



Technical analysis of the second biennial update report of Morocco submitted on 31 December 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 second biennial update report of Morocco, 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
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CGE	Consultative Group of Experts
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
EF	emission factor
F-gas	fluorinated gas
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
HWP	harvested wood products
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>
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
NDC	nationally determined contribution
NE	not estimated
NMVOG	non-methane volatile organic compound
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
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SEDD	State Secretariat for Sustainable Development of Morocco
SF ₆	sulfur hexafluoride
TTE	team of technical experts
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. Morocco submitted its first BUR on 7 May 2016, which was analysed by a TTE in the first round of technical analysis of BURs from non-Annex I Parties, conducted from 19 to 23 September 2016. After the publication of its summary report, Morocco participated in the third workshop for the facilitative sharing of views, convened in Bonn on 15 May 2017.
5. This summary report presents the results of the technical analysis of the second BUR of Morocco, 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, Morocco submitted its second BUR on 31 December 2019 as a stand-alone update report. The submission was made more than two years after the submission of the first BUR.
7. During the technical analysis, the Party clarified that the submission was delayed because the sectoral GHG inventory for agriculture was not submitted on time and there was a delay in preparing the updated GHG inventory data for 2016 required to respect the maximum four-year difference between the latest reporting year and the submission year in accordance with decision 2/CP.17, paragraph 41(g).
8. A desk analysis of Morocco's BUR was conducted from 22 to 26 June 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: Siriluk Chiarakorn (Thailand), Ana-Maria Danila (former member of the CGE from the European Union), Ryan Deosaran (Trinidad and Tobago), Madeleine Rose Diouf (former member of the CGE from Senegal), Leticia Guimarães (Brazil), Juan Luis Martin Ortega (El Salvador), Esther Mertens (Belgium), Noura Mohamed Lotfy (Egypt), Sekai Ngarize (Zimbabwe), Emma Salisbury (United Kingdom of Great Britain and Northern Ireland), Ioannis Sempos (Greece), Virginia Sena Cianci (member of the CGE from Uruguay), Chisa Umemiya (Japan), Maarten van der Eynden (Norway) and Alexander Zahar (Australia). Ms. Danila and Ms. Ngarize were the co-leads. The technical analysis was coordinated by Sabin Guendehou, Hiroaki Odawara and Anna Sikharulidze (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

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

TTE and Morocco 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 Morocco's second BUR, the TTE prepared and shared a draft summary report with Morocco on 24 September 2020 for its review and comment. Morocco, in turn, indicated that it had no comments on the draft summary report on 18 April 2022.

10. The TTE finalized the summary report in consultation with the Party on 19 July 2022.

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 Morocco'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 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.

15. The TTE noted improvements in the reporting in the Party's second BUR compared with that in its previous BUR. Information on the GHG inventory, mitigation actions and their effects, and needs and support reported in the Party's second BUR demonstrates that it has taken into consideration the areas for enhancing the transparency of the information reported noted by the previous TTE in the summary report on the technical analysis of the Party's previous BUR.

² The consultation was conducted via videoconferencing.

C. Technical analysis of the information reported

16. The technical analysis referred to in paragraph 11(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 second BUR, Morocco provided an update on its national circumstances, including a description of national and regional development priorities, objectives and 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.

21. In addition, Morocco provided a summary of relevant information regarding its national circumstances in tabular format. It also provided graphs illustrating key national circumstances, namely administrative regions, climate profile, rainfall distribution, and population distribution and trends.

22. Morocco transparently reported in its second BUR an update on its existing and planned institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, including the legal status and roles and responsibilities of the overall coordinating entity, the involvement and roles of other institutions and experts, mechanisms for information and data exchange, QA/QC procedures, and provisions for public consultation and other forms of stakeholder engagement.

23. Climate change activities are coordinated at the highest level in Morocco. An interministerial committee underpins a framework for decision-making on environmental matters that enables the participation of all stakeholders, such as SEDD, the Climate Change Competence Centre, the National Council for the Environment, the Higher Council for Water and Climate, and the Economic, Social and Environmental Council. SEDD is the institution that coordinates the preparation of BURs and NCs.

24. Morocco named an ongoing project on drafting a climate change law intended to reinforce the national transparency framework as a planned improvement. Furthermore, Morocco indicated that it plans to introduce legal provisions into the national system to address data confidentiality in the IPPU sector.

25. In paragraphs 25 and 28 of the summary report on the technical analysis of Morocco's first BUR, the previous TTE noted areas where the transparency of the reporting on institutional arrangements could be further enhanced. The current TTE noted the

improvements referred to in paragraph 24 above and commends the Party for enhancing the transparency of its reporting.

