



Technical analysis of the third biennial update report of the Republic of Moldova submitted on 21 December 2021

Summary report by the team of technical experts

Summary

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

2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
AD	activity data
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
EF	emission factor
F-gas	fluorinated gas
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	<i>Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories</i>
IPCC good practice guidance for LULUCF	<i>Good Practice Guidance for Land Use, Land-Use Change and Forestry</i>
IPPU	industrial processes and product use
LEDS	low-emission development strategy
LULUCF	land use, land-use change and forestry
MARDE	Ministry of Agriculture, Regional Development and Environment of the Republic of Moldova
ME	Ministry of Environment of the Republic of Moldova
MRV	measurement, reporting and verification
N ₂ O	nitrous oxide
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NIR	national inventory report
NIS	national inventory system
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
PFC	perfluorocarbon
P.I. “EPIU”	Public Institution “Environmental Projects Implementation Unit”
QA/QC	quality assurance/quality control
Revised 1996 IPCC Guidelines	<i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i>
SF ₆	sulfur hexafluoride
TTE	team of technical experts
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”
WAM	‘with additional measures’
WEM	‘with existing measures’

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.
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. The Republic of Moldova submitted its second BUR on 27 December 2018, which was analysed by a TTE in the thirteenth round of technical analysis of BURs from non-Annex I Parties, conducted from 27 to 31 May 2019. After the publication of its summary report, the Republic of Moldova participated in the ninth workshop for the facilitative sharing of views, convened remotely on 25 November 2020.
5. This summary report presents the results of the technical analysis of the third BUR of the Republic of Moldova, 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 Republic of Moldova submitted its third BUR on 21 December 2021 as a stand-alone update report. The submission was made within three years from the submission of the second BUR. During the technical analysis, the Party explained the reasons for submitting the BUR more than two years after the submission of the previous BUR, namely a delay in the assessment and approval of the United Nations Environment Programme–Global Environment Facility project that provided funding for the BUR preparation.
7. A desk analysis of the Republic of Moldova's BUR was conducted from 20 to 24 June 2022 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: Sorin Deaconu (Romania), Reza Fallah (Islamic Republic of Iran), Mahendra Kumar (former member of the Consultative Group of Experts from the Marshall Islands), Brittany Meighan (Belize), Aglaia Glasha Obrekht (Canada) and Virginia Sena Cianci (member of the Consultative Group of Experts from Uruguay). Sorin Deaconu and Mahendra Kumar were the co-leads. The technical analysis was coordinated by Luca Birigazzi, Pedro Torres and Jamie Howland (secretariat).
8. During the technical analysis, the TTE and the Republic of Moldova engaged in consultation¹ on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of the Republic of Moldova's third BUR, the TTE prepared and shared a draft summary report with the Republic of Moldova on 23 August 2022 for its review and comment. The Republic of Moldova, in turn, provided its feedback on the draft summary report on 25 August 2022.

¹ The consultation was conducted via videoconferencing.

9. The TTE responded to and incorporated the Republic of Moldova's comments referred to in paragraph 8 above and finalized the summary report in consultation with the Party on 21 September 2022.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

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

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

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

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

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

B. Extent of the information reported

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

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

14. The current TTE noted improvements in the reporting in the Republic of Moldova's third BUR compared with that in its previous BUR. Information on the GHG inventory reported in the Party's third BUR demonstrates that it has taken into consideration the areas for enhancing the transparency of the extent of the information reported noted by the previous TTE in the summary report on the technical analysis of the Party's previous BUR.

C. Technical analysis of the information reported

15. The technical analysis referred to in paragraph 10(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. The Republic of Moldova submitted an NIR as a stand-alone document and, further to consultations with the TTE, requested a more detailed analysis and documentation of the findings contained in the NIR to be undertaken using the agreed GHG inventory tool.

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. In its third BUR, the Republic of Moldova 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.

20. In addition, the Republic of Moldova provided a summary of relevant information regarding its national circumstances in tabular and graphical format.

21. The Republic of Moldova transparently reported in its third BUR information on its existing institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, including those within MARDE, which until 5 August 2021 was responsible for developing and promoting State policies and strategies for agriculture, food production, food security, regional and rural development, spatial planning, environmental protection and climate change, and natural resources. During the technical analysis, the Party informed the TTE that on 6 August 2021 a new government with a different structure and number of ministries was appointed by the Parliament of the Republic of Moldova. In the new Cabinet the former MARDE has been split into three ministries: Ministry of Infrastructure and Regional Development, Ministry of Agriculture and Food Industry, and ME.

22. The BUR outlines the involvement and roles of other institutions and experts and describes mechanisms for information and data exchange. MARDE was reported in the BUR as the governmental body responsible for the Party's climate change policy and implementation of international environmental treaties to which the Republic of Moldova is a party, including the Convention, the Kyoto Protocol and the Paris Agreement. During the technical analysis, the Party clarified that ME is now the governmental body responsible for the Party's climate change policy and implementation of the above-mentioned international environmental treaties. The Environment Agency is responsible for operating the national system for monitoring and reporting GHG emissions and other aspects of climate change. The mission of P.I. "EPIU", a public institution established by government decision 1249 of 19 December 2018, is to support ME and its organizational entities in providing external and internal financial and technical assistance in the areas of environmental protection and use of natural resources. It has been temporarily delegated by the Environment Agency the responsibility for preparing NCs, BURs, NIRs and GHG inventories.

23. The Republic of Moldova also reported in its third BUR an update on its domestic MRV arrangements. The description covers key aspects of the institutional arrangements, including the system for reporting on and verifying implementation of the Party's LEDS and

NAMAs, the establishment and operation of the national system for monitoring and reporting GHG emissions and the coordination of climate change activities.

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

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

25. The Republic of Moldova submitted its third BUR in 2021 and the GHG inventory reported is for 1990–2019. The GHG inventory is consistent with the requirements for the reporting time frame. The TTE commends the Republic of Moldova for preparing a GHG inventory for 2019, which is less than four years prior to the date of submission of the Party’s BUR.

