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Technical analysis of the first biennial update report of the Lao People's Democratic Republic submitted on 28 July 2020

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. 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 first biennial update report of the Lao People's Democratic Republic, conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.



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
CH ₄	methane
CO	carbon monoxide
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
HWP	harvested wood products
ICA	international consultation and analysis
IE	included elsewhere
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>
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
NE	not estimated
NMVOC	non-methane volatile organic compound
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
NO _x	nitrogen oxides
N ₂ O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SF ₆	sulfur hexafluoride
SO _x	sulfur oxides
TTE	team of technical experts
UNEP	United Nations Environment 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. The least developed countries and small island developing States may submit 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. Decision 14/CP.19, paragraph 7, outlines that developing country Parties seeking to obtain and receive payments for results-based actions can submit relevant information and data through the BUR in the form of a technical annex as per decision 2/CP.17, annex III, paragraph 19.¹ Decision 14/CP.19, paragraph 8, outlines that the submission of the technical annex is voluntary and in the context of results-based payments. As mandated by decision 14/CP.19, paragraphs 10–14, the technical annex submitted by the Lao People's Democratic Republic has been subject to technical analysis by two LULUCF experts who are included as members of a TTE. The results of the technical analysis are captured in a separate technical report.²
5. This summary report presents the results of the technical analysis of the first BUR of the Lao People's Democratic Republic, 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, the Lao People's Democratic Republic submitted its first BUR on 28 July 2020 as a stand-alone update report.
7. During the technical analysis, the Party clarified that limited technical and financial readiness were the main reasons for submitting its first BUR after the mandated submission deadline outlined in paragraph 2 above. However, as a least developed country, it followed the provision related to the least developed country Parties outlined in the same paragraph.
8. A desk analysis³ of the Lao People's Democratic Republic's BUR was conducted from 30 November to 4 December 2020 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: Ahmad Wafiq Aboelnasr (Egypt), Alexey Vladimirovich Cherednichenko (Kazakhstan), Ricardo Fernandez (member of the Consultative Group of Experts from the European Union), Henrick Fliflet (Norway), Maria Ana Gonzalez Casartelli (Argentina), Karin Kindbom (Sweden), Nara Lee (Republic of Korea), Nicolo Macaluso (Canada), Athmane Mehadji (member of the Consultative Group of Experts from Algeria), Dinh Hung Nguyen (Viet Nam), Marcela Itzel Olguin-Alvarez (Mexico) and Orlando Ernesto Rey Santos (Cuba). Mr. Aboelnasr and Mr. Macaluso were the co-leads. The

¹ The technical annex on the results from the implementation of REDD+ activities.

² FCCC/SBI/ICA/2020/TATR.1/LAO. At the time of publication of this report, the technical report was being prepared.

³ Owing to the circumstances related to the coronavirus disease 2019, the technical analysis of the first BUR submitted by the Lao People's Democratic Republic had to be conducted remotely.

technical analysis was coordinated by Gopal Joshi, Alma Jean, Hiroaki Odawara and Veronica Colerio (secretariat).

9. 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 the Lao People's Democratic Republic engaged in consultation⁴ on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of the Lao People's Democratic Republic's first BUR, the TTE prepared and shared a draft summary report with the Party on 19 February 2021 for its review and comment. The Lao People's Democratic Republic, in turn, provided its feedback on the draft summary report on 18 May 2021.

10. The TTE responded to and incorporated the Lao People's Democratic Republic's comments referred to in paragraph 9 above and finalized the summary report in consultation with the Party on 4 June 2021.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

11. 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).

12. The remainder of this chapter presents the results of each of the three parts of the technical analysis of the Lao People's Democratic Republic's BUR outlined in paragraph 11 above.

B. Extent of the information reported

13. The elements of information referred to in paragraph 11(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.

14. 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 13 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is partially 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.

⁴ The consultation was conducted via videoconferencing.

C. Technical analysis of the information reported

15. The technical analysis referred to in paragraph 11(b) above aims to increase the transparency of information reported by the Parties on 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.

16. 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.

17. 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

18. 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.

19. The Lao People's Democratic Republic reported in its first BUR information on its national circumstances, including features of geography, climate and economy that might affect the Party's ability to deal with mitigating and adapting to climate change, as well as information regarding national circumstances and constraints on the specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as referred to in Article 4, paragraph 8, and, as appropriate, Article 4, paragraphs 9–10, of the Convention.

20. In addition, the Lao People's Democratic Republic provided a summary of relevant information regarding its national circumstances in tabular and graphical format.

21. The Lao People's Democratic Republic reported in its first BUR information on its existing institutional arrangements relevant to the preparation of its BUR. The Department of Climate Change under the Ministry of Natural Resources and Environment leads and coordinates BUR preparation, including data collection, assessment, reporting and validation, as well as QA/QC and coordination with the agencies that provide support. The Department of Climate Change also coordinates and manages the consultants and the technical working groups that prepare and review the chapters of the BUR. The members of the technical working groups specialize in the energy, industry, AFOLU and waste sectors, and were nominated by the respective authority covering the relevant sectors and stakeholders.

22. Information on institutional arrangements to allow for the preparation of its NCs and BURs on a continuous basis was not clearly reported in the Lao People's Democratic Republic's BUR. During the technical analysis, the Party clarified that it faced significant challenges in and barriers to fully developing and implementing sustainable institutional arrangements supported by (1) legal instruments for organizing data generation, flow and accessibility and for assigning the roles and responsibilities of the key agencies; (2) procedural arrangements for developing data collection forms, identifying timelines for the different agencies to follow, overseeing the QA/QC process and preparing improvement plans; and (3) a national process for engaging the public and stakeholders in an effective manner.