26. Morocco reported in its second BUR an update on its domestic MRV arrangements. The description covers key aspects of the institutional arrangements, including the overall coordination of the MRV system, the roles and responsibilities of the institutions involved, the GHG inventory system and the preparation of mitigation actions, in particular NAMAs. Morocco clarified in its BUR that a system for MRV of support needed and received is not yet in place. During the technical analysis, the Party indicated that technical and financial support is needed for operationalizing its MRV system and ensuring that it complies with standard 9001 of the International Organization for Standardization. The MRV arrangements are designed at the national level and the system was built on the existing systems, processes and infrastructure, rendering it cost-effective. Morocco also indicated that it has launched a design study on a domestic MRV system for its NDC in accordance with the requirements of the Paris Agreement.

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

27. As indicated in table I.1, Morocco 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.

28. Morocco submitted its second BUR in 2019 and the GHG inventory reported is for 2010, 2012, 2014 and 2016. The GHG inventory is consistent with the requirements for the reporting time frame.

29. GHG emissions and removals for the BUR covering the 2010, 2012, 2014 and 2016 inventories were estimated using tier 1 methodology from the 2006 IPCC Guidelines. The TTE noted that the GHG inventories reported in the second BUR were developed using the 2006 IPCC Guidelines for the first time. The TTE considers this a major step forward and commends Morocco for using those Guidelines, which will facilitate the Party's reporting under the Paris Agreement.

30. Information on methodological tier levels, activity levels and assumptions by reporting category was not clearly reported in Morocco's BUR. The Party indicated in the BUR that, owing to lack of information on several parameters, default values were used for all sectors in combination with national and international statistics and tier 1 methods. During the technical analysis, the Party clarified that the data used are based on the latest available AD and EFs. Information on AD used was not provided in the BUR because the level of disaggregation was not sufficient, but it was intended to be included in the NC4.

31. The numerical values of AD and EFs used were not reported in the BUR; only a list of the institutions that collect the data was reported. Morocco reported a detailed improvement plan for collecting AD, EFs and parameters and analysing the data using higher-tier approaches.

32. Information on the Party's total GHG emissions by gas for 2016 is outlined in table 1 in Gg CO₂ eq. It shows an increase in emissions of 15.2 per cent without LULUCF since 2010 (75,935.90 Gg CO₂ eq).

Table 1
Greenhouse gas emissions by gas of Morocco for 2016

<i>Gas</i>	<i>GHG emissions (Gg CO₂ eq) including LULUCF</i>	<i>% change 2010–2016</i>	<i>GHG emissions (Gg CO₂ eq) excluding LULUCF</i>	<i>% change 2010–2016</i>
CO ₂	59 892.21	18.9	61 238.31	16.7
CH ₄	14 683.59	15.1	14 676.80	15.1
N ₂ O	11 484.85	7.2	11 480.37	7.2
HFCs	63.06	59.3	63.06	59.3
PFCs	NA	NA	NA	NA
SF ₆	NA	NA	NA	NA
Other	NA	NA	NA	NA
Total	86 123.71	16.6	87 458.54	15.2

33. Information on other emissions was clearly reported for the energy, IPPU and LULUCF sectors and some information was provided for the agriculture and waste sectors. The total emissions, for all sectors, for 2016 of the following gases were calculated by the TTE: 8.95 Gg NO_x, 1.65 Gg CO and 121.64 Gg NMVOCs.

34. Information on emissions was reported by Morocco by gas and by sector in the BUR (table 4, p.45). During the technical analysis, the Party mentioned that F-gases, apart from HFCs, were not included owing to lack of data.

35. The TTE noted inconsistencies between emission estimates reported in BUR table 4 and those reported in annex 1 to the BUR. In particular, for the energy sector, for all years, non-CO₂ emissions had not been reported in CO₂ eq. For the agriculture sector, the reported emissions for 2016 were repeated for other years of the time series (2010–2016) in the tables in annex 1, while in BUR table 4 different values were reported for each year. During the technical analysis, the Party provided the TTE with aggregated emissions by gas (CO₂, CH₄, N₂O and HFCs) for each sector for 2016, which are consistent with the information in BUR table 4. The TTE noted that the consistency of the reporting would be improved if Morocco cross-checked the data reported in the tables in the body of and annexes to the BUR.

36. Morocco applied notation keys in tables where numerical data were not provided. The use of notation keys was partially consistent with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. For instance, the data provided in annex 1 to the BUR include notation keys but they have not been used consistently for each year. In addition, for the energy sector, “NA” was used for CO, NO_x, NMVOCs and sulfur dioxide for 2016 when “NE” should have been used given that emissions had been estimated for 2010 for these gases. Moreover, notation keys were not used for the agriculture and LULUCF sectors where estimates were not provided. During the technical analysis, the Party explained that inconsistencies could be due to the fact that the reporting is handled by different institutions by sector.

37. Morocco 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. Morocco used the reporting categories of the 2006 IPCC Guidelines, except for the LULUCF sector, for which the IPCC good practice guidance for LULUCF was used. The agriculture sector emissions do not include carbon stock changes in mineral and organic soils, which are accounted for under the LULUCF sector. Non-CO₂ emissions from agriculture have been included under agricultural soils, which is in accordance with the 2006 IPCC Guidelines.