26. The Republic of Moldova submitted an NIR in conjunction with its third BUR. The relevant sections of the NIR were referenced in the BUR and the documents were made publicly available on the UNFCCC website.²

27. GHG emissions and removals for the BUR covering 1990–2019 were estimated using methodologies from the 2006 IPCC Guidelines. The Party mostly used tier 1 methods to estimate emissions. Country-specific EFs were used for key categories in all sectors. For some categories, tier 2 or 3 methods were used.

28. Information on AD and EFs used and their sources was clearly reported in the BUR, including a complete set of tables with disaggregated information on AD and EFs by category or subcategory for the whole time series. This information is summarized in the BUR and presented in more detail in the NIR.

29. Information on the Party’s total GHG emissions by gas for 2019 is outlined in table 1 in Gg CO₂ eq. It shows a decrease in emissions of 69.5 per cent without LULUCF since 1990 (45,348.7 Gg CO₂ eq).

Table 1
Greenhouse gas emissions by gas of the Republic of Moldova for 2019

<i>Gas</i>	<i>GHG emissions (Gg CO₂ eq) including LULUCF</i>	<i>% change 1990–2019</i>	<i>GHG emissions (Gg CO₂ eq) excluding LULUCF</i>	<i>% change 1990–2019</i>
CO ₂	9 526.13	–73.1	9 392.27	–74.6
CH ₄	2 616.15	–50.1	2 615.76	–50.1
N ₂ O	1 732.06	–46.8	1 570.53	–49.1
HFCs	229.95	NA	229.95	NA
PFCs	0.04	NA	0.04	NA
SF ₆	1.43	NA	1.43	NA
Other	NO	NA	NO	NA
Total	14 105.76	–67.9	13 809.98	–69.5

30. Information on other emissions was clearly reported, including 18.36 Gg nitrogen oxides, 144.09 Gg carbon monoxide, 90.32 Gg non-methane volatile organic compounds and 5.24 Gg sulfur dioxide.

31. Information on F-gas emissions for 1990–1994 was not reported in the Republic of Moldova’s BUR and the reason for this was not clear to the TTE. During the technical analysis, the Party clarified that 1995 is the reference year for F-gases since the AD, which are provided by the Customs Service of the Republic of Moldova and based on imports of products containing F-gases, are available only for 1995 onward.

² <https://unfccc.int/node/17617/>.

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

33. The Republic of Moldova 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.

34. The shares of emissions that different sectors contributed to the Party's total GHG emissions excluding LULUCF, as reported by the Party, in 2019 are reflected in table 2.

Table 2

Shares of greenhouse gas emissions by sector of the Republic of Moldova for 2019

<i>Sector</i>	<i>GHG emissions (Gg CO₂ eq)</i>	<i>% share^a</i>	<i>% change 1990–2019</i>
Energy	9 321.67	67.5	–74.7
IPPU	992.19	7.2	–38.1
Agriculture	1 943.48	14.1	–63.6
LULUCF	295.79	NA	–121.3
Waste	1 552.64	11.2	2.5

^a Share of total emissions without LULUCF.

35. The Republic of Moldova 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. The Party provided the GWP values used in the BUR (p.107). The Party did not report emissions using the GWP values provided by the IPCC in its AR2, as required by decision 17/CP.8, annex, paragraph 20; however, all emissions were reported in units of mass in annex 1 to the BUR and in NIR chapter 4, enabling total emissions to be estimated in CO₂ eq using the GWP values provided in the AR2.

36. For the energy sector, information was clearly reported on CO₂, CH₄ and N₂O emissions as well as on methodological tier levels, AD and their sources, EFs, key categories and notation keys used and other information specific to the sector. The decrease in emissions between 1990 and 2019 is due to the economic decline from 1990 to 1999 following the break-up of the Soviet Union and the Republic of Moldova's declaration of independence. Although the economy experienced significant growth in 2000–2019, GHG emissions remained relatively stable, decoupling from growth in gross domestic product. Energy industries (category 1.A.1) accounted for the largest share of the sectoral emissions in 2019 (33.5 per cent), followed by transport (category 1.A.3) (28.6 per cent). The Party used tier 1 methods to estimate emissions for the energy sector, except for emissions from natural gas and road transportation, for which tier 2 and 3 methods were used respectively.

37. For the IPPU sector, information was clearly reported on GHG emissions, methodological tier levels, AD and their sources, EFs, key categories and notation keys used and other information specific to the sector. Emissions fell sharply between 1990 and 1996 as a result of economic decline and separation from the Soviet Union, and again between 2008 and 2009 owing to the financial crisis. Between these periods of significant decline, emissions in the IPPU sector showed an increasing trend. Cement production is the main contributor to the sectoral emissions (accounting for 52.8–60.6 per cent of total IPPU emissions over 1990–2019), significantly affecting the emission trend. F-gas emissions increased steadily from 1996 onward, accounting for 23.2 per cent of IPPU emissions in 2019. The Party used tier 2 methods from the 2006 IPCC Guidelines to estimate emissions for all key categories identified for the sector.

38. Regarding emissions from product uses as substitutes for ozone-depleting substances, the Party reported HFC emissions from solvents (category 2.F.5) and other applications (category 2.F.6) as “NO” in the NIR, but indicated also in the NIR (p.53) that those emissions were not estimated owing to lack of AD, which it is not consistent with the notation key used. During the technical analysis, the Party clarified that, following the submission of its third BUR, a survey was carried out under a Multilateral Fund for the Implementation of the Montreal Protocol–United Nations Development Programme project entitled “Implementing

Enabling Activities for the Ratification of the Kigali Amendment by the Republic of Moldova”, which confirmed that reporting of “NO” for solvents (category 2.F.5) and other applications (category 2.F.6) is correct.

