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Climate Change

FCCC/ARR/2023/CYP

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Report on the individual review of the inventory submission of Cyprus submitted in 2023*

Note by the expert review team

Summary

Each Party included in Annex I to the Convention must submit an annual inventory of emissions and removals of greenhouse gases for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol also report supplementary information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention. This report presents the results of the individual review of the 2023 inventory submission of Cyprus, conducted by an expert review team in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", and the "Guidelines for review under Article 8 of the Kyoto Protocol", as appropriate. The review took place from 18 to 22 September 2023 in Bonn.

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 * In the symbol for this document, 2023 refers to the year in which the inventory was submitted, not to the year of publication.

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Contents

Abbreviations and acronyms

2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*
2019 Refinement to the 2006 IPCC Guidelines	*2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*
AD	activity data
Article 8 review guidelines	"Guidelines for review under Article 8 of the Kyoto Protocol"
B_o	maximum methane-producing capacity
BOD	biochemical oxygen demand
C	carbon
C_4F_{10}	perfluorobutane
C_6F_{14}	perfluorohexane
CF_4	tetrafluoromethane
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
Convention reporting adherence	adherence to the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories"
COPERT	software tool for calculating road transport emissions
CORINAIR	Coordination of Information on the Environment (programme)
CPR	commitment period reserve
CRF	common reporting format
EF	emission factor
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ERT	expert review team
EU	European Union
EU ETS	European Union Emissions Trading System
EUROCONTROL	European Organisation for the Safety of Air Navigation
Eurostat	statistical office of the European Union
FAME	fatty acid methyl esters
FAO	Food and Agriculture Organization of the United Nations
GHG	greenhouse gas
GWP-100	100-year time-horizon global warming potential values
HFC	hydrofluorocarbon
HVO	hydrotreated vegetable oil
IE	included elsewhere
IEF	implied emission factor
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*
IPPU	industrial processes and product use
KP reporting adherence	adherence to the reporting guidelines under Article 7, paragraph 1, of the Kyoto Protocol
LULUCF	land use, land-use change and forestry
MCF	methane correction factor (waste)
MMS	manure management system(s)
MSW	municipal solid waste
N	nitrogen

N_2O	nitrous oxide
NA	not applicable
NE	not estimated
NF_3	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
SEF	standard electronic format
SF_6	sulfur hexafluoride
SOC	soil organic carbon
SWDS	solid waste disposal site(s)
UNFCCC Annex I inventory reporting guidelines	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories"
UNFCCC review guidelines	"Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention"
Wetlands Supplement	*2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*

I. Introduction

1.   This report covers the review of the 2023 inventory submission of Cyprus, organized by the secretariat in accordance with the UNFCCC review guidelines, particularly part III thereof, namely the "UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention" (annex to decision 13/CP.20), and the Article 8 review guidelines (adopted by decision 22/CMP.1 and revised by decision 4/CMP.11). The review took place from 18 to 22 September 2023 in Bonn and was coordinated by Anil Raut, Lisa Hanle and Javier Hanna (secretariat). Table 1 provides information on the composition of the ERT that conducted the review for Cyprus.

Table 1
Composition of the expert review team that conducted the review for Cyprus

Area of expertise	Name (Party)
Generalist	Sorin Deaconu (Romania), Veronica Eklund (Sweden), Marina Vitullo (Italy)
Energy	Maria Sol Aliano (Argentina), Laura Aranguren (Colombia), Christian Boettcher (Germany), Dawa Chhoedron (Bhutan), Valentina Coccetti (Australia), Ulrich Elsenberger (Germany), Brandon Greenlaw (Canada), Benise Nissa Joseph (Saint Lucia), Alastair Lane (Australia), Lawrence Mashungu (Zimbabwe), Malik Mechhoud (Algeria), Gherghita Nicodim (Romania), Angie Lorena Sanchez Pina (United Arab Emirates), Mamahloko Senatla Jaane (South Africa), Stanislav Stokov (Estonia), Shawn Tobin (Canada), Jongikhaya Witi (South Africa), Shevon Wood (Guyana)
IPPU	Oumar Bakayoko (Côte d'Ivoire), Kathrine Loe Bjønness (Norway), Tommi Valtteri Forsberg (Finland), Eriko Hirata (Japan), Valentina Idrissova (Canada), Mauro Meirelles de Oliveira Santos (Brazil), Jacek Skoskiewicz (Poland), Mark Straton (Australia), Caroline Tagwireyi (Zimbabwe)
Agriculture	Kent Buchanan (South Africa), Sorin Deaconu (Romania), Arthur Ha (Australia), Chang Liang (Canada), Andres Said (Argentina), John Steller (United States), Dan Zwartz (Australia)
LULUCF	Kwame Agyei (Ghana), Rosie Brook (United Kingdom), Markus Didion (Switzerland), Oliver Fitzpatrick (Australia), Sini Maaria Niinistö (Finland), Beatriz Sánchez Jiménez (Spain), Amanda Thomson (United Kingdom)
Waste	Elena Oana Badele (Romania), Juliana Boateng Bempah (Ghana), Daniela Carolina Da Costa Duarte (Sao Tome and Principe), Ryan Deosaran (Trinidad and Tobago), Sandra Boitumelo Motshwanedi (South Africa), Alex Murray (Australia), Takefumi Oda (Japan), Igor Ristovski (North Macedonia)
Lead reviewers	Marina Vitullo and Jongikhaya Witi

2.   The basis of the findings in this report is the assessment by the ERT of the Party's 2023 inventory submission in accordance with the UNFCCC review guidelines and the Article 8 review guidelines.