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

24. The Lao People's Democratic Republic reported in its first BUR that it does not have a harmonized and inclusive MRV system supported by standardized procedures. In the near future, the Party plans to carry out MRV on its GHG inventory system, mitigation actions and effects, and support received. The MRV arrangements are to be designed at the national, sectoral, programme or project, and facility level, and will build on the existing domestic processes, arrangements and systems, as well as on sectoral approaches.

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

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

26. The Lao People's Democratic Republic submitted its first BUR in 2020 and the GHG inventory reported is for 2014. The latest reported inventory year is more than four years prior to the date of submission of the Party's BUR. During the technical analysis, the Party clarified that it reported 2014 as the latest inventory year because it thought that the latest year to be covered in the GHG inventory should coincide with the mandated submission deadline for the first BUR (i.e. 2014) outlined in paragraph 2 above. The Party intends to provide in the next BUR a GHG inventory for a calendar year that does not precede the BUR submission date by more than four years, in accordance with decision 2/CP.17, paragraph 41(g).

27. GHG emissions and removals for the BUR covering the 2014 inventory were estimated using tier 1 methodology from the 2006 IPCC Guidelines for all categories in all sectors. The TTE commends the Lao People's Democratic Republic for using the 2006 IPCC Guidelines and the IPCC inventory software.

28. Information on EFs used and their sources was clearly reported in the BUR. The Lao People's Democratic Republic used default EFs from the 2006 IPCC Guidelines for estimating GHG emissions because country-specific EFs were not available.

29. Information on AD used and their sources was not reported in the BUR for all categories in all sectors and the reason for this was not clear to the TTE. During the technical analysis, the Lao People's Democratic Republic clarified that the IPCC inventory software used for preparing the GHG inventory contains all the AD, but because of time constraints it could not include information on all AD used in the BUR. The sources of these AD were described in the GHG inventory technical report, but only a summary was included in the BUR. The Party intends to include information on all AD used and their sources in its next BUR, as appropriate.

30. Information on the Party's total GHG emissions by gas for 2014 is outlined in table 1 in units of mass.

Table 1

Greenhouse gas emissions by gas of the Lao People's Democratic Republic for 2014

<i>Gas</i>	<i>GHG emissions (Gg) including land and HWP^a</i>	<i>GHG emissions (Gg) excluding land and HWP^a</i>
CO ₂	15 441.03	4 523.50
CH ₄	300.56	300.56
N ₂ O	7.57	7.57
HFCs	NE	NE
PFCs	NE	NE
SF ₆	NE	NE
Other	NE	NE
Total (Gg CO₂ eq)^b	24 099.98	13 182.44

^a 2006 IPCC Guidelines AFOLU category 3.B (land) and, if reported, 3.D (HWP (3.D.1) and other emissions (3.D.2)).

^b GWP values provided in the AR2 were used to calculate the totals in Gg CO₂ eq.

31. Information on other emissions, including CO, NMVOCs, NO_x and SO_x, was reported as “0” in the Lao People’s Democratic Republic’s BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it faced difficulties in estimating these emissions owing both to the limited availability of data and to its limited experience in reviewing and monitoring in compliance with the reporting provisions. The Party explained that these emissions will be included in its next BUR provided that the national capacity for collecting, archiving and analysing the necessary data on all GHGs is enhanced.

32. The Lao People’s Democratic Republic did not apply appropriate notation keys in the emission summary tables 5 and 8 of the BUR where numerical data were not provided. The TTE noted that, in several cases, the use of “0” was not clear, for example for emissions of CO, NMVOCs, NO_x, SO_x, HFCs, PFCs and SF₆ in summary table 5. Similarly, the TTE was unable to understand the reasons for using combined notation keys (such as “NO/NE” and “IE/NO”) for some categories in the IPPU sector. During the technical analysis, the Party clarified that it should have used “NE” or “NO” for emissions that were reported as “0” but had difficulty in entering notation keys in the IPCC inventory software when preparing its GHG inventory. The Party explained that notation keys will be used accurately in the next submission provided that the local experts and government staff are trained in using the 2006 IPCC Guidelines and associated software.

33. The Lao People’s Democratic Republic did not report 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. The Party provided a summary table containing only subcategory totals. Disaggregated data on annual changes in carbon stocks in living biomass, deadwood, litter and soils for the IPCC land-use categories were not reported. During the technical analysis, the Party clarified that it did not include the required information in the BUR because of time constraints; the limited technical capacity of local experts, government staff and private organization staff; and the limited availability of data. The Party noted that this information will be included in its next BUR.

34. The shares of emissions that different sectors contributed to the Party’s total GHG emissions including land and HWP (category 3.B and, if reported, 3.D), as calculated by the TTE using information from the BUR, in 2014 are reflected in table 2.

Table 2

Shares of greenhouse gas emissions by sector of the Lao People’s Democratic Republic for 2014

<i>Sector</i>	<i>GHG emissions (Gg CO₂ eq)</i>	<i>% share^a</i>
Energy	3 729.42	15.5
IPPU	1 151.89	4.8
AFOLU		
Livestock (category 3.A)	3 966.89	16.5
Land (category 3.B)	9 093.25	37.7
Aggregate sources and non-CO ₂ emissions sources on land (category 3.C)	3 908.98	16.2
HWP and other emissions (category 3.D)	1 824.29	7.6
Waste	425.26	1.7

^a Share of total including 2006 IPCC Guidelines AFOLU category 3.B (land) and, if reported, 3.D (HWP (3.D.1) and other emissions (3.D.2)).