39. For the agriculture sector, indirect and direct N₂O from agricultural soils (category 3.D), CH₄ from enteric fermentation (category 3.A) and direct and indirect N₂O emissions from manure management (category 3.B) were identified as key categories. The Republic of Moldova used a combination of default EFs from the 2006 IPCC Guidelines and country-specific EFs to estimate emissions for the sector. The decrease in emissions between 1990 and 2019 was driven by decreases in the domestic livestock and poultry populations, the amount of synthetic and organic nitrogen fertilizers applied to soils, the quantities of agricultural crop residues returned to soils, and carbon losses from land-use change and soil management practices. The decrease in emissions was most significant between 1990 and 2000, after which emissions remained relatively stable. Detailed information on AD, EFs and associated methodologies was provided in the BUR.

40. The Party reported CO₂ emissions from other carbon-containing fertilizers (category 3.I) as both “NO” and “NE”, highlighting in the NIR (annex 6-3, p.574) the lack of data for estimating the emissions. During the technical analysis, the Party clarified that, although no data are available on the use of other carbon-containing fertilizers, both “NO” and “NE” were reported because it cannot be ruled out that the activity occurs in the country.

41. The TTE noted that data on the weight of the most prevalent breeds of livestock and poultry (in NIR table 5-10) fluctuate annually. In the BUR and the NIR, the Party indicated that it is aware of underlying issues with the reliability of some of the AD for animal populations, particularly for cattle and sheep, and acknowledged the need to update and improve the AD and country-specific EFs for manure management, crop residues and managed soils on a more regular basis. During the technical analysis, the Party also clarified that, although the national system for monitoring and reporting GHG emissions and other climate change related information provides the regulatory and institutional framework for collecting the AD needed for the inventory, challenges remain in ensuring the regular collection of AD from some institutions.

42. For the LULUCF sector, the Republic of Moldova reported annual GHG emissions and removals for 1990–2019. Net CO₂ emissions and removals changed from –1,387.8 Gg CO₂ eq in 1990 to 295.79 Gg CO₂ eq in 2019, the first year in the time series in which the LULUCF sector was reported as an emissions source. The key categories include CO₂ emissions and removals from forest land (categories 4.A.1 and 4.A.2), cropland remaining cropland (category 4.B.1), land converted to grassland (category 4.C.2), land converted to wetlands (category 4.D.2), land converted to other land (category 4.F.2) and harvested wood products (category 4.G). The trend in CO₂ emissions and removals in the LULUCF sector was driven mostly by cropland management, with a significant reduction in organic carbon reserves in agricultural soils. Recalculations were performed for most categories in the LULUCF sector for the third BUR, mostly as a result of updated AD becoming available and the use of country-specific EFs. During the technical analysis, the TTE took note of the Party’s efforts to make technical improvements to the GHG inventory for the sector and its intention to implement higher-tier approaches from the 2006 IPCC Guidelines for all LULUCF key categories, including cropland and grassland, by means of establishing a national forest inventory. The Party stated that this will require human and technical capacity to be strengthened over the next few inventory cycles.

43. For the waste sector, information was clearly reported on GHG emissions (CO₂, CH₄ and N₂O), AD and their sources, EFs and methods for all categories in the NIR. The CH₄ emissions from this sector represent a major source, accounting for 56.5 per cent of the Party’s total CH₄ emissions. The Party explained that between 1990 and 2019 total annual emissions from the sector increased as a result of its economic growth in the last 20 years, which resulted in increased welfare standards and industrial production and therefore waste generation. For the key categories in the sector, the Party applied a tier 3 method using default and country-specific EFs for solid waste disposal (category 5.A) and a tier 2 method for wastewater treatment and discharge (category 5.D).

44. The NIR provides an update to all GHG inventories reported in the Party's previous NCs and BURs. The information reported provides an update of the Party's NC4 and second BUR, which address anthropogenic emissions and removals for 1990–2015 and 1990–2016, respectively. The update was carried out for 1990–2019 using the methodologies contained in the 2006 IPCC Guidelines, thus generating a consistent 30-year time series. The Party reported that it recalculated emissions for all categories in the energy sector, nine categories in the IPPU sector, seven categories in the agriculture sector, two categories in the LULUCF sector and two categories in the waste sector for 1990–2016 owing to additional AD and EFs becoming available and the use of higher-tier estimation methods. The Party reported that the recalculations resulted in a decrease in estimated emissions for 2016 by 7.4 per cent excluding LULUCF and 5.9 per cent including LULUCF.

45. The Republic of Moldova described in its BUR the institutional framework for the preparation of its GHG inventory for 1990–2019. The Environment Agency has delegated activities associated with preparing the NIRs and national GHG inventories to the P.I. "EPIU". Within the P.I. "EPIU", the national inventory team coordinates GHG inventory activities, including the assessment of emissions by source and sink, the key category analysis, QA/QC, the uncertainty analysis, data archiving and report preparation. Within this framework, the GHG inventory was prepared with the support of the United Nations Development Programme, which assisted the Republic of Moldova in designing its GHG inventory system. The Republic of Moldova submitted an NIS report in conjunction with its third BUR. The TTE commends the Party for submitting an NIS report.

46. The Republic of Moldova clearly reported that a key category analysis was performed for the level of and trend in emissions using tier 1 and 2 approaches including and excluding LULUCF. The Party identified 32 key categories based on level and trend assessments with a 95 per cent cumulative contribution threshold, with the most important key category being CO₂ from public electricity and heat production (subcategory 1.A.1.a). Other important key categories are included under energy industries (category 1.A.1), road transportation (category 1.A.3.b), solid waste disposal (category 5.A) and agricultural soils (category 3.D). The level of disaggregation is consistent with that proposed by the 2006 IPCC Guidelines. Detailed information on the methodology and assumptions used in the calculations is provided in the NIR (annex 1).

47. The BUR provides information on QA/QC measures for all sectors, including a QA/QC plan developed in 2006 for preparing the GHG inventory. The plan, which includes both tier 1 (general procedures) and tier 2 (specific procedures for individual categories) QA/QC procedures, is aimed at standardizing the QA/QC process for the national inventory. Furthermore, external technical reviews are conducted by staff who are not directly involved in drafting and developing the national inventory. The TTE commends the Republic of Moldova for reporting on these ongoing efforts.