3.   The ERT has made recommendations that Cyprus resolve identified findings, including issues[1] designated as problems.[2] Other findings, and, if applicable, the encouragements of the ERT to Cyprus to resolve related issues, are also included in this report.

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[1] Issues are defined in decision 13/CP.20, annex, para. 81.
[2] Problems are defined in decision 22/CMP.1, annex, paras. 68–69, as revised by decision 4/CMP.11.

4.   A draft version of this report was communicated to the Government of Cyprus, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

5.   Annex I presents the annual GHG emissions of Cyprus, including totals excluding and including LULUCF, indirect CO_2 emissions, and emissions by gas and by sector.

II.   Summary and general assessment of the Party's 2023 inventory submission

6.   Table 2 provides the assessment by the ERT of the Party's 2023 inventory submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.

Table 2
Summary of review results and general assessment of the 2023 inventory submission of Cyprus

Assessment			Issue/problem ID#(s) in table 3 or 5[a]
Dates of submission	Original submission: NIR, 12 April 2023; CRF tables (version 5), 12 April 2023; SEF tables (SEF-CP2-2022), 7 November 2023		
	Revised submission: NIR, 10 May 2023; CRF tables (version 6), 10 May 2023		
	Unless otherwise specified, values from the most recent submission are included in this report		
Review format	Centralized		
Source of GWP-100	IPCC Fifth Assessment Report		
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and the Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:		
	(a) Identification of key categories?	No	
	(b) Selection and use of methodologies and assumptions?	Yes	E.2, E.10, A.1, L.13, W.2, W.4, W.10
	(c) Development and selection of EFs?	Yes	E.5, E.6, E.7
	(d) Collection and selection of AD?	Yes	E.1, L.11, W.3
	(e) Reporting of recalculations?	Yes	E.10
	(f) Reporting of a consistent time series?	Yes	E.8
	(g) Reporting of uncertainties, including methodologies?	Yes	A.3
	(h) QA/QC?		QA/QC procedures were assessed in the context of the national system (see supplementary information under the Kyoto Protocol below)
	(i) Missing categories, or completeness?[b]	Yes	E.13, I.3, W.1
	(j) Application of corrections to the inventory?	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	NA	The Party did not report any insignificant categories as "NE"
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	Yes	
Supplementary information under	Have any issues been identified related to the following aspects of the national system:		

Assessment			Issue/problem ID#(s) in table 3 or 5[a]
the Kyoto Protocol	(a) Overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements?	No	
	(b) Performance of the national system functions?	No	
	Have any issues been identified related to the national registry:		
	(a) Overall functioning of the national registry?	No	
	(b) Performance of the functions of the national registry and the adherence to technical standards for data exchange?	No	
	Have any issues been identified related to the reporting of information on assigned amount units, certified emission reductions, emission reduction units and removal units and on discrepancies in accordance with decision 15/CMP.1, annex, chapter I.E, in conjunction with decision 3/CMP.11, taking into consideration any findings or recommendations contained in the standard independent assessment report?	No	
CPR	Was the CPR reported in accordance with decision 18/CP.7, annex; decision 11/CMP.1, annex; and decision 1/CMP.8, paragraph 18?	Yes	
Response from the Party during the review	Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for assessing conformity with the UNFCCC Annex I inventory reporting guidelines and any further guidance adopted by the Conference of the Parties?	Yes	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No	
Questions of implementation	Did the ERT list any questions of implementation?	No	

[a] Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5.
[b] Missing categories for which methods are provided in the 2006 IPCC Guidelines may affect completeness and are listed in annex II.

III. Status of implementation of recommendations included in the previous review report

7. Table 3 compiles the recommendations from previous review reports that were included in the most recent previous review report, published on 1 May 2023,[3] and had not been resolved by the time of publication of the report on the review of the Party's 2022 inventory submission. The ERT has specified whether it believes the Party had resolved, was addressing or had not resolved each issue or problem by the time of publication of this review report and has provided the rationale for its determination, which takes into consideration the publication date of the most recent previous review report and national circumstances.

Table 3
Status of implementation of recommendations included in the previous review report for Cyprus

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
General			
G.1	CRF tables (G.2, 2022) (G.2, 2020) (G.8, 2019) (G.5, 2017) (G.8, 2016) (G.8, 2015) (table 4, 2013) Convention reporting adherence	Provide relevant explanations in CRF table 9, specifically for all cases of the notation key "NE" being reported and for sources reported as "IE" (e.g. indirect emissions from agricultural soils).	Addressing. The Party included in CRF table 9 explanations for all cases where the notation key "NE" was used as well as explanations for use of "IE" for categories of the LULUCF sector. Responding to a question from the ERT during the review, Cyprus explained that it provided in CRF table 9 explanations for all cases of "NE" and "IE" use for the LULUCF sector. However, the ERT noted that, when "IE" was used for categories under the energy sector, information was reported only in the "Explanation" column and that information should also have been reported in the "Allocation as per IPCC Guidelines" and "Allocation used by the Party" columns.

The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet provided complete and correct explanations for its reporting of "IE" for energy sector categories. |
| G.2 | Kyoto Protocol units (G.5, 2022) (G.12, 2020) (G.12, 2019) (G.24, 2017) KP reporting adherence | Report in the NIR information in accordance with decision 15/CMP.1, annex, paragraphs 12–18, in conjunction with decision 3/CMP.11, including on information reported in the SEF tables; discrepancies and notification; publicly accessible registry information; and the calculation of the CPR. | Resolved. In chapter 12 of its NIR, Cyprus provided information on discrepancies and notification, on publicly accessible registry information and on the calculation of the CPR. In addition, Cyprus provided the SEF tables in its submission. |
| G.3 | Uncertainty analysis (G.11, 2022) (G.8, 2020) (G.20, 2019) (G.14, 2017) (G.6, 2016) (G.6, 2015) | Conduct an uncertainty analysis for LULUCF after the LULUCF reporting has been completed. | Resolved. The Party included the LULUCF sector in its uncertainty analysis. Relevant information is presented in various parts of the NIR: section 1.5, the uncertainty-related sectoral section of chapter 6, and annex 2. |

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[3] FCCC/ARR/2022/CYP.