35. The Lao People’s Democratic Republic reported information on its use of GWP values consistent with those provided by the IPCC in its AR2 based on the effects over a 100-year time-horizon of GHGs.

36. For the energy sector, information was clearly reported on emissions from fuel combustion activities (under the energy industries, manufacturing industries and construction, transport and other sectors subcategories) and on fugitive emissions from fuels

(solid fuels subcategory), with CO₂ reported as the most significant gas. The Party reported that emissions for category 1.C (CO₂ transport and storage) were included elsewhere or not estimated because data were inadequate and not disaggregated, and it was not a key source of emissions. Fugitive emissions were from coal mining only.

37. For the energy industries subcategory, the Lao People's Democratic Republic reported values for CH₄ and NO_x emissions, but CO₂ emissions were reported as "0" in summary table 5 of the BUR. The TTE was unable to understand the reason for not reporting CO₂ emissions for this subcategory. During the technical analysis, the Party clarified that CO₂ emissions from energy industries were not reported because there is no petroleum industry in the country, electricity is mostly produced from hydropower, and adequate data on fuel use in charcoal production was not available. Only CH₄ and NO_x emissions were estimated for coal mining.

38. For the IPPU sector, information was clearly reported on emissions for the categories mineral industry (cement and lime production subcategories) and metal industry (iron and steel production subcategory), with CO₂ reported as the most significant gas. The Party reported that the emissions for the IPPU sector were 24 times greater in 2014 than in 2000. Some of this difference can be attributed to the different methodology and software used in calculating the emissions for the inventory years 2000 and 2014.

39. Information on HFCs, PFCs and SF₆ emissions was not reported in the Lao People's Democratic Republic's BUR. The Party explained that these emissions were not covered because of the limited availability of data. The Party intends to include these emissions in its next BUR, provided that national capacity is enhanced in this respect.

40. For category 3.A (emissions from livestock) and category 3.C (aggregate sources and non-CO₂ emissions on land) under the AFOLU sector from the 2006 IPCC Guidelines, enteric fermentation (CH₄), manure management (CH₄ and N₂O), emissions from biomass burning (CH₄), liming (CO₂), urea application (CO₂), direct emissions from managed soils (N₂O), indirect emissions from managed soils (N₂O), indirect emissions from manure management (N₂O) and rice cultivations (CH₄) were identified as key subcategories and the most relevant emissions sources in the sector.

41. For category 3.B (land) and category 3.D (other) under the AFOLU sector from the 2006 IPCC Guidelines, forest land (CO₂), cropland (CO₂), grassland (CO₂), settlements (CO₂), other land (CO₂) and emissions from HWP (CO₂) were identified as key subcategories and the most relevant emissions sources in the sector.

42. For the waste sector, the Lao People's Democratic Republic identified solid waste disposal (CH₄), biological treatment of solid waste (CH₄), incineration and open burning of waste (CO₂) and wastewater treatment and discharge (CH₄ and N₂O) as key subcategories and the most relevant emissions sources in the sector.

43. The BUR reported the GHG inventory for 2014 only and did not provide an update to the GHG inventories reported in the Lao People's Democratic Republic's previous NCs, which would generate a consistent time series. During the technical analysis, the Party reported that it did not perform a recalculation of previous inventories because the results of the GHG inventory for the NC3 (2010) were not yet finalized and agreed. The GHG inventories for 1990–2010 will be included in the Party's next BUR, provided the results are available.

44. The Lao People's Democratic Republic described its GHG inventory and reporting process. The Party reported that the Department of Climate Change, under the Ministry of Natural Resources and Environment, is the governmental body responsible for its climate change policy and GHG inventory. The Department prepares the GHG inventory with the support of national experts and technical working groups and received financial and technical support from UNEP and the GEF for preparing the GHG inventory.

45. Information on 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, was not clearly reported by the Lao People's Democratic Republic in its BUR. During the technical analysis, the Party emphasized its capacity-building and support needs for establishing sustainable

institutional arrangements for collecting, archiving and sharing data and undertaking QA/QC for the preparation and reporting of national GHG inventories.

46. The Lao People's Democratic Republic clearly reported that a key category analysis was performed for the level of emissions and the trend in emissions, with 12 key categories identified for the level of and 12 for the trend in emissions. The key categories and main gases for the level of emissions in 2014 were identified as land converted to cropland (CO₂), forest land remaining forest land (CO₂) and enteric fermentation (CH₄). For the trend in emissions, the key categories and main gases were identified as forest land remaining forest land (CO₂), land converted to other land (CO₂) and enteric fermentation (CH₄). Most of the key sources were in the AFOLU sector.

47. The BUR provides information on QA/QC measures for all sectors. The information reported includes (1) use of the 2006 IPCC Guidelines, IPCC good practice guidance and inventory software to review and validate the GHG inventory results by the inventory team, technical working groups, relevant organizations and stakeholders; (2) sharing of the inventory report with the relevant stakeholders and agencies; and (3) organization of validation workshops and consultation meetings.

48. The Lao People's Democratic Republic did not report information on CO₂ fuel combustion using the reference approach. The difference between the estimates calculated using the reference and sectoral approaches was also not reported. During the technical analysis, the Party clarified that the information was not reported owing to time constraints and its belief that this information was not required. The Party intends to include this information in its next BUR.

49. Information was clearly reported on international aviation. The Lao People's Democratic Republic reported in its BUR that in 2014, emissions from international aviation accounted for 53.54 Gg CO₂ eq.

50. Information on emissions from marine bunker fuels was not reported in the Party's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that it faced challenges in collecting disaggregated AD on marine bunker fuels and that emissions from marine bunker fuels were included elsewhere. The Party intends to include this information in its next BUR, provided that the national capacity for collecting and archiving data on marine bunker fuels is enhanced.