38. The shares of emissions that different sectors contributed to the Party’s total GHG emissions excluding LULUCF, as reported by the Party, in 2016 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector of Morocco for 2016

<i>Sector</i>	<i>GHG emissions (Gg CO₂ eq)</i>	<i>% share^a</i>	<i>% change 2010–2016</i>
Energy	56 720.6	64.9	18.8
IPPU	5 912.8	6.8	–1.3
Agriculture	19 904.1	22.8	9.4
LULUCF	–1 334.8	NA	35.1
Waste	4 921.0	5.6	22.3

^a Share of total emissions without LULUCF.

39. Morocco reported information on its use of GWP values consistent with those provided by the IPCC in its AR4 based on the effects over a 100-year time-horizon of GHGs.

40. For the energy sector, information was not clearly reported on the methodological approaches used to estimate emissions, by category, by gas or according to whether they are fugitive or combustion emissions. Morocco indicated that areas to be addressed have been identified in its improvement plan and they include collection of information on AD, EFs and parameters.

41. Information on methodological tier levels, AD and EFs was not reported for each category of the energy sector in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that information on methodologies, AD and EFs was not reported because it was not available at a disaggregated level, but the information would be included in the NC4.

42. For the IPPU sector, information on GHG emissions by category and by gas was clearly reported but the section on emissions by category was omitted from the BUR. However, the TTE was able to review the emissions by category in BUR table 5, in which information on GHG emissions was clearly reported. Information on the key categories was also clearly reported in BUR table 41. Morocco indicated that areas to be addressed have been identified in its improvement plan and highlighted the need for more capacity-building on data gathering and including F-gases and emissions from solvents in the inventory.

43. Information on methodological tier levels, AD and their sources and EFs was not reported in the BUR. During the technical analysis, the Party clarified that it was not possible to compile GHG emission estimates for each category owing to the large number of categories, including some for which data were not available at the time. Annual data collection for these categories remains challenging for Morocco. Information on activity levels, methodologies and EFs was also not clearly reported in Morocco's BUR about cement production. In its improvement plan, Morocco stated that data on carbon consumption and amount of clinker produced are not available at the industrial site level and that capacity-building for collecting this information is needed. During the technical analysis, the Party clarified that sufficient data are not currently available from the private sector to allow inclusion of this category.

44. Information on activity levels and the selection of EFs for all categories in the IPPU sector was not clearly reported in Morocco's BUR. During the technical analysis, the Party clarified that it has taken an important step in estimating F-gas emissions by starting with HFCs. Emissions of the other F-gases (PFCs, SF₆ and nitrogen trifluoride) could not be estimated by the professional refrigeration association of Morocco, which serves as the focal point for the supply of F-gas data, given their very small quantity and the dispersed nature of users.

45. Morocco reported emissions and removals from the agriculture and LULUCF sectors using the reporting tables from the Revised 1996 IPCC Guidelines. However, the estimation of the emissions and removals follows the 2006 IPCC Guidelines. The TTE noted that Morocco did not clarify how it associated each of the emission reporting categories from the 2006 IPCC Guidelines with one or more of those from the Revised 1996 IPCC Guidelines.

46. For the agriculture sector, agricultural soils (N₂O) and enteric fermentation (CH₄) were identified as key categories and the most relevant emissions sources in the sector. Morocco reported the emissions using a tier 1 approach and default EFs from the 2006 IPCC Guidelines.
47. Information on animal populations, manure management systems and amount of fertilizer used for the calculation of manure management emissions was not reported. The TTE noted that information on animal population by animal type, manure management systems by animal type and fertilizer or alternative nitrogen inputs to managed soils is missing from the BUR.
48. For the LULUCF sector, Morocco reported annual GHG emissions and removals for 2010, 2012, 2014 and 2016. Overall, the net removals from the LULUCF sector fluctuated between a minimum of 1,335.13 CO₂ eq in 2016 and a maximum of 2,080.46 CO₂ eq in 2010.
49. Information on emissions and removals from HWP was not reported in Morocco's BUR. During the technical analysis, the Party clarified that it was not able to separate HWP emissions from other category 3.B emissions and that it did not have enough data to calculate HWP emissions and removals in accordance with the IPCC methodology for category 3.D.
50. For the waste sector, information was clearly reported on GHG emissions by category and by gas for solid waste disposal, and wastewater treatment and discharge. Relevant notation keys were used where numerical data were not available for subcategories, and key categories were identified as part of the key category analysis.
51. Morocco did not clarify why biological treatment of solid waste, and incineration and open burning of waste were not included in the BUR. Furthermore, information on activity levels, EFs and assumptions by category, in particular for the key categories, was not reported in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that there are data availability challenges and associated capacity-building needs in relation to the waste sector, including the need for establishing a system for collecting data from waste storage facilities in Morocco. The Party indicated that applying the first-order decay methodology with country-specific data has been identified in its improvement plan as an area to be addressed.
52. The BUR provides an update to some of the GHG inventories reported in the Party's previous NCs and BURs. The information reported provides a partial update of the Party's first BUR, which addressed anthropogenic emissions and removals for 1994, 2000, 2004, 2005, 2006, 2008, 2010 and 2012. The update was carried out for 2010 and 2012 using the methodologies contained in the 2006 IPCC Guidelines. The previous national inventory was prepared using the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. The Party identified improvements in the reporting process such as data collection efforts, the use of 2006 IPCC Guidelines methods with country-specific data inputs, and the involvement of more personnel in data compilation and GHG inventory activities (see BUR table 6.3).
53. Information on updates of all relevant GHG inventories was not reported in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that information on the GHG inventories for historical years would be provided in the NC4.
54. Morocco described in its BUR the institutional framework for the preparation of its 2016 GHG inventory. The Party reported that SEDD is the governmental body responsible for its climate change policy and BUR and NC submissions. An interministerial committee is in charge of preparing and reporting the national GHG inventory. The Party indicated that institutional arrangements have been identified in its improvement plan as an area to be addressed. Defining and assigning additional roles and responsibilities to technical functionaries who are often consulted for data collection but are then only sporadically involved in the GHG inventory process will gradually improve the quality of future submissions.
55. Information on data collection and sharing at the sectoral level was not clearly reported in Morocco's BUR. During the technical analysis, the Party clarified that data collection and sharing processes differ widely by sector. The TTE noted that the Party did