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
	Convention reporting adherence		

Energy

E.1	1.A Fuel combustion – sectoral approach – solid biomass – CO_2, CH_4 and N_2O (E.2, 2022) (E.19, 2020) Accuracy	Revise the estimates of CO_2, CH_4 and N_2O emissions from solid biomass in 2017 on the basis of the correct AD and report the impact of the correction in the NIR.	Addressing. The Party reported in NIR table 3.29 (p.96) that the apparent consumption for solid biomass for 2017 is 1,838 TJ but it reported this value as 1,535.59 TJ in CRF table 1.A(b). The ERT noted that both these figures differ from the apparent consumption for solid biomass reported by the International Energy Agency for 2017 (1,037 TJ). During the review, the Party clarified that the figure reported in CRF table 1.A(b) is correct, as it is the solid biomass consumption reported by the International Energy Agency (1,037 TJ) adjusted for charcoal production (indigenous production is 73.49 TJ and imports are 390.05 TJ). The Party indicated that there is, however, an issue with the sign of the stock change in CRF table 1.A(b), which should be "+" instead of "–", and that this will be fixed in the next submission.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported the correct sign for the stock change in CRF table 1.A(b) and it has not reported the revised figure in NIR table 3.29 or provided information on the impact of the correction in the NIR.
E.2	1.A.3.b.ii Light-duty trucks – liquid fuels – N_2O (E.9, 2022) (E.14, 2020) (E.27, 2019) Accuracy	Correct the estimates of N_2O emissions from diesel consumption by light-duty trucks for 1990–1999.	Addressing. The Party reported in NIR section 3.2.5.1 (p.80) that N_2O emissions from diesel consumption by light-duty trucks were estimated using COPERT 5 for the entire time series, but it did not explain how the previous recommendation was implemented and how N_2O emissions for 1990–1995 were estimated. During the review, the Party explained that N_2O emissions from light-duty trucks were estimated for 1990–1995 by extrapolation of the existing trend, as calculated by COPERT 5, for the rest of the time series. The Party noted that there is a fault in COPERT 5 that has not yet been corrected; this fault was responsible for the issue seen for 1990–1995. The Party indicated that it will provide an explanation in the next NIR if the COPERT issue persists.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet explained how it estimated N_2O emissions from diesel consumption by light-duty trucks for 1990–1995 in the NIR.
E.3	1.A.3.d Domestic navigation – liquid fuels – CO_2, CH_4 and N_2O (E.10, 2022) (E.15, 2020) (E.17, 2019) (E.10, 2017) (E.21, 2016) (E.21, 2015) Transparency	Report in the NIR on any progress achieved in improving the consistency of the time series.	Addressing. The Party reported in NIR section 3.2.5.2 (p.85) on domestic waterborne navigation that fuel consumption for each of the years between 1990 and 1997 was estimated assuming that the contribution of domestic waterborne navigation activities to road transport remained the same as for 1998 (0.33 per cent). During the review, the Party clarified that there is no update on the status of implementation of this recommendation because no further data were obtained. In the energy balance only one value was available for total transport (equal to the road transport value), with no disaggregation by type of transport, and the total was excluding international navigation. This is why before 1998, consumption for domestic navigation was calculated as part of the road transport contribution. Regarding emissions for 1990–1997, the ERT considers

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
			the accuracy issue as resolved as no further data can be obtained and recalculations are not needed for domestic navigation as they would not make a significant impact on the total transport emissions.
			The ERT considers that the remaining transparency issue has not yet been fully addressed as the rationale for using the contribution of domestic navigation to road transport has not yet been clearly explained in the NIR. The ERT considers that including the clarification in the NIR that road transport equals total transport owing to the lack of a breakdown between the types of transport would fully resolve this issue.

IPPU

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
I.1	2. General (IPPU) – all gases (I.1, 2022) (I.11, 2020) Transparency	Include in the NIR an assessment of the completeness of categories and emissions estimated for the IPPU sector, with an explanation for each category and gas for which no emissions are estimated, for example by reporting relevant notation keys in NIR table 4.2.	Addressing. The Party reported in NIR table 4.2 (p.110) the status of the assessment of the completeness of emission categories and gases using the notation keys "NO" and "NE" with explanations. However, for some categories and gases, such as magnesium production (SF_6), electrical equipment (PFCs) and potential NF_3 emissions sources (e.g. fluorochemical production and the electronics industry), an assessment is not included in the table. In addition, the definition of "NE", "Not emitted during the specific industrial process", is different from that provided in the UNFCCC Annex I inventory reporting guidelines.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported an assessment of the completeness for all sources and gases for which methodologies are provided in the 2006 IPCC Guidelines, using the appropriate notation key in accordance with the UNFCCC Annex I inventory reporting guidelines (paras. 4(d) and 37).
I.2	2. General (IPPU) – HFCs, SF_6 and N_2O (I.3, 2022) (I.10, 2020) Transparency	Include in the NIR justification, and a description of the criteria used, for selecting countries for surrogate data for estimating HFC emissions for categories 2.F.2, 2.F.3, 2.F.4, 2.G.1 and 2.G.3.b.	Addressing. The Party reported that a country-specific methodology was used for estimating HFC emissions for categories 2.F.2, 2.F.3 and 2.F.4 and provided information on the methodology (NIR section 4.6.2, p.136). The stock emissions for 1990–2021 reported by Greece, Italy and Spain in their NIRs (2022 submissions) were used along with total population data for each country obtained from Eurostat (NIR table 4.19, p.138). The Party explained that the three above-mentioned countries were selected owing to their social and economic conditions being similar to those of Cyprus. The ERT considers that this selection is reasonable but that the NIR is missing the additional information on the specific criteria used to justify the choice (e.g. the economic indicators assessed, which would demonstrate the similarities of Cyprus with the chosen countries). During the review, the Party clarified that the mean temperature of those three countries and the contribution of tourism to their economies justified their selection and indicated that more information in this regard will be included in the next submission. For category 2.G.3.b, an average t N_2O/capita value for all EU member States reporting country-specific data for gas as AD was used to derive the N_2O country-specific EF (NIR section 4.7.3.1, p.145). The ERT noted that the previous selection of Greece, Italy and Spain for surrogate data for category 2.G.3.b emission estimation was extended to data from all EU member States, but there was no information on the