48. The Republic of Moldova clearly reported information on CO₂ fuel combustion emissions using both the sectoral and the reference approach. The information reported indicates that the combustion emissions estimated under the sectoral and the reference approach are 8,576.34 and 8,428.32 Gg CO₂ eq respectively for 2019. The difference between the estimates calculated using the two approaches was reported as 1.8 per cent.

49. Information was reported on international aviation and marine bunker fuels. Emissions from international navigation were reported as "NO", but there is no indication in the BUR or the NIR that international maritime traffic does not occur. During the technical analysis, the Party clarified that it has access to the Black Sea only through Giurgiulesti International Free Port on the Danube River. However, according to information provided by the Naval Agency of the Republic of Moldova, there was no international maritime traffic through that port until recently. The Party also clarified that international navigation may currently occur owing to international circumstances and that, when such traffic is reported by its National Bureau of Statistics, the emissions will be included in the national GHG inventory and reported separately from the GHG inventory totals.

50. The Republic of Moldova reported information on the uncertainty assessment (level and trend) 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 and the NIR, reveal that the level uncertainty for emissions is 6.6 per cent and the trend uncertainty is 2.1 per cent.

51. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 31, 38, 40 and 49 above, which could facilitate a better understanding of the information reported on GHG inventories.

52. In paragraph 48 of the summary report on the technical analysis of the Party's second BUR, the previous TTE noted areas where the transparency of the reporting on GHG inventories could be further enhanced, namely information on notation keys, time series, recalculations, reference and sectoral approach, and uncertainty assessment. The current TTE noted the improvements referred to in paragraphs 32, 48 and 50 above and commends the Party for enhancing the transparency of its reporting.

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

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

54. The information reported provides a comprehensive and mostly clear overview of the Party's mitigation actions and their effects. In its BUR, the Republic of Moldova reported information on its national context and framed its national mitigation planning and actions in the context of its LEDS until 2030 and the action plan for its implementation. In its initial NDC, submitted on 25 September 2015, the Party committed to an unconditional emission reduction target for 2030 of 64 per cent below the 1990 level, which could be increased to 78 per cent conditional upon receiving donor support. However, on 4 March 2020, the Party updated its NDC, raising the ambition of its unconditional and conditional 2030 emission reduction targets to 70 and 88 per cent respectively below the 1990 level. The 1990 emissions without LULUCF were reported as 44.9 Mt CO₂ eq in the updated NDC.

55. With the establishment of more ambitious NDC targets, there are plans to approve the Low-Emission Development Programme and the action plan for its implementation. The Programme, which is to replace the LEDS, will provide guidance and serve as the official document on achieving the updated targets. During the technical analysis, the Party updated the TTE on the progress of the Programme's development, which was finalized by June 2021, explaining that the Programme, which includes sectoral reduction targets for 2025 and 2030, is expected to receive government approval by the end of 2022. The Republic of Moldova reported that it will be able to achieve the GHG reduction targets set out in the updated NDC by implementing NAMAs identified in the LEDS and through other NAMAs initiated by external stakeholders seeking credit for carbon reductions in the Republic of Moldova. The Party also reported that climate change has been mainstreamed in and integrated into its development plans, including mitigation. Most of the mitigation actions are in the energy, agriculture and forestry sectors.

56. The Republic of Moldova reported detailed aggregated and sectoral information on GHG projections under two scenarios: the WEM scenario, with projections based on policies and measures implemented or adopted before 1 January 2020; and the WAM scenario, which also includes policies and measures adopted or under development since 1 January 2020. These scenarios were developed for the energy, IPPU, agriculture, LULUCF and waste sectors and consider CO₂, CH₄, N₂O and F-gases. The Party reported that the projections are for 2020, 2025, 2030 and 2035, and the emissions for 1990–2015 used in the projection model are consistent with the historical emissions by sources and sinks reported in the most recent NIR.

57. As reported in the BUR, net emissions in 2030 under the WEM scenario are projected to be 72.3 per cent below the 1990 level, which does not match the level needed to meet the 2030 unconditional 70 per cent reduction target. 2030 net emissions under the WAM scenario are projected to be 82.6 per cent below the 1990 level. Under the WEM scenario, the sectors with the most significant projected reductions in 2030 compared with the 1990 level are energy and agriculture (28,770 and 3,336 kt CO₂ eq respectively). The Party reported

information on the methodologies and tools, key parameters and assumptions used for the projections. The TTE commends the Party for its detailed and transparent reporting on projections in the BUR.

58. The Party reported a summary of its sectoral mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. The Party also reported information on its mitigation actions in narrative format.

59. Consistently with decision 2/CP.17, annex III, paragraph 12(a), the Republic of Moldova reported the names of mitigation actions or groups of actions, coverage (sector and gases) and progress indicators in the BUR (annex 2). A description of mitigation actions, as well as information on quantitative goals, was provided in the BUR.

60. Information on gases affected by mitigation actions was not clearly reported in the Republic of Moldova's BUR. For several actions, gases other than those reported were also affected. This is the case for mitigation actions 1 – building capacity for producing electricity and heat from renewable sources (N₂O emissions); 2 – constructing electrical interconnections with the power system operated by members of the European Network of Transmission System Operators for Electricity (CH₄ and N₂O emissions); 19 – improving eroded land through conversion to pasture (N₂O emissions); and 20 – managing degraded agricultural land by implementing erosion control measures and eroded soil cultivation methods (N₂O emissions). During the technical analysis, the Party clarified that CO₂, CH₄ and N₂O were included for mitigation actions 1–2; and, for mitigation actions 19–20, changes in N₂O emissions depend on several factors and are not expected to account for more than 10 per cent of the total estimated emission reductions calculated for each action.

61. The Party clearly reported information on methodologies and assumptions, and the objectives and progress of implementation of the actions and underlying steps taken or envisaged to achieve them. The Party also reported the results of implementing its mitigation actions, as anticipated emission reductions, indicators (such as renewable energy generation installed capacity or area of land managed), estimated outcomes and mitigation co-benefits.