51. The Lao People's Democratic Republic reported only combined uncertainty (37.93 per cent) for its national GHG inventory. The Party identified improvements to be made in reducing the uncertainty level, such as improving AD and developing country-specific EFs.

52. Detailed information on the uncertainty assessment, such as uncertainty associated with the inventory data (AD and EFs), each source or sink category and sector, and the underlying assumptions and methodologies used, was not reported in the BUR. During the technical analysis, the Lao People's Democratic Republic clarified that it had difficulties in obtaining the required data on the AD and EFs and the tools necessary for calculating the uncertainty values. Furthermore, it was not clear to the Party whether it was required to include details on uncertainty analysis in the BUR. The Party intends to include this information in its next BUR, provided that the national capacity for uncertainty analysis and management in accordance with the 2006 IPCC Guidelines is enhanced.

53. The TTE noted that the transparency of the information reported on GHG inventories could be enhanced by addressing the areas noted in paragraphs 26, 29, 31, 32, 33, 39, 43, 45, 48, 50 and 52 above, which could facilitate a better understanding of the information reported on GHG inventories.

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

54. As indicated in table I.2, the Lao People's Democratic Republic reported in its BUR, partially in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.

55. The information reported provides an overview of the Lao People's Democratic Republic's mitigation actions and their effects. In its BUR, the Party reported information on its national context, highlighting that its national mitigation planning and actions have been integrated into, and supported and guided by, various policy and strategic frameworks and development planning processes. These include the National Strategy on Climate Change (2010), the Climate Change Action Plan (2013), the intended nationally determined contribution (2015), the Climate Change Technology Action Plan (2017), the Decree on Climate Change (2017), the 8th National Socio-Economic Development Plan (2016–2020), the Strategy on Renewable Energy, Forestry and Green Growth, and NAMAs. The Party has not finalized a mitigation target at the national or sectoral level. It reported information on targets, objectives and estimated reduction potential for only some mitigation actions at the programme and project level, including NAMAs on renewable energy, transport development, REDD+, and natural resources and environment management.

56. The Lao People's Democratic Republic reported a summary of its sectoral mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. The summary includes information on the 25 mitigation actions reported in table 9 of the BUR, consisting of 4 actions related to the forestry sector, 5 to the agriculture sector, 4 to the energy sector, 3 to the transport sector, 2 to the industry sector, 2 to the waste management sector and 5 to the natural resources and environment sector.

57. Consistently with decision 2/CP.17, annex III, paragraph 12(a), the Lao People's Democratic Republic reported name and description, sectoral coverage, qualitative goals or objectives or progress indicators, and GHG emission reduction potential for some of the mitigation actions in table 9 of the BUR.

58. Information on main targets or quantitative goals and progress indicators for some of the mitigation actions and GHGs covered for all the mitigation actions in all sectors was not reported in the Lao People's Democratic Republic's BUR. During the technical analysis, the Party clarified that there were several challenges and constraints in tracking and reporting this information, in particular inadequate data, insufficient time and limited capacity to collect and analyse detailed information.

59. For the energy sector, four mitigation actions were reported: increasing access to electricity, promoting renewable energy, promoting energy conservation and efficiency in all sectors, and promoting environmentally friendly and low-carbon technologies. The Lao People's Democratic Republic estimated that increasing the renewable energy share to 30 per cent of total energy consumption by 2025 could result in potential emission reductions of 1,468,000 kt CO₂ eq. This reduction is expected to be realized by replacing 10 per cent of fuel used in the transport sector with biofuels and by adding increased renewable capacity (e.g. small-scale hydropower (400 MW), wind (73 MW), biomass (58 MW), biogas (51 MW), solar (48 MW) and municipal solid waste (36 MW)). The Party also reported potential CO₂ emission reductions as a result of increasing the availability of electricity to 90 per cent of households in rural areas (63 kt CO₂ eq per year by 2020) and supplying hydroelectricity to neighbouring countries (16,284 kt CO₂ eq per year between 2020 and 2030). Another important action (promoting energy conservation and efficiency in all sectors) has the target of achieving 10 per cent energy savings by 2030 and an increase in energy efficiency of 10 per cent by 2025.

60. For the transport sector, the Lao People's Democratic Republic reported three actions: reducing the number of kilometres travelled by all vehicles (emission reduction potential of 33 kt CO₂ eq per year), promoting low-emission transportation (with the target of reducing emissions in the transport sector by 15 per cent by 2030) and increasing the use of public transport (emission reduction potential of 158 kt CO₂ eq per year).

61. For the agriculture sector, the five reported mitigation actions focus on promoting conservation and integrated agriculture; promoting precision farming; promoting the restoration of degraded farmlands and soils, and enhanced soil conservation; improving livestock feed and feeding; and enhancing animal manure management and biogas development. Conservation and integrated agricultural practices will play a part in the effort to increase the availability of electricity to the rural population (see para. 59 above).

62. For the forestry sector, the four mitigation actions focus on maintaining the existing forest and forest carbon stocks by preventing deforestation and forest degradation; expanding the forest and carbon sinks through afforestation, reforestation, agroforestry and the establishment of urban green landscapes; promoting and maintaining sustainable forest and non-timber forest products; and increasing the efficiency of forest resources. The Lao People's Democratic Republic reported potential emission reductions of 60,000–69,000 kt CO₂ eq to be achieved by maintaining existing forest and carbon sinks. Under this action, the Party intends to increase forest cover by 16.58 Mha by 2020, reduce slash and burn agriculture by 15 per cent by 2030, and ensure that 50 per cent of protected and conserved forest areas is well managed. The Party also aims to establish 500,000 ha plantations by 2020 and one park per community (with a population greater than 100,000) by 2030.