not provide an overview of data sources and institutions involved in collecting data, or associated data collection challenges.

56. Morocco clearly reported that a key category analysis was performed for the level of and trend in emissions. The analysis concluded that there are 26 key categories. Most key categories identified are in the agriculture and energy sectors.

57. The BUR provides information on QA/QC measures for all sectors. The information reported indicates that the following elements of the QA/QC procedures were implemented: institution responsible for coordinating QA/QC, QA/QC plan, general QC procedures (tier 1), category-specific procedures (tier 2), QA procedures, documentation and archiving procedures and improvement plan. The TTE commends Morocco for providing information in accordance with the IPCC good practice guidance.

58. Morocco clearly reported information on CO₂ fuel combustion using both the sectoral and the reference approach. The information reported indicates that the combustion emissions estimated under the sectoral and reference approach are 56,720.6 Gg CO₂ and 55,356.4 Gg CO₂, respectively. The difference between the estimates calculated using the two approaches was reported as 2.5 per cent.

59. Information on GHG emissions from international aviation and marine bunker fuels was not reported in Morocco's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that these emissions would be included in its NC4.

60. Morocco reported information on the uncertainty assessment (level) of its national GHG inventory. The uncertainty analysis was based on the tier 1 approach and covers all source categories and all direct GHGs. The results obtained, as reported in the BUR, reveal that the level uncertainty for emissions is 22.9 per cent including LULUCF and the trend uncertainty is 5.2 per cent including LULUCF.

61. Information on uncertainty levels associated with AD and EFs was not reported in the BUR and the reason for this was not clear to the TTE. Morocco reported in the BUR that the uncertainty calculation was based on default uncertainty values from the 2006 IPCC Guidelines. During the technical analysis, the Party clarified that, owing to the absence of accurate data from national data providers, the uncertainty was also assessed by expert judgment (that judgment being based on knowledge of the various sectors) and the ranges in uncertainty obtained were cross-referenced with international benchmarks.

62. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 30, 31, 35, 36, 40, 41, 42, 43, 44, 45, 47, 49, 51, 53, 55, 59 and 61 above, which could facilitate a better understanding of the information reported on GHG inventories.

63. In paragraphs 29, 32, 33, 35, 36, 41 and 42 of the summary report on the technical analysis of Morocco's first BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be further enhanced. The current TTE noted the improvements referred to in paragraphs 29, 37 and 60 above and commends the Party for enhancing the transparency of its reporting.

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

64. As indicated in table I.2, Morocco 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.

65. The information reported provides a comprehensive overview of the Party's mitigation actions and their effects. In its BUR, Morocco reported information on its national context and framed its national mitigation planning and actions in the context of its National Plan to Fight Global Warming, Green Investment Plan and NDC. The NDC sets a national GHG emission reduction target for 2030 in relation to the 'business as usual' level of a 42 per cent reduction in emissions conditional on international support, and an unconditional reduction of 17 per cent in the agriculture, forestry and other land use sector. Morocco

reported that climate change has been mainstreamed in and integrated into its National Strategy for Sustainable Development, including mitigation.

66. The mitigation measures reported in the BUR are essentially the same as those in Morocco's NDC, but there is more detail regarding their implementation dates and updated information on their effects. Most of the mitigation actions are in the energy sector. Further, the implemented mitigation actions contributed to estimated emission reductions of 6,830.9 Gg CO₂ in 2015, with the energy sector being the main source of emission reductions. Morocco reported that, if all activities are sustained, the annual GHG emission reduction is expected to be 57,764.0 Gg CO₂ by 2030. During the technical analysis, Morocco clarified that the CO₂ emission reductions (emissions avoided) for 2010, 2015, 2020, 2015 and 2030 reported in the BUR are those used for preparing the NDC.