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
			selection for estimating the emissions for category 2.G.3.b. The ERT also noted that the methodology used for estimating emissions for category 2.G.1 reported in the NIR (section 4.7.1, p.144) has changed: tier 1 of the 2006 IPCC Guidelines is now used.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet included in its NIR information justifying the selection of countries from which proxy data are used in estimating HFC emissions for categories 2.F.2, 2.F.3 and 2.F.4 and in estimating N_2O emissions for category 2.G.3.b.
I.3	2.B.5 Carbide production – CO_2 (I.5, 2022) (I.14, 2020) Completeness	Explain in the NIR how imported calcium carbide is used in the country and through which processes CO_2 emissions are generated (e.g. acetylene production). Estimate any CO_2 emissions from calcium carbide use by applying the corresponding EF from the 2006 IPCC Guidelines (vol. 3, chap. 3) and report these emissions in the NIR and CRF tables.	Addressing. The Party reported in NIR section 4.3.1 (p.121) that carbide products are imported by a company that imports raw materials for mattresses and, therefore, carbides of calcium are not used for the production of acetylene. During the review, the Party provided the ERT with Customs and Excise Department data and Statistical Service data on the quantity of calcium carbide imported. Using these data and the tier 1 methodology of the 2006 IPCC Guidelines, the ERT calculated CO_2 emissions from calcium carbide use to be between 0.0011 t (2017) and 74.58 t (2004). They should thus be considered as insignificant in accordance with the UNFCCC Annex I inventory reporting guidelines.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported the emissions from use of imported calcium carbide correctly. The ERT considers that this issue will be resolved if the Party either reports the quantity of imported calcium carbide used in the country, as presented to the ERT during the review, or reports the emissions as insignificant. In the latter case, the CO_2 emissions should be reported as "NE" in CRF table 2(I).A-Hs1, with a quantitative assessment of the insignificance of the emissions included in the NIR and an explanation of the use of the notation key "NE" provided in CRF table 9.
I.4	2.D.1 Lubricant use – CO_2 (I.6, 2022) (I.15, 2020) Transparency	Revise the estimated CO_2 emissions from lubricant use by allocating lubricants used in two-stroke engines to the energy sector and all other lubricants to the IPPU sector in order to avoid double counting.	Resolved. The Party noted in its NIR (p.123) that CO_2 emissions from the use of lubricants in two-stroke engines are reported under category 1.A.3.b (NIR table 3.20) and emissions from the use of lubricants in other applications are reported under category 2.D.1 (NIR tables 4.14 and 3.33). The Party also reported the consumption of lubricants for non-energy product uses in NIR figure 4.7 (p.123). AD on lubricant use for category 1.A.3.b and emissions from the use of lubricants in two-stroke engines were calculated using COPERT 5.
			The ERT considers that the recommendation has been addressed (but see ID# I.10 in table 5 for a new recommendation on the methodology used for estimating emissions for this category).
I.5	2.F Product uses as substitutes for ozone-depleting substances – PFCs and NF_3 (I.9, 2022) (I.3, 2020)	Further examine whether PFC and NF_3 emissions from product uses as substitutes for ozone-depleting substances occur in the country and, as appropriate, report estimates	Addressing. The Party reported on the use of the notation key "NO" in CRF tables 2(I)s2 and 2(II) under category 2.F. However, the Party did not report notation keys or emissions from the following potential emissions sources noted in the 2006 IPCC Guidelines (vol. 3, chap. 7, table 7.1, p.7.8): PFC-14 (CF_4) and PFC-31-10 (C_4F_{10}) from fire protection (category 2.F.3) and PFC-51-144 (C_6F_{14}) from solvents (category 2.F.5)