63. For the industry sector, one of the two mitigation actions reported focuses on deploying international certification standard 14001 on environment management, and the other focuses on promoting clean and green industries.

64. For the waste management sector, the aim of one mitigation action is to promote 'reduce, reuse and recycle' and the aim of the other is to promote waste-to-energy practices.

65. For the natural resources and environment sector, the Lao People's Democratic Republic reported five mitigation actions. The action related to enhancing solid waste management has several objectives: reduce chemical and hazardous solid waste, improve landfill sites and reduce ozone-depleting substances. The action related to promoting the deployment of environmental management systems in all sectors focuses on international certification standard 14001. The action related to enhancing climate change mitigation has the objective of attaining emissions of less than 1.2 t CO₂ eq per capita per year by 2030. The two other actions focus on promoting sustainable and low-emission transportation and enhancing the conservation of wetlands.

66. The TTE noted that the Lao People's Democratic Republic used kt CO₂ eq as a unit when reporting the potential GHG emission reductions for most of the mitigation actions in table 9 of the BUR. The cumulative emission reductions of these actions could be extremely large for the Party considering its total GHG emissions in 2014. During the technical analysis, the Party clarified that the values and units reported in table 9 were simply cited from the intended nationally determined contribution document and other sources, and it was not able to confirm whether the units used were correct. The Party explained that it faced time and capacity constraints in collecting background information on and assumptions used for estimating the emission reduction potential of all the reported mitigation actions.

67. The Lao People's Democratic Republic did not report information on methodologies and assumptions used (such as to develop scenarios, and implement and record progress of mitigation actions over time) for any of the mitigation actions reported in table 9 of the BUR. During the technical analysis, the Party clarified that this omission resulted from the challenges and constraints in tracking and reporting this information, in particular inadequate data, insufficient time and limited capacity to collect and analyse detailed information.

68. The Lao People's Democratic Republic did not report information on the objectives for some of the mitigation actions and the steps taken or envisaged (such as specific policies and institutional arrangements) for all mitigation actions in all sectors. During the technical analysis, the Party clarified that this was owing to the same challenges and constraints referred to in paragraph 67 above. Furthermore, some sectors do not have clearly defined mitigation actions with objectives and targets.

69. The Lao People's Democratic Republic reported on progress and achievements for the mitigation actions in the forestry, energy and transport sectors. However, information on the progress of implementation of the underlying steps taken or envisaged and results achieved in terms of emission reductions was not reported for these three sectors in the BUR. Similarly, information on the progress of implementation, progress of implementation of the underlying steps taken or envisaged, and results achieved for mitigation actions in the agriculture, industry, waste management, and natural resources and environment sectors was also not reported. During the technical analysis, the Party provided relevant clarification, noting that the collection of information on the progress of implementation and results achieved is at an early stage and information on the effects of several actions either has not

been evaluated or is not available. The Party clarified that it faced challenges and constraints in reporting this information, in particular lack of data (on baselines, mitigation cost, technologies and progress of implementation), insufficient time and limited capacity to collect and analyse the required information.

70. The Lao People's Democratic Republic did not provide information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. During the technical analysis, the Party reported that it faced challenges and constraints in assessing and reporting the information on international market mechanisms, in particular because of limited data and expertise.

71. The Lao People's Democratic Republic reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that the Party is in the process of designing and developing a harmonized and inclusive MRV system for mitigation actions. The Party reported that, at present and in the near future, the MRV of mitigation actions and effects will focus on the implementation, GHG emission reductions and sustainable development co-benefits of the National Strategy on Climate Change, the Climate Change Action Plan, nationally determined contributions, NAMAs, REDD+ activities and the Strategy on Renewable Energy, Forestry and Green Growth.

72. The TTE noted that the transparency of the information reported on mitigation actions could be enhanced by addressing the areas noted in paragraphs 58 and 66–70 above, which could facilitate a better understanding of the information reported on mitigation actions.

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, the Lao People's Democratic Republic reported in its BUR, partially 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. The Lao People's Democratic Republic reported information on constraints and gaps, and related financial and technical needs for climate change mitigation actions in accordance with decision 2/CP.17, annex III, paragraph 14. The key constraints and gaps regarding mitigation were identified by the Party through literature review and stakeholder consultations and are summarized in table 11 of the BUR. They are classified under economic and financial; market; policy, legal and regulatory; network; institutional and organizational capacity, and human skills; information and awareness; and others. In its BUR, the Party identified the following constraints: unclear, incomplete or non-existent legal, regulatory or financial frameworks for promoting clean and green climate technologies; an uncertain carbon market; ineffective organizational arrangements; lack of coordination among stakeholders; limited technical capacity and skills; insufficient information on technical, financial and economic, sociocultural and environmental aspects and effects of mitigation technologies; and lack of data and information, monitoring and evaluation, and feedback systems.

75. In its BUR, the Party reported that about USD 1.5 billion is needed to implement its mitigation actions, most of which is needed for actions under the National Strategy on Climate Change. A list of mitigation actions that require financial and technical support for implementation was reported in table 13 of the BUR. The prioritized mitigation actions or programmes are as follows: (1) renewables development strategy and NAMAs; (2) policies on energy conservation and efficiency; (3) forestry and REDD+ strategy, including scaling up REDD+ activities and results-based payments; (4) sustainable and low-carbon transportation strategy and NAMAs; (5) a clean and green industries strategy, including an environment management system; (6) National Strategy on Climate Change, natural resources and the environment, sustainable and low-carbon cities, and green growth; (7) technology needs assessment and action plan; and (8) mitigation actions set out in the 9th national socioeconomic development plan. The Party also reported its need for financial and technical support for preparing and implementing its NCs and BURs.