67. The Party reported a summary of its mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11.

68. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Morocco reported the names of mitigation actions or groups of actions, coverage (sector) and progress indicators in BUR table 17 and annex 4. Morocco reported mitigation actions as 66 individual projects in the electricity production, energy efficiency (buildings, transport, industry), agriculture, forestry and waste sectors. A clear description of mitigation actions, as well as information on quantitative goals, was provided in the BUR.

69. Information on gases covered was not reported in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that with the exception of the actions reported for the waste sector, which cover CH₄, the main gas affected by all other mitigation actions reported is CO₂.

70. Morocco reported information on the objectives of the actions, steps taken or envisaged to achieve those actions, status of implementation, indicators to monitor progress of implementation, costs of implementation and annual avoided CO₂ emissions for all mitigation actions and NAMAs. The Party included information on methodologies for the NAMAs reported.

71. Most of the 39 mitigation actions reported relate to electricity production, with 20 wind power and 10 solar power projects reported as implemented, ongoing or planned. For the mitigation actions related to electricity production, Morocco reported that the estimated avoided CO₂ emissions amount to 6,425.2 Gg CO₂ in 2020 and 26,110.8 Gg CO₂ in 2030, or 45.2 per cent of Morocco's total emission reduction in 2030. These mitigation actions are part of the National Energy Strategy, the aim of which is to increase the share of renewable energy to 52 per cent of total national production capacity by 2030.

72. Other measures reported for the energy sector include four planned measures that fall under the National Energy Strategy and are related to energy efficiency. Together, they are aimed at energy savings of 12 per cent by 2020 and 15 per cent by 2030. Regarding energy efficiency in transport, Morocco reported nine measures with an estimated reduction potential of 4,002.8 Gg CO₂ in 2020 and 8,259.9 Gg CO₂ in 2030, including policies aimed at renewing the country's vehicle fleet by paying owners of vehicles over 20 years old for scrapping them and at promoting a modal shift from cars to trains and trams through urban mobility projects. Morocco also reported one planned measure for energy efficiency in industry aimed at installing photovoltaic power plants in industrial sites with a total installed capacity of 1,500 MW by 2030 with a view to contributing to the National Energy Strategy.

73. Morocco reported information on seven measures being implemented for the agriculture sector related to increasing argan and olive oil production; expanding plantations of citrus, fruit trees, date palms, cacti and argan trees; and developing routes for and managing flows of nomadic herders. Total avoided emissions for these measures are projected to be 6,596.5 Gg CO₂ in 2030. Agriculture promotion measures are part of Morocco's agriculture strategy for 2009–2020 (known as the Green Morocco Plan).

74. Morocco reported four ongoing measures in the forestry sector: increasing reforestation, preventing desertification, managing forest risks, and distributing efficient cookstoves to reduce fuelwood consumption.

75. The Party also reported two planned measures for the waste sector, which relate to the biological treatment and incineration of household waste and to biogas recovery from wastewater treatment plants.

76. Morocco reported information on five NAMAs. The studies associated with the NAMAs have been validated by the relevant government ministries. The NAMAs concern (1) installing 983,000 solar thermal collectors in an area of 2,950,000 m², thermally insulating 2,000,000 homes, coupling 4,450 refrigerators with thermal inertia to photovoltaic sensors, and installing 130 million energy-efficient light bulbs between 2015 and 2030; (2) developing large-scale solar pumping in water-saving irrigation projects by installing 30,000 solar pumps between 2015 and 2025; (3) reducing energy consumption and CO₂ emissions by reaching installed capacity of solar panels in the residential sector of 200 megawatt peak by 2020 and 2,500 megawatt peak by 2030; (4) cultivating 43,000 ha argan trees in orchards, together with intercropped forages; and (5) reducing waste going to landfill and producing a variety of products from waste, including compost, recycled materials and alternative fuel, with an estimated emission reduction of 4.05 Mt CO₂ eq by 2030. During the technical analysis, Morocco indicated that two additional NAMAs, one on transport and the other on tourism, are being internally validated by the relevant national institutions.

77. BUR table 17 provides an overview of the mitigation measures and their status of implementation as ongoing, in progress, planned or under development. However, the information reported for some of these measures is not consistent with the detailed information reported for each measure in annex 4 to the BUR. This is the case for the following measures: Solar Power Plant Noor Argana; Micro Hydraulic Power Plants Sidi Said, Sidi Driss, Hassan II, Asfalou and Boulferda; Combined Cycle Plant Extension Tahaddart; Combined Cycle Power Plants (Gas to Power): 2,400 MW; and wind farm Aftisat, Tanger 2 and Taza. Moreover, there is inconsistency in the information reported on the status of implementation of the following measures: Combined Cycle Thermal Power Plant of Ain Bni Mathar; Logistics Competitiveness: Modal Shift from Road to Rail; Improvement of Maintenance and Technical Control of Freight Vehicles; Argan Plantation; and Financial Incentive for Disposal of Vehicles over 20 years old.