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
	(I.15, 2019) (I.11, 2017) (I.19, 2016) (I.19, 2015) Convention reporting adherence	or report an appropriate notation key (i.e. "NO") in the corresponding CRF tables.	in CRF table 2(II). During the review, the Party clarified that based on its knowledge, activities related to the above sources/gases do not occur in Cyprus, but it will undertake an investigation and provide an update thereon in the next submission.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported emission estimates or notation keys for the above-mentioned potential emissions sources in CRF tables 2(II)B-Hs2 and 2(II) in accordance with the UNFCCC Annex I inventory reporting guidelines (paras. 4(d) and 37).
I.6	2.F.1 Refrigeration and air conditioning – HFCs (I.10, 2022) (I.4, 2020) (I.18, 2019) (I.12, 2017) (I.4, 2016) (I.4, 2015) (46, 2013) Transparency	Further examine whether emissions from manufacturing of refrigeration and air-conditioning equipment occur in the country and, as appropriate, report values or revise the use of the notation keys reported.	Addressing. The Party reported in CRF table 2(II)B-Hs2 emissions from the manufacturing of HFC-32, HFC-125, HFC-134a and HFC-143a for commercial refrigeration and HFC-125, HFC-134a and HFC-143a for industrial refrigeration. The Party also reported emissions from the manufacturing of the following sources as "NO": HFC-125, HFC-134a and HFC-143a for domestic refrigeration and transport refrigeration; HFC-134a for mobile air conditioning; and HFC-32, HFC-125 and HFC-134a for stationary air conditioning. However, the Party stated in NIR section 4.6.1 (p.127) that the manufacturing of refrigeration and air-conditioning equipment does not occur in Cyprus, a statement which, the ERT noted, is not consistent with the reporting in CRF table 2(II)B-Hs2. During the review, the Party clarified that emissions for categories 2.F.1.a commercial refrigeration and 2.F.1.c industrial refrigeration from filling large refrigeration units assembled on site (in the country) were reported as emissions from manufacturing. The ERT noted that the Party appropriately reported the emissions as "NO" in CRF table 2(II)B-Hs2.
			The ERT considers that the original completeness issue has been resolved, but the transparency issue has not yet been fully addressed because the Party has not yet included the information provided during the review (i.e. that emissions for categories 2.F.1.a commercial refrigeration and 2.F.1.c industrial refrigeration from large refrigeration units assembled in the country are reported as emissions from the manufacturing of refrigeration and air-conditioning equipment) in its NIR.
I.7	2.G Other product manufacture and use – N_2O and SF_6 (I.12, 2022) (I.18, 2020) Transparency	Include in NIR tables 4.26–4.28 N_2O and SF_6 emission estimates and AD for the latest years of the time series.	Addressing. The Party reported SF_6 emissions from electrical equipment (category 2.G.1) in NIR table 4.26 (p.144) and N_2O emissions from product use in NIR table 4.27 (p.146) for the entire time series; however, the AD were not reported. In addition, the Party reported a summary for category 2.G, including emissions by subcategory, in NIR table 4.25 (p.143) for 1990, 2000, 2005 and 2010–2021, but data for 1995 were missing. During the review, the Party clarified that the nameplate SF_6 capacity of equipment at each life cycle stage was used as AD for estimating emissions for category 2.G.1, but the necessary AD were not available to estimate emissions for categories 2.G.3.a and 2.G.3.b in accordance with the 2006 IPCC Guidelines.
			The ERT considers that the recommendation has not yet been fully addressed because the Party has not yet reported AD for 2021 (the latest year of the time series) for category 2.G.1 and NIR table 4.25 does not include emissions for 1995 in accordance with the UNFCCC Annex I inventory reporting guidelines (para. 48).

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
Agriculture		No issues remain unresolved at the end of the 2022 annual review.	

LULUCF

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
L.1	4. General (LULUCF) (L.1, 2022) (L.1, 2020) (L.3, 2019) (L.3, 2017) (L.3, 2016) (L.3, 2015) (74, 2013) Accuracy	Report the areas converted to a different land use under the relevant land-use conversion category for 20 consecutive years before reporting them under the corresponding land remaining category.	Resolved. The Party reported in NIR section 6.1.1 (p.186) that the 2006 IPCC Guidelines default 20-year transition period was applied for all land-use categories, which was confirmed by the ERT. In particular, the Party ensured that the final area reported for year t – 1 in CRF table 4.1 equals the initial area reported for year t in CRF table 4.1 for the same land-use category, and that the total area reported in the CRF background tables 4.A–4.F equals the final area reported in CRF table 4.1 for the same land-use category and year.
L.2	4. General (LULUCF) – CO_2, CH_4 and N_2O (L.3, 2022) (L.3, 2020) (L.7, 2019) (L.7, 2017) (L.8, 2016) (L.8, 2015) (79, 2013) Comparability	Report "NO" for any category, pool and/or gas for which there is information confirming that it does not occur, and provide such information in the NIR, and report "NE" for categories, pools and/or gases for which there is no information on emissions or removals or for which net emissions or removals are negligible.	Resolved. The Party reported in its NIR all categories covered in CRF tables 4.A–4.F, 4(III), 4(IV), 4(V) and 4.Gs1–4.Gs2 and the approach for estimating emissions and removals (pp.195, 202, 207, 212, 213, 215, 216, 219 and 222). Its use of notation keys, where applicable, was consistent and it provided the required information on notation keys in CRF table 9. The ERT noted that information on the notation key "NO" reported in CRF tables 4(I)–4(IV) for direct and indirect N_2O emissions from managed soils, for emissions and removals from drainage and rewetting and other management of organic and mineral soils (CO_2, N_2O and CH_4), and for N_2O emissions from N mineralization/immobilization associated with loss/gain of soil organic matter was included by the Party in the NIR (section 5.5.1, p.168) for the agriculture sector.

During the review, in relation to CRF table 4(II), the Party referred to the statement in NIR section 6.2.4 (p.195) that the whole country consists of mineral soils, which means that there is no organic soil. The ERT noted that CRF table 4(II) refers to both organic and mineral soils. With regard to CRF table 4(III), the Party referred to the statement in NIR section 6.3.4 (p.203) that direct N_2O emissions from N mineralization were estimated using a tier 1 method consistent with the 2006 IPCC Guidelines, and that use of the notation key "NO" was justified in CRF table 4(III). The ERT notes that use of the notation key "NA" would be appropriate for cases in CRF table 4(III) in which changes in the SOC pool occur but the changes are positive (i.e. gain of soil organic matter) and thus there is no associated N mineralization.