76. The Lao People's Democratic Republic did not provide the specific monetary amount, or a description of the financial and technical support needed to implement the climate change

mitigation actions reported in table 13 of the BUR. The Party also did not report on capacity-building needs for these actions. Furthermore, it was not clear to the TTE whether the Party has any specific constraints and gaps and related financial, technical and capacity-building needs in relation to other climate change activities, including GHG inventory preparation, MRV system development and adaptation actions. During the technical analysis, the Party clarified that there were several challenges and constraints in reporting information on constraints and gaps and associated support needs relating to climate change activities, including BUR preparation, GHG inventory preparation, MRV system development, and mitigation and adaptation. Such constraints include inadequate data, insufficient time and limited capacity to collect and analyse the required information.

77. The Lao People's Democratic Republic reported information on financial and technical support received in accordance with decision 2/CP.17, annex III, paragraph 15. In its BUR, the Party reported that it received about USD 223 million in official development assistance to support climate change projects in the country in 2013–2014, with 33 per cent of this being spent on mitigation directly and about 20 per cent spent on both mitigation and adaptation. In table 12 of its BUR, the Party outlined the completed mitigation projects in the forestry sector that received financial and technical support.

78. The information reported in the Lao People's Democratic Republic's BUR for support received was generic. For example, the BUR was lacking the relevant information that would enable the identification of support providers and the monetary amount and types of support received (financial, technical or capacity-building) for various mitigation actions and programmes reported in table 12 of the BUR. The Party reported that it received capacity-building and technical support from UNEP and the GEF for the preparation of its BUR, but the specific monetary amount and a description of the support received was not reported. During the technical analysis, the Party clarified that it needs to enhance its national capacity to assess and report on supported activities and support received. The Party also clarified that it received financial support of USD 363,000 from the GEF for the three-year BUR project and technical support from UNEP to elaborate the BUR.

79. The Lao People's Democratic Republic 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 its BUR, the Party broadly reported on technology issues related to mitigation; however, it did not report on specific needs identified and support received for technology development and transfer to tackle climate change as well as past, existing and planned processes to identify such technology needs and support received. During the technical analysis, the Party clarified that it faced challenges in assessing and reporting this information and that it needs to establish a national process for undertaking technology needs assessments and tracking technology support received relevant to climate change.

80. The TTE noted that the transparency of the information reported on needs and support received could be enhanced by addressing the areas noted in paragraphs 76, 78 and 79 above, which could facilitate a better understanding of the information reported on needs and support received.

D. Identification of capacity-building needs

81. In consultation with the Lao People's Democratic Republic, the TTE identified the following needs for capacity-building that could facilitate the preparation of subsequent BURs and participation in ICA:

- (a) In relation to GHG inventories:
 - (i) Enhancing national capacity to prepare a GHG inventory for a calendar year that does not precede the BUR submission date by more than four years;
 - (ii) Enhancing the technical capacity of local experts and government staff, through training on the 2006 IPCC Guidelines, to prepare and report a GHG inventory;

- (iii) Enhancing the technical capacity of local experts and government staff to prepare and report tables comparable to those 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;
 - (iv) Strengthening the technical capacity of local experts to generate and report a consistent time series back to the inventory calendar years reported in previous NCs;
 - (v) Enhancing national capacity to establish effective and sustainable institutional arrangements for collecting, archiving and sharing data and undertaking the QA/QC required for preparing, reporting and reviewing national GHG inventories;
 - (vi) Enhancing the technical capacity of local experts, government staff and private sector organization staff to establish data collection and archiving systems that will enable calculating and reporting, using methods in the 2006 IPCC Guidelines, emissions and removals of all GHGs, including F-gases (HFCs, PFCs and SF₆) and other gases (CO, NMVOCs, NO_x and SO_x), for carbon pools in the AFOLU sector, including soil carbon, and marine bunker fuels;
 - (vii) Enhancing the technical capacity of local experts, government staff and private sector organization staff to report CO₂ fuel combustion emissions in the BUR using both the sectoral and the reference approach;
 - (viii) Enhancing the technical capacity of local experts and government staff to apply the appropriate notation keys in the GHG inventory, following the definitions in the 2006 IPCC Guidelines;
 - (ix) Strengthening the data collection and archiving system and the technical capacity of local experts, government staff and private sector organization staff to report, in accordance with the 2006 IPCC Guidelines, all the AD and EFs and their sources used in the calculation and recalculation of GHG emissions;
 - (x) Strengthening the data collection and archiving system and the technical capacity of local experts, government staff and private sector organization staff to use the appropriate approaches, methodologies and underlying assumptions for estimating and reporting the level of uncertainty using the 2006 IPCC Guidelines;
- (b) In relation to mitigation actions and their effects:
- (i) Enhancing national capacity for mitigation assessment, including the development of scenarios and projections, use of various assessment tools and frameworks, compilation of data on mitigation costs and technologies, and development of baselines and emission reduction targets;
 - (ii) Enhancing national capacity to assess and report a description of mitigation actions, including the nature of the action, quantitative goals, progress indicators and gases covered;
 - (iii) Enhancing national capacity to develop and report information on methodologies and assessment tools for developing scenarios, estimating emission reduction potential, undertaking cost–benefit analysis, and implementing mitigation actions and monitoring their progress;
 - (iv) Enhancing national capacity to assess and report information on assumptions used in assessing mitigation potential and tracking the progress of mitigation actions through scenario development and using various assessment tools;
 - (v) Enhancing national capacity to establish objectives for identified mitigation actions; assess and report information on steps taken or envisaged to achieve the objectives of mitigation actions; and monitor, track and assess the progress of implementation of mitigation actions and the underlying steps taken or envisaged;
 - (vi) Enhancing national capacity to assess and report information on the estimated emission reductions and other benefits to be achieved through mitigation measures, including establishing processes for data collection and establishing baselines by which to compare emission reduction potential and actual achievements;