78. Consistent information was not reported across mitigation actions. For example, information on emission reductions for 2018 was reported for the planned measure Mechanobiological Treatment and Co-Incineration of Household Waste, and information on emission reductions for 2017 was reported for the measure biogas recovery from wastewater treatment plants, which is still at the conceptualization stage.

79. Morocco did not report information on methodologies for any of the mitigation actions reported other than the NAMAs. The Party included some methodological information on assumptions and the most relevant sources of data used for calculating indicator values. During the technical analysis, Morocco provided more information on the data sources.

80. Morocco did not provide information on its involvement in international market mechanisms or the reason why this information was not reported. During the technical analysis, Morocco clarified that its NDC clearly states its intention to participate in market mechanisms and that it is part of both the Carbon Pricing Leadership Coalition and the Partnership for Market Readiness. In this context, the Department of the Environment of the Ministry of Energy, Mines, Water and the Environment is leading a project on preparing for the carbon market. The project includes several MRV actions in relation to three major sectors of activity in the country: electricity production, cement production, and production and treatment of phosphates. The project also covers capacity-building, including for project management, with institutional and private operators.

81. In addition, during the technical analysis, Morocco provided updated information on the status of implementation of the 37 clean development mechanism projects it has developed, which together enable a reduction in GHG emissions of around 5,917,581 t CO₂ eq/year. Seventeen of the projects are in place, the majority of which have been developed by the public sector, and cover renewable energy (65 per cent), waste (liquid and solid) (17.5 per cent) and biomass energy (17.5 per cent). The emissions avoided as a result of the 17 projects amount to around 2,390,000 t CO₂ eq/year.

82. Morocco reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Morocco is in the process of designing and developing a domestic MRV system for mitigation actions. Morocco outlined the steps on a proposed pathway to establishing its MRV system, including establishing institutional arrangements, monitoring data collection responsibilities, defining reporting obligations and defining verification approaches. During the technical analysis, Morocco clarified that it was implementing an online MRV system as part of its NC4 preparation. The decree establishing the national GHG inventory system adopted in 2019 and the decree establishing a national climate change commission adopted in May 2020 could facilitate the development of the national MRV system. Additionally, a law on climate change is being drafted, which will facilitate the coordination of the system and the exchange of data for its proper functioning.

83. The TTE noted that the transparency of the information reported on mitigation actions could be further enhanced by addressing the areas noted in paragraphs 69 and 77–80 above, which could facilitate a better understanding of the information reported on mitigation actions.

84. In paragraphs 45–47 of the summary report on the technical analysis of Morocco's first BUR, the previous TTE noted areas where the transparency of the reporting on mitigation actions could be enhanced, such as the years to which the effects of mitigation actions refer and details on the NAMAs, including methodologies used. The current TTE noted the improvements referred to in paragraph 66 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

85. As indicated in table I.3, Morocco 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.

86. Morocco clearly reported information on constraints and gaps, and related financial, technical and capacity-building needs in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR, Morocco identified the lack of sustainability of the team within SEDD to support the preparation of reporting and delivery on its commitments as a major challenge and constraint. Morocco reported that its financial, technical and capacity-building needs are primarily in the areas of providing support to SEDD in order to guarantee the sustainability, continuity and integrity of information reported in the BUR; collecting and managing data for GHG inventories; tracking the progress of implementation of its mitigation actions; and identifying capacity-building needs.

87. Morocco reported information on financial resources received in accordance with decision 2/CP.17, annex III, paragraph 15. In its BUR, Morocco reported that it received USD 157.5 million in financial support during the reporting period through bilateral and multilateral channels, the GEF and the GCF. This included USD 852,000 from the GEF for preparing both its second BUR and its NC4. During the technical analysis, Morocco clarified that it also received technical assistance from the Technical Reference Center for Air Pollution and Climate Change of France and the Institute for Applied Ecology of Germany to conduct the QA of its GHG inventories.

88. Although this is the first time that Morocco has used the 2006 IPCC Guidelines to develop its GHG inventory, no information was reported in the BUR on the technical and capacity-building support received in this regard. During the technical analysis, Morocco emphasized that capacity-building is needed in the areas referred to in paragraph 86 above.

89. Information on capacity-building support received was not reported in the BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that through its establishment of the Climate Change Competence Centre of Morocco (known as 4C Morocco) it intends to strengthen its institutional set-up so as to, inter alia, better collect and report information on capacity-building needs and support received.

90. 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 was not reported in Morocco's BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that a technology needs assessment, which would provide inputs for reporting on this matter in the BUR, had not been conducted recently (see para. 86 above).

91. 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 88–90 above, which could facilitate a better understanding of the information reported on needs and support received.

92. In paragraphs 58–59 of the summary report on the technical analysis of Morocco's first BUR, the previous TTE noted areas where the transparency of the reporting on constraints and gaps and related technology, financial, technical and capacity-building needs, including a description of support needed and received, could be further enhanced. The current TTE noted the improvements referred to in paragraphs 86–87 above and commends the Party for enhancing the transparency of its reporting.