The ERT considers that the recommendation has been addressed because the Party has provided information on all uses of the notation key "NO" in the NIR. |
| L.3 | 4. General (LULUCF) – CO_2, CH_4 and N_2O (L.4, 2022) (L.4, 2020) (L.9, 2019) (L.9, 2017) (L.10, 2016) (L.10, 2015) (79, 2013) Completeness | Report all mandatory carbon pools. | Resolved. The Party reported in CRF tables 4.A–4(V) all mandatory carbon pools using either concrete values or appropriate notation keys, as applicable. |

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
L.4	4.A Forest land – CO$_2$ (L.5, 2022) (L.6, 2020) (L.19, 2019) Convention reporting adherence	Revise the reporting of the area of settlements converted to forest land and ensure consistency among the areas reported in the NIR, CRF table 4.1 and CRF table 4.A.	Resolved. The Party reported land use and land-use change areas consistently throughout CRF tables 4.1 and 4.A–4.F. The converted areas in CRF table 4.1 represent the area that changed across land-use categories from one year to another, while in CRF table 4.A, the area reported under "land converted to" is the cumulative area in transition over 20 years. The ERT noted that the information included in NIR tables 6.4–6.5 on the area of settlements converted to forest land is consistent with the data reported in CRF table 4.A.
L.5	4.A Forest land – CO$_2$, CH$_4$ and N$_2$O (L.6, 2022) (L.12, 2020) Transparency	Include in the next submission AD for forest fires and any other coefficients and parameters used in calculating forest fire emissions.	Resolved. The Party included in NIR section 6.2.4 (p.195) all relevant parameters and reported in CRF table 4(V) the AD used to estimate emissions from forest fires.
L.6	4.B.1 Cropland remaining cropland – CO$_2$ (L.7, 2022) (L.14, 2020) Accuracy	Assume that the growth and harvest of orchards in the country cancel each other out and therefore carbon stocks for living biomass are in equilibrium, and report "NA" in CRF table 4.B.	Resolved. The Party reported the carbon gains in living biomass from woody cropland in CRF table 4.B. The 2006 IPCC Guidelines default values for above-ground biomass carbon stock and increment were used to determine the carbon gains, as reported in NIR section 6.3.4 (p.202). During the review, the Party clarified that the updating of its GHG inventory improvement plan is ongoing. Needs are identified and priorities are set by considering the status of the inventory and taking into consideration the requirements stemming from the EU regulation for the LULUCF inventory (regulation 2023/839). The Party informed the ERT that it will include a statement reflecting this in its next submission, along with the expected time frame for evaluation of the above-mentioned issue. Consideration of the above-ground biomass carbon pool and application of the tier 2 methodology for the cropland remaining cropland category is a high priority.
			The ERT considers that the recommendation has been addressed because, although the Party provided emissions in CRF table 4.B estimated using the tier 1 methodology, it informed the ERT of its intention to apply a higher-tier methodology (see ID# L.13 in table 5 for a new recommendation on woody cropland remaining woody cropland).
L.7	4.B.1 Cropland remaining cropland – CO$_2$ (L.8, 2022) (L.15, 2020) Convention reporting adherence	Correct the errors in NIR table 6.9 (p.193).	Resolved. The Party reported in NIR section 6.3.3 (p.201) the correct values for areas of land remaining in the same land-use subcategory (woody cropland remaining woody cropland) and for areas of land converted to woody cropland from other land-use subcategories.
L.8	4.C.1 Grassland remaining grassland – CO$_2$ (L.9, 2022) (L.16, 2020) Accuracy	Assume that the growth and harvest of woody grassland in the country cancel each other out and therefore carbon stocks for living biomass are in equilibrium, and report "NA" in CRF table 4.C.	Resolved. The Party reported in NIR section 6.4.4 (p.207) that a country-specific net annual increment value was applied to estimate carbon stock changes in living biomass on woody grassland, resulting in a small positive net carbon stock change in living biomass, as reported in CRF table 4. Similar to ID# L.6 above, the Party informed the ERT of its intention to apply a higher methodological tier for woody grassland.

ID#	Issue/problem classification[a, b]	Recommendation from previous review report	ERT assessment and rationale
L.9	4.D.2.2 Land converted to flooded land – CO_2 (L.11, 2022) (L.17, 2020) Accuracy	Report only emissions for newly constructed dams and flooded mines and construction sites, attributable to instantaneous oxidation of biomass for the year of conversion.	Resolved. The Party reported emissions for this category as "NE" in CRF table 4.D and provided relevant information in its NIR (p.213) and in CRF table 9.
L.10	4(V) Biomass burning – CO_2, CH_4 and N_2O (L.13, 2022) (L.9, 2020) (L.16, 2019) (L.10, 2017) (L.12, 2016) (L.12, 2015) (81, 2013) Completeness	Provide the missing estimates of emissions from forest fires for land converted to forest land for 2011.	Resolved. The Party reported in NIR section 6.2.4 (p.195) that all emissions from forest fires are included in forest land remaining forest land, including for land converted to forest land for 2011.
Waste			
W.1	5.C.1 Waste incineration – CO_2, CH_4 and N_2O (W.2, 2022) (W.5, 2020) (W.14, 2019) Completeness	Estimate and report emissions from waste incineration without energy recovery.	Not resolved. The Party did not estimate and report emissions from waste incineration without energy recovery for 2004–2014 as discussed in the previous reviews and continues to report the notation key "NO" across the time series. During the review, the Party clarified that this recommendation will be addressed in the next submission using AD from Eurostat.
W.2	5.D Wastewater treatment and discharge – CH_4 (W.3, 2022) (W.6, 2020) (W.10, 2019) (W.9, 2017) Accuracy	Provide information in the NIR, under category-specific planned improvements, on whether any plans are in place to move to higher-tier methods as this category has been identified as key.	Not resolved. The NIR does not provide information on whether plans are in place to move to a higher-tier method for estimating CH_4 emissions from wastewater treatment and discharge. During the review, the Party informed the ERT that it is in contact with the appropriate authorities that may enable it to address this recommendation for future submissions.
W.3	5.D.1 Domestic wastewater – CH_4 and N_2O (W.4, 2022) (W.7, 2020) (W.11, 2019) (W.10, 2017) Accuracy	Account for the component of organic material and N removed as sludge, because it is reported that there are good data sources for sludge in Cyprus, and explain any recalculations for categories 5.D.1 and 3.D.1.a.2.b resulting from this change.	Not resolved. There were no recalculations for the category since the last reviewed inventory and there is no clear information in the NIR (see e.g. the table on p.377) regarding accounting for the component of organic material and N removed as sludge or recalculations resulting from this change. During the review, the Party confirmed that the component of organic material and N removed as sludge were not accounted for in this submission and clarified that it used the default value of zero for organic material removed as sludge, in accordance with the 2006 IPCC Guidelines (vol. 5, chap. 6.2.1). The Party informed the ERT that it plans to address this recommendation in its next submission.