- (vii) Enhancing national capacity to collect and report information on international market mechanisms;
- (viii) Enhancing national capacity to fully develop and implement a domestic MRV system for mitigation actions;
- (c) In relation to support needed and received and cross-cutting issues:
 - (i) Enhancing national capacity to identify and assess constraints and gaps related to BUR preparation and other climate change activities, including GHG inventory preparation, MRV system development, and mitigation and adaptation;
 - (ii) Enhancing national capacity to identify, assess and report information on support providers and the monetary amount and types of support needed and received (financial, technology transfer, technical and capacity-building) for BUR preparation and other climate change activities, including GHG inventory preparation, MRV system development, and mitigation and adaptation;
 - (iii) Establishing a national process for technology needs assessment, technology profiling and action planning with the aim of identifying and assessing specific needs for technology development and transfer for addressing climate change issues;
 - (iv) Enhancing national capacity to develop nationally appropriate policy tools (e.g. regulations, white certificates, green certificates, an emissions trading system, carbon taxes, carbon pricing) to remove barriers to implementing mitigation actions;
 - (v) Enhancing national capacity to develop bankable funding proposals (e.g. to the Green Climate Fund and the NAMA Facility) to mobilize finance for mitigation actions;
 - (vi) Establishing a robust national MRV system of support to ensure the availability and verification of information related to support providers and type of support received;
 - (vii) Enhancing the capacity of national government officials to strengthen their institutional knowledge of climate change issues and impacts and actions to address climate change, including raising awareness of climate change;
 - (viii) Enhancing national capacity to develop an information technology system that will enable the collection and storage of the data and information necessary for the preparation of BURs and NCs;
 - (ix) Enhancing national capacity to prepare, report and review BURs and NCs in accordance with the relevant reporting guidelines;
 - (x) Enhancing national capacity to fully develop and implement the national MRV system with a focus on robust legal, institutional and procedural arrangements to ensure the availability and verification of information required by the UNFCCC reporting guidelines on BURs.

82. The TTE noted that the Lao People's Democratic Republic did not report any capacity-building needs for climate change activities, including BUR preparation, GHG inventory preparation, MRV system development, and mitigation and adaptation, owing to the challenges and constraints referred to in paragraph 76 above.

III. Conclusions

83. The TTE conducted a technical analysis of the information reported in the first BUR of the Lao People's Democratic Republic in accordance with the UNFCCC reporting guidelines on BURs and concludes that the information reported is partially 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 removals by sinks of all GHGs not controlled by the Montreal Protocol; mitigation actions and their effects; constraints and gaps, and related financial and technical needs, including a description of support needed and received; and domestic MRV. During the technical analysis, additional information was provided by the Party on the challenges it faced in reporting the information on the aspects listed above, and on capacity-

building needs in order to meet the requirements of the UNFCCC reporting guidelines on BURs. The TTE concluded that the information analysed is partially transparent.

84. The Lao People's Democratic Republic reported information on the institutional arrangements relevant to the preparation of its BUR. The Party highlighted that the BUR elaboration process was conducted by the Department of Climate Change under the leadership of the Ministry of Natural Resources and Environment with support from technical working groups and national experts. The Party is in the process of designing and developing harmonized and inclusive institutional arrangements relevant to the preparation of its NCs and BURs on continuous basis.

85. In its first BUR, submitted in 2020, the Lao People's Democratic Republic reported information on its national GHG inventory for 2014. This included GHG emissions and removals of CO₂, CH₄ and N₂O for most relevant sources and sinks. The inventory was developed on the basis of the 2006 IPCC Guidelines. The total GHG emissions for 2014 were reported as 24,099.98 Gg CO₂ eq (including AFOLU categories 3.B and 3.D) and 13,182.44 CO₂ Gg eq (excluding AFOLU categories 3.B and 3.D). Key categories and main gases were identified as land converted to cropland (CO₂), forest land remaining forest land (CO₂) and enteric fermentation (CH₄) for the level of emissions, and as forest land remaining forest land (CO₂), land converted to other land (CO₂) and enteric fermentation (CH₄) for the trend in emissions. The Party did not report a time series for GHG emissions, sectoral reporting tables, CO₂ emissions calculated using the reference approach, HFCs, PFCs and SF₆ emissions, emissions from marine bunker fuels, or some other information owing to inadequate data and/or time and capacity constraints, as clarified by the Party during the technical analysis.

86. The Lao People's Democratic Republic reported information on mitigation actions and their effects in tabular format, including national context, various policy and strategic frameworks, and development planning processes that support and guide its national mitigation planning and actions. The Party reported ongoing mitigation actions in the forestry, waste, energy, agriculture, industry, and natural resources and environment sectors. The mitigation actions focus on improving energy efficiency, promoting renewable energy sources, expanding forest and carbon sinks and promoting conservation and integrated agricultural practices. The Party reported the progress of implementation of selected mitigation actions and the results achieved, including projects implemented and additional renewable energy capacity. The Party also reported information on domestic MRV arrangements. Information on some aspects of mitigation actions (such as GHGs covered, methodologies and assumptions used, emission reductions achieved, progress of implementation and involvement in international market mechanisms) was not reported owing to inadequate data and/or time and capacity constraints, as clarified by the Party during the technical analysis.