62. The mitigation actions related to the energy sector focus mainly on promoting renewable energy sources and improving energy efficiency and were reported as ongoing. The Republic of Moldova has taken significant steps in implementing the mitigation action of building capacity to generate electricity from renewable sources: as at the end of 2019, the total installed capacity of renewable power plants supported by the mitigation action was 41.8 MW, with a total of 67.43 million kWh energy produced.

63. Renewable energy mitigation actions are expected to achieve emission reductions of at least 844.54 kt CO₂ eq by 2025 and up to 1,126.05 kt CO₂ eq by 2030. The Republic of Moldova has made significant progress in implementing the mitigation action of reducing GHG emissions in the buildings sector: in 2015–2018, 79 biomass-based heating systems and 49 solar hot water systems were installed in public institutions, and 523 households and microenterprises were incentivized to heat with green energy. This action is expected to lead to emission reductions of 893.2 kt CO₂ eq by 2030 compared with the 1990 level.

64. The mitigation actions related to the transport sector focus on biofuels and on promoting electric transportation in the Chişinău municipality and were reported as ongoing. Progress has been made in implementing the mitigation actions; for example, with regard to promoting electric buses in Chişinău, a project entitled “Facilitating Green Public Investment in Moldova: Implementing the Clean Public Transport Programme”, funded under the EU4Environment Programme, has been launched and is expected to lead to emission reductions of 5.5 kt CO₂ eq by 2030 compared with the 1990 level.

65. For the IPPU sector, the mitigation actions focus mainly on improving energy efficiency and promoting renewable energy sources and were reported as ongoing. The Republic of Moldova has taken significant steps in implementing the mitigation action of co-incinerating alternative fuels in the clinker kiln and applying partial substitution of clinker at Lafarge Ciment facilities: the operator reduced its net emissions per tonne of cement produced by 27 per cent between 1990 and 2019, and in 2019 some 21 per cent of the energy required was produced using alternative fuels, low-carbon fuels and biomass. Under the

WEM scenario, total CO₂ emissions (both fuel combustion and process emissions) are expected to fall by some 40 per cent by 2030 compared with the 1990 level.

66. In the agriculture sector, mitigation actions focus on improving the productivity of the livestock and poultry population and enhancing manure management and soil conservation and fertility and were reported as ongoing. The main objective of the actions is to increase productivity in the sector (animal and crop production). With regard to the mitigation actions of improving the productivity of the livestock and poultry population and enhancing manure management, since its second BUR the Republic of Moldova has approved a regulation granting direct payments per animal for more productive breeds following government decision 836/2020. The Party also reported the results of implementing its mitigation actions as emission reductions, which are expected to affect CH₄ emissions from enteric fermentation and manure management, and N₂O emissions from use of fertilizers in crop production. With these measures in place, emissions in the agriculture sector (not including LULUCF) are expected to fall by 3,336 kt CO₂ eq between 1990 and 2030 under the WEM scenario, and by 3,370 kt CO₂ eq under the WAM scenario.

67. Information on estimated emission reductions for three agricultural mitigation actions, namely soil conservation and fertility enhancement (mitigation action 10), improving the productivity of livestock and poultry populations (mitigation action 11) and enhancing manure management (mitigation action 12), was not clearly reported in the Republic of Moldova's BUR. During the technical analysis, the Party clarified that they attributed all projected emission reductions in the entire sector since 1990 to these mitigation actions; for example, projected reduction of emissions from enteric fermentation of 1.8 Mt CO₂ eq between 1990 and 2035 was attributed to mitigation action 11. However, most of the emission reductions in this sector occurred between 1990 and 2000 owing to changes in economic activity rather than the implementation of the mitigation actions.

68. The Party reported the largest number of mitigation actions (12) in the LULUCF sector, most of which are ongoing. Some of these are NAMAs included in the NAMA registry. The mitigation actions focus mainly on restoration of degraded lands through afforestation, reforestation and rehabilitation of forest, agricultural and grassland areas and forest planting for energy crops. The mitigation actions anticipated to achieve the largest emission reduction is an ongoing national soil conservation project registered under the UNFCCC clean development mechanism process, which is expected to achieve cumulative emission reductions of 3,600 kt CO₂ eq over the life of the project by 2022. Under the WEM scenario, the LULUCF sector sink is expected to decrease from 1,388 to 642 kt CO₂ eq between 1990 and 2030, or by 746 kt CO₂ eq; however, under the WAM scenario, additional mitigation actions are expected to contribute additional sink capacity of 3,399 kt CO₂ eq by 2030 compared with under the WEM scenario, thus increasing the LULUCF sink by 2,653 kt CO₂ eq above the 1990 level by 2030.

69. Information on estimated emission reductions for mitigation actions in the LULUCF sector was not clearly reported in the Republic of Moldova's BUR. In some instances it was not clear if a reported emission reduction was cumulative or annual. During the technical analysis, the Party clarified that, for some LULUCF sector mitigation actions, such as the national soil conservation project (mitigation action 14), the emission removals reported are cumulative estimates over the life of the project. For others, such as smart climate management of forests and grassland (mitigation action 18), emission removals were reported on an annual basis. The TTE noted that the transparency of the reduction estimates could be improved by reporting, to the extent possible, the emission reduction estimates for mitigation actions in a target year (e.g. 2030), rather than a cumulative estimate over the life of the project or action. This would also enable a more accurate assessment of the total impacts of all mitigation actions. Where this is not possible, clearly identifying whether an estimate is cumulative or annual would also improve the transparency of the reporting.

70. The mitigation actions related to the waste sector focus on solid waste management and wastewater treatment and were reported as ongoing. The Republic of Moldova has made significant progress in implementing the mitigation action related to wastewater treatment: in 2017, 145 km water supply networks, 30 km sewerage networks and five treatment plants were built. Compared with the 1990 level, emission reductions are expected to amount to some 108.3 kt CO₂ eq by 2030 and approximately 121.4 kt CO₂ eq by 2035.