93. In its BUR, in the context of its commitment to fighting climate change, Morocco reported that it intends to support the transition to a green economy at the national level, which would be expected to have an influence on the economies of other African States, without providing a clear timeline. The TTE noted that this information could be useful for understanding the circumstances of Morocco with regard to support needed and provided.

5. Any other information

94. Morocco reported some information on adaptation action that may lead to GHG emission reductions, without providing estimations of such reductions. During the technical analysis, Morocco clarified that no efforts had previously been made to quantify the mitigation effects of the adaptation measures because they were implemented via programmes developed with the intention of enhancing adaptive capacity. Morocco is establishing a process for quantifying on an ongoing basis the emission impacts of such measures.

D. Identification of capacity-building needs

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

(a) Supporting the establishment and maintenance of a domestic MRV system for the GHG inventory, mitigation actions, and support needed and received, including by providing the necessary training to national experts on the elements of a domestic MRV system;

(b) Strengthening the institutional arrangements, in particular their legal aspects and organizational procedures;

(c) Enhancing the involvement of the private sector in the GHG inventory process and the assessment of mitigation actions;

(d) Training national experts involved in the development of GHG inventories in applying the 2006 IPCC Guidelines, particularly the reporting guidance and tables in volume 1, chapter 8, which describe the disaggregation, classification and definition of categories of emissions and removals;

(e) Training national experts to use tools for generating GHG inventory information (e.g. reporting tables, summary tables), including the IPCC inventory software;

(f) Collecting historical data and applying methods from the 2006 IPCC Guidelines to fill data gaps, perform recalculations to ensure time-series consistency and report updated GHG inventories, including for the years previously reported in NCs;

(g) Enhancing key components of the institutional arrangements to ensure sustainable GHG inventory planning, preparation and management, including legally binding

or formal agreements between SEDD and relevant ministries and agencies on data sharing, roles and responsibilities of personnel and timelines in the GHG inventory cycle;

(h) Establishing processes for collecting data on international aviation and marine bunker fuels in order to estimate emissions and report them separately from domestic activities as memo items in the GHG inventory in line with the reporting requirements;

(i) Training national experts on methodological issues and reporting requirements with regard to the estimation of changes in carbon stocks and emissions and removals from the HWP pool;

(j) Developing technical capacity for satellite image processing to generate accurate data on land area and land representation for the GHG inventory for the agriculture, forestry and other land use sector;

(k) Enhancing national capacity for performing additional external QA of the GHG inventory for all sectors other than energy;

(l) Enhancing national capacity for collecting data on F-gas emissions (PFCs, SF₆ and nitrogen trifluoride) from refrigeration;

(m) Developing national capacity for estimating the quantitative emission reductions achieved by and reporting on ongoing clean development mechanism projects, and for participating in international market mechanisms;

(n) Developing a consistent methodology for estimating the effects of mitigation actions, including emission reductions, by establishing baseline scenarios, methods and assumptions, identifying mitigation options and scenarios, and monitoring the progress of mitigation actions in relation to domestic priorities and strategies, including NAMAs and NDCs, and training stakeholders in applying such methodologies;

(o) Developing a methodology for estimating the costs and benefits of mitigation actions and applying it consistently;

(p) Training national experts to use tools for integrating climate finance into the national budget so as to better link the resources needed and received;

(q) Training national experts to use tools for monitoring and reporting on climate change projects;

(r) Supporting the assessment of technology transfer and technical support needed and received.

III. Conclusions

96. The TTE conducted a technical analysis of the information reported in the second BUR of Morocco 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 removals by sinks of all GHGs not controlled by the Montreal Protocol; 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; and domestic MRV. The TTE concluded that the information analysed is mostly transparent.

97. Morocco reported an update on the institutional arrangements relevant to the preparation of its BURs. Climate change activities are coordinated at the highest level through an interministerial committee that underpins a framework for decision-making on environmental matters that enables the participation of all stakeholders, such as SEDD, the Climate Change Competence Centre of Morocco, the National Council for the Environment, the Higher Council for Water and Climate, and the Economic, Social and Environmental Council. SEDD is the institution that coordinates the preparation of BURs and NCs.

98. In its second BUR, submitted in 2019, Morocco reported information on its national GHG inventory for 2010, 2012, 2014 and 2016. This included GHG emissions and removals of CO₂, CH₄ and N₂O for all relevant sources and sinks as well as the precursor gases. Morocco also included a comprehensive and updated improvement plan. The inventory was developed on the basis of the 2006 IPCC Guidelines and reported using the Revised 1996 IPCC Guidelines in combination with the tables included in annex 3.A.2 to the IPCC good practice guidance for LULUCF. The total GHG emissions for 2016 were reported as 87,458.5 Gg CO₂ eq (excluding LULUCF) and 86,123.7 Gg CO₂ eq (including LULUCF).