87. The Lao People's Democratic Republic reported information on key constraints, gaps and related needs for climate change mitigation actions only. The Party reported information on the financial and technical support needed to implement its mitigation actions in various areas, including renewable energy, energy conservation and efficiency, REDD+, sustainable and low-carbon cities and transportation, clean and green industry, and technology transfer. The Party also reported that it needs financial and technical support for preparing its NCs and BURs. Information on financial and technical support received was reported for the forestry sector, and general information was reported on official development assistance received for mitigation and adaptation projects. The Party also reported that it received financial and technical support from the GEF and UNEP for preparing its BUR. The Party did not provide the specific monetary amount or a description of the financial, technical, technology transfer and capacity-building support needed and received for climate change activities owing to inadequate data and/or time and capacity constraints, as clarified by the Party during the technical analysis.

88. The TTE, in consultation with the Lao People's Democratic Republic, identified the 28 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. The Lao People's Democratic Republic prioritized all the capacity-building needs except those listed in paragraph 81(a)(i), (a)(viii), (b)(vii) and (c)(vii).

Annex I

Extent of the information reported by the Lao People's Democratic Republic in its first biennial update report

Table I.1

Identification of the extent to which the elements of information on greenhouse gases are included in the first biennial update report of the Lao People's Democratic Republic

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</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.	No	The Party submitted its first BUR in July 2020; the GHG inventory reported is for 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	The Party 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.	No	
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;	No	Comparable information was not reported.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	No	Comparable information was not reported.
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.	No	
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).	No	This information was not reported for previous submission years.
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 greenhouse gas inventories), including:		
	(a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and	Yes	Comparable information was reported in summary report table

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors);		5 of the BUR, which highlights the total GHG emissions in 2014.
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF ₆).	No	
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	Yes	The Party submitted a REDD+ technical annex.
Decision 17/CP.8, 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.	Partly	The Party reported on its GHG inventory and reporting process; however, information on procedures and arrangements established for collecting, archiving and sharing data on a continuous basis was not reported.
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 ;	Partly	Emissions were not estimated for the energy industries subcategory.
	(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) CO;	No	
	(b) NO _x ;	No	
	(c) NMVOCs.	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.	Partly	The information was reported only for the sectoral approach.

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</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.	No	
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	
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	The Party used a tier 1 method from the 2006 IPCC Guidelines to estimate GHG emissions for all sectors.
	(b) Explanation of the sources of EFs;	Yes	The Party used default EFs from the 2006 IPCC Guidelines.
	(c) Explanation of the sources of AD;	No	
	(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 1–2 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	Partly	The Party provided numerical data in tables comparable to tables 1–2 of the guidelines annexed to decision 17/CP.8; however, many values in the tables were reported as “0”.

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	not provided, Parties should use the notation keys as indicated.		
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;	Partly	The Party reported the combined inventory uncertainty; however, detailed information about uncertainty levels (such as by AD, EF, gas and sector) was not reported.
	(b) Underlying assumptions;	No	
	(c) Methodologies used, if any, for estimating these uncertainties.	No	

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 first biennial update report of the Lao People’s Democratic Republic

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</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	
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	The Party did not report information on GHGs covered, quantitative goals and progress indicators for some of the mitigation actions under the forestry, agriculture, energy, industry, waste management, and natural resources and environment sectors.
	(b) Information on:		
	(i) Methodologies;	No	
	(ii) Assumptions;	No	

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
	(c) Information on:		
	(i) Objectives of the action;	Partly	The Party did not report information on objectives of the actions for some mitigation actions identified in table 9 of the BUR.
	(ii) Steps taken or envisaged to achieve that action;	Partly	The Party did not report information on steps taken or envisaged to achieve specific mitigation actions for all sectors.
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Partly	The Party reported on the progress of implementation of the mitigation actions under the forestry, energy and transport sectors; however, it did not report such information for mitigation actions under the agriculture, industry, waste management, and natural resources and environment sectors.
	(ii) Progress of implementation of the underlying steps taken or envisaged;	No	The Party did not report information on the progress of implementation of the underlying steps taken or envisaged for the mitigation actions under all sectors.
	(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 information on the results achieved for the mitigation actions under the agriculture, industry, waste management, and natural resources and environment sectors.
	(e) Information on international market mechanisms.	No	
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 first biennial update report of the Lao People's Democratic Republic

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Assessment of whether the information was reported</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;	Partly	The Party reported constraints and gaps for climate change mitigation actions only.
	(b) Related financial, technical and capacity-building needs.	Partly	The Party did not report information on capacity-building needs for mitigation actions or the financial,

<i>Decision</i>	<i>Provision of the reporting requirements</i>	<i>Assessment of whether the information was reported</i>	<i>Comments on the extent of the information provided</i>
			technical and capacity-building support needed for other climate change activities, including GHG inventory preparation, MRV system development and adaptation.
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 Party provided generic information on support received but did not report information on support providers or on amount and types of support received (financial, technology transfer and capacity-building) for activities relating to climate change, including BUR preparation.
	(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.	Partly	The Party provided generic information on support received but did not report the names of technical support providers or information on the nature of technical support received for activities relating to climate change, including BUR preparation.
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on: (a) Nationally determined technology needs;	No	
	(b) Technology support received.	No	

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on finance, technology and capacity-building needs and support received in BURs are contained in decision 2/CP.17, annex III, 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 BUR of the Lao People's Democratic Republic. Available at <https://unfccc.int/BURs>.

NC1 and NC2 of the Lao People's Democratic Republic. Available at <https://unfccc.int/non-annex-I-NCs>.