[a] References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) in which the issue or problem was raised. Issues are identified in accordance with paras. 80–83 of the UNFCCC review guidelines and classified as per para. 81 of the same guidelines. Problems are identified and classified as problems of transparency, accuracy, consistency, completeness or comparability in accordance with para. 69 of the Article 8 review guidelines in conjunction with decision 4/CMP.11.

[b] Reports on the reviews of the 2014, 2018 and 2021 annual submissions of Cyprus were not available at the time of this review. Therefore, 2018 and 2021 are excluded from the list of review years in which issues could have been identified.

IV. Issues and problems identified in three or more successive reviews and not addressed by the Party

8. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues and/or problems included in table 4 have been identified in three or more successive reviews, including the review of the 2023 inventory submission of Cyprus, and had not been addressed by the Party by the time of publication of this review report.

Table 4
Issues and/or problems identified in three or more successive reviews and not addressed by Cyprus

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
General		
G.1	Provide relevant explanations in CRF table 9, specifically for all cases of the notation key "NE" being reported and for sources reported as "IE" (e.g. indirect emissions from agricultural soils).	7 (2013–2023)
Energy		
E.1	Revise the estimates of CO_2, CH_4 and N_2O emissions from solid biomass in 2017 on the basis of the correct AD and report the impact of the correction in the NIR.	3 (2020–2023)
E.2	Correct the estimates of N_2O emissions from diesel consumption by light-duty trucks for 1990–1999.	4 (2019–2023)
E.3	Report in the NIR on any progress achieved in improving the consistency of the time series.	6 (2015/2016–2023)
IPPU		
I.1	Include in the NIR an assessment of the completeness of categories and emissions estimated for the IPPU sector, with an explanation for each category and gas for which no emissions are estimated, for example by reporting relevant notation keys in NIR table 4.2.	3 (2020–2023)
I.2	Include in the NIR justification, and a description of the criteria used, for selecting countries for surrogate data for estimating HFC emissions for categories 2.F.2, 2.F.3, 2.F.4, 2.G.1 and 2.G.3.b.	3 (2020–2023)
I.3	Explain in the NIR how imported calcium carbide is used in the country and through which processes CO_2 emissions are generated (e.g. acetylene production).	3 (2020–2023)
	Estimate any CO_2 emissions from calcium carbide use by applying the corresponding EF from the 2006 IPCC Guidelines (vol. 3, chap. 3) and report these emissions in the NIR and CRF tables.	
I.5	Further examine whether PFC and NF_3 emissions from product uses as substitutes for ozone-depleting substances occur in the country and, as appropriate, report estimates or report an appropriate notation key (i.e. "NO") in the corresponding CRF tables.	6 (2015/2016–2023)
I.6	Further examine whether emissions from manufacturing of refrigeration and air-conditioning equipment occur in the country and, as appropriate, report values or revise the use of the notation keys reported.	7 (2013–2023)

ID#	Previous recommendation for issue	Number of successive reviews issue not addressed[a]
I.7	Include in NIR tables 4.26–4.28 N_2O and SF_6 emission estimates and AD for the latest years of the time series.	3 (2020–2023)
Agriculture	No issues identified.	
LULUCF	No issues identified.	
Waste		
W.1	Estimate and report emissions from waste incineration without energy recovery.	4 (2019–2023)
W.2	Provide information in the NIR, under category-specific planned improvements, on whether any plans are in place to move to higher-tier methods as this category has been identified as key.	5 (2017–2023)
W.3	Account for the component of organic material and N removed as sludge, because it is reported that there are good data sources for sludge in Cyprus, and explain any recalculations for categories 5.D.1 and 3.D.1.a.2.b resulting from this change.	5 (2017–2023)

[a] Reports on the reviews of the 2014, 2018 and 2021 annual submissions of Cyprus have not yet been published. Therefore, 2014, 2018 and 2021 were not included when counting the number of successive years for this table. In addition, as the reviews of the Party's 2015 and 2016 annual submissions were conducted together, they are not considered successive reviews and 2015/2016 is counted as one year.

V. Additional findings made during the individual review of the Party's 2023 inventory submission

9. Table 5 presents findings made by the ERT during the individual review of the 2023 inventory submission of Cyprus that are additional to those identified in table 3.