71. Information on estimated emission reductions from mitigation actions was not always reported consistently in the Republic of Moldova's BUR. Information on units for emission reductions was reported inconsistently between the section describing the mitigation action and the section on results achieved: for mitigation action 1 – building capacity for producing electricity and heat from renewable sources, the former section mentions CO₂ and CH₄, while the estimated emission reductions are expressed in t CO₂ in the latter section; for mitigation action 3 – promoting efficient technologies in the manufacturing and construction industry, the former section mentions CO₂, CH₄ and N₂O, while the latter expresses estimated emission reductions in kt CO₂; for mitigation action 7 — electric buses in Chişinău, the former section mentions CO₂, CH₄ and N₂O, but the latter gives estimated emission reductions in kt CO₂; for mitigation action 10 – soil conservation and fertility enhancement, the former section mentions CO₂, CH₄ and N₂O, while the latter gives estimated emission reductions in kt CO₂ eq, but the figures only include the N₂O emissions; and for mitigation action 26 – improving access to centralized sanitation services, the former section mentions CH₄ and N₂O, while the latter gives estimated emission reductions in kt CO₂ eq, but the figures only include the CH₄ emissions.

72. During the technical analysis, the Party clarified that, for mitigation actions 1, 3 and 7, GHG emission reduction figures reported were in t CO₂ eq; for mitigation action 10, only the expected reduction in total N₂O emissions for category 3.D (agricultural soils) was reported, CO₂ emissions for category 3.H (urea application) being insignificant; and mitigation action 26 refers only to CH₄ emission reductions.

73. The Republic of Moldova provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. The Republic of Moldova documented 10 clean development mechanism projects approved by its designated national authority, of which 8 have been registered under the UNFCCC clean development mechanism process and 2 are ongoing. The reporting includes descriptions of the projects, expected emission reductions and quantity of certified emission reductions issued for the Party.

74. The Republic of Moldova 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 has in place a domestic MRV system for mitigation actions. The Republic of Moldova reported that the domestic MRV system for implementing its LEDS and NAMAs is regulated by government decisions 1277/2018 on establishing and operating the national system for monitoring and reporting GHG emissions and other information related to climate change, and 444/2020 on establishing a mechanism for coordinating climate change activities and the National Commission for Climate Change. The mechanism establishes the regulatory and institutional framework for developing, evaluating and approving NAMAs and for the associated MRV process. During the technical analysis, the Party clarified that, owing to a lack of specialists, there have been difficulties recruiting staff for implementing the elements of government decision 444/2020 on MRV of GHG emissions related to estimating ex post emission reductions for tracking progress.

75. Further, the Republic of Moldova reported consistently with the voluntary general guidelines for domestic MRV of domestically supported NAMAs, contained in the annex to decision 21/CP.19. The Party outlined its MRV system, including information on establishing institutional arrangements and monitoring data collection responsibilities and definitions of mitigation accounting standards, reporting obligations and verification approaches and roles. The Party's MRV procedures vary depending on whether NAMA projects are unconditional, that is managed and financed using the State budget and/or financial resources provided for in national and sectoral planning documents and in related financing plans prepared by the Government, or conditional, that is financially supported by Parties included in Annex I to the Convention with the aim of providing technical assistance, technology transfer and good practices in implementation. Unconditional projects are not subject to inclusion in the NAMA registry and undergo a simplified MRV procedure requiring annual project reports to the National Commission for Climate Change on actions taken and results achieved, following the format prescribed in the operational manual of the mechanisms for coordinating NAMA projects. Conditional projects that are subject to inclusion in the NAMA registry go through a more rigorous MRV process, with the annual

reports undergoing a verification process. The MRV procedures for both conditional and unconditional projects are set out in government decision 444/2020.

76. The TTE noted that the transparency of the information reported on mitigation actions could be further enhanced by addressing the areas noted in paragraphs 60, 67, 69, 71 and 72 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

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

78. The Republic of Moldova 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. The constraints are unique to each sector; in the energy sector, for example, some regulations are yet to be implemented, while the transport sector faces challenges due to the age of vehicles and the state of infrastructure such as roads. The Republic of Moldova reported its financial, technical and capacity-building needs in three areas: capacity-building needs for mitigation; financial needs in the context of low-emission development; and needs for technical assistance in the context of low-emission development. The capacity-building needs for mitigating GHG emissions were identified as conducting climate studies, research and assessments; formulating climate strategies and policies; implementing climate strategies and policies; and negotiating climate issues internationally, mainly to attract funding for mitigation efforts.

79. The technical and capacity-building needs of the Republic of Moldova are currently estimated at USD 1.53 million; needs related to technology transfer are estimated at USD 0.675 million; and, according to the LEDS, an estimated USD 4.9 billion is required for implementing NAMAs aimed at achieving the NDC.

80. The Republic of Moldova reported information on financial resources and technical support received in 2014–2018 in accordance with decision 2/CP.17, annex III, paragraph 15. Over that period, the amount of external climate-related development financing received by the Party showed a downward trend from EUR 160.9 million to EUR 1.05 million. The Party reported that external development financing in 2014–2018 amounted to EUR 232.05 million, of which 58 per cent was earmarked for mitigation projects, 41 per cent earmarked for adaptation and 1 per cent going to mixed projects. The largest amount, some EUR 17 million, was received by the water and sanitation sector, while the energy supply and distribution sector and the transport sector each received EUR 10 million.

81. In its BUR, the Republic of Moldova reported that 69 per cent of external assistance was provided by multilateral development banks and 30 per cent was provided through bilateral channels. In 2014–2018, the European Bank for Reconstruction and Development, the World Bank and the European Investment Bank were the largest multilateral financial contributors to climate projects. The largest bilateral contributors were Austria, Denmark, the European Union, Germany, Romania and the United States of America. Under a programme for integration and cooperation in the Eastern Partnership, the European Union supported energy sector reform and renewable energy projects, with additional commitments from Austria, Germany and Romania. The Republic of Moldova has received financial support totalling USD 222 million in the form of grants and USD 1.01 billion in co-financing, including USD 574 million for 29 projects related to climate change (e.g. a project to support the preparation of Moldova's third BUR) from the Global Environment Facility since 1992.

