capacity-building needs in paragraphs 82–83 above, noting their relevance to improving transparency in future reporting.

Annex I

Extent of the information reported by Lebanon in its third biennial update report

Table I.1

Identification of the extent to which the elements of information on greenhouse gases are included in the third biennial update report of Lebanon

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/partly/no/NA</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, paragraph 41(g)	The first BUR shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available, and subsequent BURs shall cover a calendar year that does not precede the submission date by more than four years.	Yes	Lebanon submitted its third BUR in October 2019; the GHG inventory reported is for 2015, with a recalculation of the time series for 1994–2014.
Decision 2/CP.17, annex III, paragraph 4	Non-Annex I Parties should use the methodologies established in the latest UNFCCC guidelines for the preparation of NCs from non-Annex I Parties approved by the Conference of the Parties or those determined by any future decision of the Conference of the Parties on this matter.	Yes	Lebanon used the 2006 IPCC Guidelines.
Decision 2/CP.17, annex III, paragraph 5	The updates of the section on national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF; any change to the EF may be made in the subsequent full NC.	Yes	
Decision 2/CP.17, annex III, paragraph 6	Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the BUR:		
	(a) The tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF;	Yes	Comparable information was reported in table 68 of the BUR.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was reported in table 68 of the BUR.
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	Yes	The BUR includes a time series for 1994–2015.
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their NCs are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000).	Yes	This information was reported for 1994–2015.
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of a national inventory report as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National GHG inventories), including:		

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/partly/no/NA</i>	<i>Comments on the extent of the information provided</i>
	(a) Table 1 (National GHG inventory of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol and GHG precursors);	Yes	Comparable information was reported in the BUR (table 9 and annex I).
	(b) Table 2 (National GHG inventory of anthropogenic emissions of HFCs, PFCs and SF ₆).	No	Estimation of these gases is expected to be completed in 2020.
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	NA	
Decision 17/CP.8, annex, paragraph 12	Non-Annex I Parties are also encouraged, to the extent possible, to undertake any key source analysis as indicated in the IPCC good practice guidance to assist in developing inventories that better reflect their national circumstances.	Yes	
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.	Yes	
Decision 17/CP.8, annex, paragraph 14	Each non-Annex I Party shall, as appropriate and to the extent possible, provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of anthropogenic emissions of:		
	(a) CO ₂ ;	Yes	
	(b) CH ₄ ;	Yes	
	(c) N ₂ O.	Yes	
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of:		
	(a) HFCs;	No	
	(b) PFCs;	No	
	(c) SF ₆ .	No	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) Carbon monoxide;	No	
	(b) Nitrogen oxides;	No	
	(c) Non-methane volatile organic compounds.	No	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as sulfur oxides, and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties.	No	
Decision 17/CP.8, annex, paragraph 18	Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO ₂ fuel combustion emissions using both the sectoral and the reference approach and to explain any large differences between the two approaches.	Yes	

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Comments on the extent of the information provided</i>	
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories:		
	(a) International aviation;	Yes	
	(b) Marine bunker fuels.	Yes	
Decision 17/CP.8, annex, paragraph 20	Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO ₂ eq should use the GWP provided by the IPCC in its AR2 based on the effects of GHGs over a 100-year time-horizon.	Yes	The Party used the GWP provided in the AR5.
Decision 17/CP.8, annex, paragraph 21	Non-Annex I Parties are encouraged to provide information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol, including a brief explanation of the sources of EFs and AD. If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, EFs and AD used in their estimation of emissions, as appropriate. Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building:		
	(a) Information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol;	Yes	Lebanon used the 2006 IPCC Guidelines. A combination of tier 1 and 2 methodologies was used for specific sectors.
	(b) Explanation of the sources of EFs;	Yes	
	(c) Explanation of the sources of AD;	Yes	
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	NA	.
	(i) Source and/or sink categories;		
	(ii) Methodologies;		
	(iii) EFs;		
	(iv) AD;		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	Yes	
Decision 17/CP.8, annex, paragraph 22	Each non-Annex I Party is encouraged to use tables 1 and 2 of the guidelines annexed to decision 17/CP.8 in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14–17. In preparing those tables, Parties should strive to present information that is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated.	Yes	Notation keys were used.