99. A total of 26 key categories and main gases were identified as the largest emitters, in particular production of electricity and heat, energy for transport, energy for buildings, cement industry, metal industry, livestock, forest land and cropland. Estimates of F-gases were not provided owing to difficulties in obtaining the necessary data from the respective industries, as clarified by the Party during the technical analysis. Morocco also did not provide an estimate of emissions from international aviation and marine bunker fuels but noted that this information will be reported in the next BUR.

100. Morocco reported information on mitigation actions and their effects in tabular format and framed its national mitigation planning and actions in the context of its national priorities and strategies. Morocco reported planned, implemented and ongoing actions in the energy, agriculture, waste and forestry sectors. The mitigation actions focus on promoting renewable sources in electricity production and increasing energy efficiency. The Party reported the progress of implementation of its mitigation actions, their costs and the results achieved, including emission reductions for individual actions. The highest emission reduction potential was reported for the electricity production sector, with estimated avoided CO₂ emissions of 6,425.2 Gg CO₂ in 2020 and 26,110.8 Gg CO₂ in 2030, or 45.2 per cent of the Party's total emission reduction in 2030. Morocco also reported that, if all activities are sustained, the annual GHG emission reduction is expected to be 19,183.9 Gg CO₂ by 2020 and 57,764.0 Gg CO₂ by 2030. The Party further reported information on its MRV arrangements. Information on international market mechanisms was not reported in the BUR. Some information on methodologies and assumptions was provided.

101. Morocco reported information on key constraints, gaps and related needs, including needs related to the sustainability and continuity of teams involved in the BUR process, the collection and management of data for the GHG inventory, the development of mitigation actions and the identification of capacity-building needs. The Party reported that it received financial support of USD 157.5 million during the reporting period through bilateral and multilateral channels, the GEF and the GCF. This included USD 852,000 from the GEF for preparing both its second BUR and its NC4. Information on technology needs, capacity-building received, and technology transfer received was not reported. During the technical analysis, Morocco clarified that it intends to enhance its reporting on needs and support received by strengthening the institutions involved.

102. The TTE, in consultation with Morocco, identified the 17 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.

Annex I

Extent of the information reported by Morocco in its second biennial update report

Table I.1

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

<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.	Yes	Morocco submitted its second BUR in December 2019; the GHG inventories reported are for 2010, 2012, 2014 and 2016.
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	Morocco 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;	Yes	Comparable information was reported.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was 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.	Partly	The time series reported in the BUR does not include 1994–2008.
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).	Partly	This information was not reported for 1994, 2000, 2004, 2006 or 2008.
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:	Yes	
	(a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by	Yes	Comparable information was reported.

<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>
	the Montreal Protocol and greenhouse gas precursors);		
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF ₆).	Yes	Comparable information was provided; however, memo items were not provided.
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	Yes	
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.	Partly	Information on institutional arrangements at the sectoral level 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 ;	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;	Yes	
	(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;	Yes	
	(b) NO _x ;	Yes	
	(c) NMVOCs.	Yes	
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.	Yes	The Party reported on other gases, such as sulfur oxides.
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>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;	No	
	(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.	NA	The Party used the GWP provided in the AR4.
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;	Partly	Morocco used the 2006 IPCC Guidelines. Tier 1 methodology was used for all sectors.
	(b) Explanation of the sources of EFs;	Partly	Information on EFs was not provided by sector.
	(c) Explanation of the sources of AD;	Partly	Information on the sources of AD was not provided by sector.
	(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	Yes	Notation keys were used.

<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>
	numerical data are 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;	Yes	
	(b) Underlying assumptions;	No	
	(c) Methodologies used, if any, for estimating these uncertainties.	Yes	

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 second biennial update report of Morocco

<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	Morocco included information in tabular 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) was not reported for any mitigation actions. Information on quantitative goals (avoided CO ₂ emissions) was reported for all mitigation actions. Information on progress indicators was not reported for some of the mitigation actions in the energy and waste sectors.
	(b) Information on:		
	(i) Methodologies;	Partly	Information on methodologies used was provided only for Morocco’s five NAMAs.
	(ii) Assumptions;	Yes	
	(c) Information on:		

<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>
	(i) Objectives of the action;	Yes	
	(ii) Steps taken or envisaged to achieve that action;	Yes	
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(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;	Yes	The Party reported estimated emission reductions, expressed in terms of avoided CO ₂ emissions, for all mitigation actions. For 2018, for most of the ongoing mitigation actions, the Party also reported estimated outcomes in terms of values of indicators (including avoided CO ₂ emissions).
	(e) Information on international market mechanisms.	No	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements	Yes	The Party reported information on envisaged arrangements for the MRV of mitigation actions, including NAMAs.

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 second biennial update report of Morocco

<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;	Yes	
	(b) Related financial, technical and capacity-building needs.	Yes	Information on financial needs was reported.
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	Information on financial resources received was reported; information on technology transfer and capacity-building received was not reported.
	(b) Information on technical support received from the GEF, Parties included in Annex II to the Convention and other developed country Parties, the GCF and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Yes	

<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 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

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