82. The Republic of Moldova reported 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 Republic of Moldova identified three major components of technology transfer activities related to mitigation: capacity-building, an enabling business environment and technology transfer mechanisms. The Party reported that, since 2010, 10 industrial parks have been established and an enabling legal framework has been produced for long- and medium-term development of small to medium-sized

enterprises. In 2018, the Republic of Moldova amended its Code on Science and Innovation with a view to consolidating oversight of all research institutes in order to improve coordination and efficiency. However, research, development and continuous innovation are hindered by low institutional and human capacity. Expenditure on research, development and innovation, as a percentage of gross domestic product, fell by over 43 per cent between 2014 and 2018.

83. It was not clearly reported in the Republic of Moldova's BUR whether its technology needs are nationally determined. During the technical analysis, the Party clarified that the technology needs reported were nationally determined and provided a reference to its technology needs assessment reports for adaptation and mitigation, which formed the basis for interventions in priority sectors such as health and agriculture.

84. The TTE noted that the transparency of the information reported on needs and support received could be further enhanced by addressing the areas noted in paragraph 83 above, which could facilitate a better understanding of the information reported on needs and support received.

85. The Republic of Moldova reported in its BUR (chap. 5) information on its areas for improvement for future BURs and its current initiatives for enhancing its existing MRV system for compliance with requirements under the enhanced transparency framework under the Paris Agreement. The information reported covers the establishment and operation of the national system for monitoring and reporting GHG emissions and other information relevant to climate change. The TTE commends the Party for the clear and comprehensive reporting on its proactive approach to preparing for implementation of the enhanced transparency framework.

5. Any other information

86. The Republic of Moldova reported some information on adaptation actions, such as reforestation as part of its adaptation strategy, that may lead to GHG emission reductions, but did not provide estimates of such reductions.

87. The Republic of Moldova provided detailed information on recommendations and activities aimed at mainstreaming gender in climate change policies and actions in key sectors, such as energy, transport, buildings, industry, agriculture, forestry and waste. The TTE commends the Party for reporting on these issues.

D. Identification of capacity-building needs

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

(a) Strengthening the MRV capacity of the Environment Agency, in terms of both human and technical capacity, in relation to fulfilling the Party's reporting commitments under the UNFCCC (including NCs, BURs, NIRs and GHG inventories), including the Paris Agreement, the Convention on Long-Range Transboundary Air Pollution and related environmental conventions. The institutional capacity needs to be created in State institutions accounting for personnel changes, where institutional memory and continuity are ensured by framing the activities in the workplans of the institutions;

(b) Enhancing institutional and technical capacity to launch and undertake a national forest inventory;

(c) Enhancing human and institutional capacity to enable continued high-quality agricultural data collection on livestock management, manure management systems and soil management;

(d) Enhancing the technical capacity of institutions involved in MRV of mitigation actions to estimate emission reductions achieved by implemented actions;

(e) Enhancing the capacity of Giurgiulesti International Free Port, the Naval Agency and the National Bureau of Statistics to provide AD for reporting marine bunker fuels in the bunkers section of the energy balance and estimating GHG emissions from international navigation and reporting them separately in the national inventory;

(f) Enhancing the capacity of domestic institutions to formulate and implement strategies and policies related to climate change;

(g) Enhancing the capacity to carry out studies, research and assessments related to the development of mitigation strategies;

(h) Enhancing the capacity of institutions to negotiate on climate issues at the international level;

(i) Enhancing the capacity of the designated national authority to develop the national programmes supported by donors (Green Climate Fund, Adaptation Fund, etc.) for implementing emission reduction measures of approved strategies.

89. The TTE noted that, in addition to those identified during the technical analysis, the Republic of Moldova reported the following capacity-building needs in its BUR:

(a) Strengthening national capacity to prepare the GHG inventory and the NIR to be submitted with the BUR or biennial transparency report;

(b) Enhancing the data management system used in each inventory cycle, including the periodical archiving of the inventory and the documentation on which the inventory is based, with a view to enhancing transparency;

(c) Improving the knowledge of national experts and institutions involved in developing the national GHG inventory by organizing a series of thematic training sessions;

(d) Enhancing the professional skills of national experts and institutions involved in developing the inventory process with a view to gradually transitioning from the use of default EFs and tier 1 methodologies to country-specific EFs and tier 2 and 3 methodologies, particularly for key categories.

90. In paragraph 72 of the summary report on the technical analysis of the Republic of Moldova's second BUR, the previous TTE, in consultation with the Party, identified capacity-building needs. In its third BUR, the Party reflected that some of those capacity-building needs have been partly addressed:

(a) Using the common reporting format tables to be approved for reporting under the enhanced transparency framework;

(b) Using the common data collection and database for reporting under the UNFCCC, the Convention on Long-Range Transboundary Air Pollution, the Energy Community and other international treaties;

(c) Enhancing national capacity to mobilize, track and report on financial resources through various channels.

III. Conclusions

91. The TTE conducted a technical analysis of the information reported in the third BUR of the Republic of Moldova 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, including an NIR; 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. During the technical analysis, additional information was provided by the Republic of Moldova on GHG inventories,

including the reporting tables for GHG emissions, and on its technology needs assessment. The TTE concluded that the information analysed is mostly transparent.

92. The Republic of Moldova reported an update on the institutional arrangements relevant to the preparation of its BURs. ME, the State authority tasked with developing and promoting the Party's climate change policies and strategies, is responsible for implementing international environmental treaties to which the Republic of Moldova is a party, including the Convention, the Kyoto Protocol and the Paris Agreement. The Environment Agency is responsible for operating the national system for monitoring and reporting GHG emissions and other information relevant to climate change. It has temporarily delegated responsibility to the P.I. "EPIU" for activities associated with preparing NCs, BURs, NIRs and GHG inventories.

93. In its third BUR, submitted in 2021, the Republic of Moldova reported information on its national GHG inventory for 1990–2019. This included GHG emissions and removals of CO₂, CH₄ and N₂O for all relevant sources and sinks as well as the precursor gases. The inventory was developed on the basis of the 2006 IPCC Guidelines. The total GHG emissions for 2019 were reported as 13,809.98 Gg CO₂ eq (excluding LULUCF) and 14,105.76 Gg CO₂ eq (including LULUCF). A total of 32 key categories and main gases were identified, with CO₂ and public electricity and heat production (subcategory 1.A.1.a) identified as the main gas and key category.