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/partly/no/NA</i>	<i>Comments on the extent of the information provided</i>
Decision 17/CP.8, annex, paragraph 24	Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying assumptions, and to describe the methodologies used, if any, for estimating these uncertainties:		
	(a) Level of uncertainty associated with inventory data;	No	Not provided due to time constraints due to the move to using the 2006 IPCC Guidelines.
	(b) Underlying assumptions;	No	Not provided due to time constraints due to the move to using the 2006 IPCC Guidelines.
	(c) Methodologies used, if any, for estimating these uncertainties.	No	Not provided due to time constraints due to the move to using the 2006 IPCC Guidelines.

Note: The parts of the UNFCCC reporting guidelines on BURs on reporting information on GHG emissions by sources and removals by sinks in BURs are contained in decision 2/CP.17, paras. 3–10 and 41(g). Further, as per para. 3 of those guidelines, non-Annex I Parties are to submit updates of their national GHG inventories in accordance with paras. 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8. The scope of such updates should be consistent with the non-Annex I Party’s capacity and time constraints and the availability of its data, as well as the level of support provided by developed country Parties for biennial update reporting.

Table I.2

Identification of the extent to which the elements of information on mitigation actions are included in the third biennial update report of Lebanon

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/partly/no</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 11	Non-Annex I Parties should provide information, in tabular format, on actions to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.	Yes	Specific climate mitigation projects were reported in tabular format in annexes VI–VIII to the BUR and additional measures, including cross-cutting policies, were reported in narrative format.
Decision 2/CP.17, annex III, paragraph 12	For each mitigation action or group of mitigation actions, including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information, to the extent possible:		
	(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;	Partly	Information on coverage (gases), quantitative goals and progress indicators for some of the cross-cutting mitigation actions and some of the actions in the energy, transport and waste sectors was not reported.
	(b) Information on:		
	(i) Methodologies;	Partly	Methodologies for some of the mitigation actions were not reported.
	(ii) Assumptions;	Partly	Assumptions for some of the mitigation actions were not reported.
	(c) Information on:		
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Partly	Information on steps taken or envisaged was not reported for the

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/partly/no</i>	<i>Comments on the extent of the information provided</i>
			cross-cutting mitigation actions and some of the actions in the energy and LULUCF sectors.
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Partly	Progress of implementation was not reported for some of the cross-cutting mitigation actions and some of the actions in the energy, transport, agriculture and waste sectors.
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Yes	
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Partly	The Party did not report on the results achieved, including emission reductions, for some of the mitigation actions in the energy and transport sectors.
	(e) Information on international market mechanisms.	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements.	Yes	

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on mitigation actions in BURs are contained in decision 2/CP.17, annex III, paras. 11–13.

Table I.3

Identification of the extent to which the elements of information on finance, technology and capacity-building needs and support received are included in the third biennial update report of Lebanon

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Yes/partly/no</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	
	(b) Related financial, technical and capacity-building needs.	Partly	Information provided is grouped by thematic area and does not differentiate between financial, technical and capacity-building needs.
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources received, technology transfer and capacity-building received;	Partly	The BUR clarifies that the information reported is not comprehensive. Information on technology transfer was not provided.
	(b) Information on technical support received from the GEF, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Yes	
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Yes/partly/no</i>	<i>Comments on the extent of the information provided</i>
	(a) Nationally determined technology needs;	No	A technology needs assessment will be conducted for the NC4.
	(b) Technology support received.	No	

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on finance, technology and capacity-building needs and support received in BURs are contained in decision 2/CP.17, annex III, paras. 14–16.

Annex II

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 1997. *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. JL Houghton, LG Meira Filho, B Lim, et al. (eds.). Paris: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency. Available at <https://www.ipcc-nggip.iges.or.jp/public/gl/invs1.html>.

IPCC. 2000. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. J Penman, D Kruger, I Galbally, et al. (eds.). Hayama, Japan: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency/Institute for Global Environmental Strategies. Available at <http://www.ipcc-nggip.iges.or.jp/public/gp/english/>.

IPCC. 2003. *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. J Penman, M Gytarsky, T Hiraishi, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.html>.

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>.

B. UNFCCC documents

First and second BURs of Lebanon. Available at <https://unfccc.int/BURs>.

NC3 of Lebanon. Available at <https://unfccc.int/non-annex-I-NCs>.

Summary reports on the technical analysis of the first and second BURs of Lebanon. Available at <https://unfccc.int/ICA-reports>.