94. The Republic of Moldova reported information on mitigation actions and their effects in both tabular and narrative format, including emission reduction targets and the WEM and WAM scenarios for 2015–2035, and framed its national mitigation planning and actions in the context of its LEDS, which was launched in 2016. The Party discussed the development of its Low-Emission Development Programme and the action plan for its implementation, which will replace the LEDS in the light of the Party's recent move to adopt more ambitious NDC targets. The Republic of Moldova reported planned, implemented, ongoing and completed actions in the waste, energy, IPPU, agriculture and LULUCF sectors. The mitigation actions focus on promoting renewable electricity, improving energy efficiency, increasing productivity of livestock and crops, and afforestation and restoration of degraded lands. The Party reported the progress of implementation of its mitigation actions and the results achieved, including emission reductions and estimated outcomes. The Party also reported information on its involvement in international market mechanisms and on MRV arrangements. Estimates of emission reductions for some mitigation actions were not clearly reported, as all emission changes in the relevant sector since 1990 were attributed to them. For some mitigation actions, the Party included estimated emission reductions for CO₂ only, even though the measures affected other GHGs. There were also some estimates of emission reductions for which the Party did not specify whether the estimates were cumulative or annual.

95. The Republic of Moldova reported information on key constraints, gaps and related needs for all sectors and in three areas: capacity-building needs for mitigation; financial needs in the context of low-emission development; and needs for technical assistance in the context of low-emission development. Information was reported on technical, technology transfer and capacity-building support received, with the Party naming three key components of technology transfer activities related to mitigation: capacity-building, an enabling business environment, and technology transfer mechanisms. The Republic of Moldova identified estimated financial needs of USD 4.9 billion, technical and capacity-building needs of USD 1.53 million and needs related to technology transfer of USD 0.675 million.

96. The current TTE noted improvements in the reporting in the Party's third BUR compared with that in its previous BUR. The information reported demonstrates that the Party has taken into consideration the areas for enhancing the transparency of the information reported noted by the TTE in the summary report on the technical analysis of the second BUR. However, improvements are ongoing and the Party has taken note of outstanding areas for future improvement.

97. The TTE, in consultation with the Republic of Moldova, identified the five capacity-building needs listed in paragraph 88 above and needs for capacity-building 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 Republic of Moldova prioritized the capacity-building needs referred to in paragraph 88(a-d) above.

Annex I

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

Table I.1

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

<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	The Party submitted its third BUR in June 2021; the GHG inventory reported is for 1990–2019.
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.	Yes	
Decision 2/CP.17, annex III, paragraph 6	Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the BUR:		
	(a) The tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF;	Yes	Comparable information was reported in chapter 6 of the NIR.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was reported in annex 6 to the NIR.
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	Yes	The time series reported covers 1990–2019.
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their NCs are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000).	Yes	Information on the GHG inventory, including summary tables, was reported for 1990–2019.
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of an NIR 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	Yes	Comparable information was reported in annex 1 to the BUR.

<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>
	sinks of all greenhouse gases not controlled by 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 reported in chapter 4 of the NIR.
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 an NIR and an NIS report as stand-alone documents.
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	The key source analysis was carried out using tier 1 and 2 approaches from the 2006 IPCC Guidelines.
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.	Yes	This information was reported in chapter 2.2 of the BUR as well as in the NIR and the NIS report.
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	CO ₂ emissions from other energy industries (subcategory 1.A.1.c.ii) were reported as “NE”.
	(b) CH ₄ ;	Partly	CH ₄ emissions from other energy industries (subcategory 1.A.1.c.ii) were reported as “NE”.
	(c) N ₂ O.	Partly	N ₂ O emissions from other energy industries (subcategory 1.A.1.c.ii) were reported as “NE”.
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;	Yes	
	(c) SF ₆ .	Yes	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) Carbon monoxide;	Yes	
	(b) Nitrogen oxides;	Yes	
	(c) Non-methane volatile organic compounds.	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 sulfur dioxide emissions.

<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 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	The information was reported using both the sectoral and the reference approach. The difference is less than 2 per cent across the whole time series.
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories:		
	(a) International aviation;	Yes	
	(b) Marine bunker fuels.	Yes	This was reported as “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;	Yes	The Party used the 2006 IPCC Guidelines. Tier 1 methodology was used for the energy sector. A combination of tier 1, 2 and 3 methods was used for the other sectors.
	(b) Explanation of the sources of EFs;	Yes	
	(c) Explanation of the sources of AD;	Yes	
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	NA	
	(i) Source and/or sink categories;		
	(ii) Methodologies;		
	(iii) EFs;		
	(iv) AD;		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	Yes	The Party provided detailed information on planned improvements under each category reported in each sectoral chapter of the NIR.

<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 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 not provided, Parties should use the notation keys as indicated.	Yes	Notation keys were used.
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;	Yes	
	(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 third biennial update report of the Republic of Moldova

<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;	Yes	Information on quantitative goals and progress indicators for mitigation actions was reported.
	(b) Information on:		
	(i) Methodologies;	Yes	
	(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 on outcomes to date for most ongoing mitigation actions.
	(e) Information on international market mechanisms.	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements.	Yes	

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

Table I.3

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

<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	
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;	Yes	
	(b) Information on technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Yes	
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		
	(a) Nationally determined technology needs;	Yes	
	(b) Technology support received.	Yes	

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

Annex II

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

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

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

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

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl>.

B. UNFCCC documents

First and second BURs of the Republic of Moldova. Available at <https://unfccc.int/BURs>.

NC4 of the Republic of Moldova. Available at <https://unfccc.int/non-annex-I-NCs>.

Summary reports on the technical analysis of the first and second BURs of the Republic of Moldova, contained in documents FCCC/SBI/ICA/2016/TASR.1/MDA and FCCC/SBI/ICA/2019/TASR.2/MDA, respectively. Available at <https://unfccc.int/ICA-reports>.