Table 5
Additional findings made during the individual review of the 2023 inventory submission of Cyprus

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
General		No general findings additional to those included in table 3 were made by the ERT during the review.	
Energy			
E.4	1.A Fuel combustion – sectoral approach – biomass and other fossil fuels – CO_2, CH_4 and N_2O	The Party noted in the NIR (section 3.2) that biodiesel consumption was reported for the first time with data included for 2020 and 2021. The ERT noted that both fossil and biogenic emissions from biodiesel were calculated using the sectoral approach for the "biomass" and "other fossil fuels" categories in the CRF tables. However, the methodology for splitting the biodiesel AD between the fossil and biogenic components was not clearly reported in the NIR. The ERT also noted that, where the Party included AD in the "other fossil fuels" category in the sectoral approach energy CRF tables, the accompanying notes did not specify the cases in which the AD relate to the fossil component of biodiesel.	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		During the review, the Party clarified that it assessed the origin of all biofuels used in the country in order to separate fossil and biogenic feedstocks in line with the 2006 IPCC Guidelines. The fuels used to replace biodiesel include HVO and FAME. Cyprus noted that HVO is produced through hydrotreatment of triglyceride-containing feedstocks (vegetable oil and animal fat) and is therefore 100 per cent biogenic, whereas FAME is produced by reacting animal fats with methanol and therefore contains components of both biogenic (animal fats) and fossil (methanol) origin. The Party also noted that it uses country-specific information where available to determine the HVO and FAME quantities and the total carbon content of FAME, and to separate the biogenic and fossil carbon components of FAME.	
		The ERT recommends that Cyprus provide in its next submission (1) information on the method used to split the biofuel AD between fossil and biogenic components, which could be achieved by including the document provided to the ERT during the review, "Note on fossil carbon content in fuels", in the submission and referring to it in each section of the NIR in which the use of biofuels is described, and (2) updated notes in the sectoral approach energy CRF tables in which the "other fossil fuels" category has been used for biofuels clearly indicating that the AD relate to the fossil component of biofuels.	
E.5	1.A Fuel combustion – sectoral approach – biomass and other fossil fuels – CO_2	The Party noted in the NIR (section 3.2) that biodiesel consumption was reported for the first time with data included for 2020 and 2021. The ERT noted that the emissions from biodiesel were calculated for both the fossil and biogenic components using the "biomass" and "other fossil fuels" categories in the CRF tables. The ERT also noted that some categories in CRF table 1.A(a) (sheets 2–3) for 2020 and 2021 appear to primarily relate to biodiesel, but have CO_2 IEF values that are outside the range of values for biodiesel provided in the 2006 IPCC Guidelines (70.8–84.3 t CO_2/TJ). For category 1.A.2.g.i manufacturing of machinery, for 2021 the IEF for "other fossil fuels" is 25.14 t CO_2/TJ and for "biomass" is 53.10 t CO_2/TJ, while for 2020 the IEF for "other fossil fuels" is 42.15 t CO_2/TJ and for "biomass" is 89.02 t CO_2/TJ. For category 1.A.2.g.iii mining (excluding fuels) and quarrying, for 2021 the IEF for "other fossil fuels" is 22.47 t CO_2/TJ and for "biomass" is 47.46 t CO_2/TJ, while for 2020 the IEF for "other fossil fuels" is 13.44 t CO_2/TJ and for "biomass" is 28.38 t CO_2/TJ. For category 1.A.2.g.iv wood and wood products, for 2021 the IEF for "other fossil fuels" is 5,505.51 t CO_2/TJ and for "biomass" is 11,627.91 t CO_2/TJ, while for 2020 the IEF for "other fossil fuels" is 4,004.00 t CO_2/TJ and for "biomass" is 8,456.66 t CO_2/TJ. For category 1.A.2.g.vi textile and leather, for 2021 there are no data, while for 2020 the IEF for "other fossil fuels" is 4,004.00 t CO_2/TJ and for "biomass" is 8,456.66 t CO_2/TJ. For category 1.A.3.d domestic navigation, for 2021 the IEF for "biomass" is 155.04 t CO_2/TJ and for 2020 the IEF for "biomass" is 248.73 t CO_2/TJ.	Yes. Accuracy
		During the review, the Party clarified that incorrect IEF values were used, leading to an overestimation of emissions, and indicated that it will correct both the CO_2 IEFs and the emissions for the next submission. The Party noted that it calculated CO_2 emissions from biodiesel using a carbon content factor that it determined on the basis of the composition of FAME in Cyprus (for which the carbon content factor is 76.5 per cent, with the fossil component of the carbon content being 5.4 per cent).	
		The ERT recommends that Cyprus update the CO_2 IEF values used to estimate CO_2 emissions from biodiesel for 2020 and 2021 in CRF table 1.A(a) (sheets 2–3) and include the related information in the next NIR.	
E.6	1.A.2.d Pulp, paper and print – biomass and other fossil fuels – CH_4	The Party noted in the NIR (section 3.2) that biodiesel consumption was reported for the first time with data included for 2020 and 2021, and that CH_4 emissions were calculated using the EFs provided in the 2006 IPCC Guidelines. The ERT noted that the emissions from biodiesel were calculated using the sectoral approach for the "biomass" and "other fossil fuels" categories in the CRF tables. The ERT also noted that category 1.A.2.d pulp,	Yes. Accuracy

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		paper and print in CRF table 1.A(a) (sheet 2) appears to primarily relate to biodiesel, but has a CH_4 IEF value (0.22 kg CH_4/TJ) that is below the lower limit for biodiesel provided in the 2006 IPCC Guidelines (1 kg CH_4/TJ).	
		During the review, the Party clarified that an incorrect IEF value was used, and that, while the impact of this on the emissions is insignificant, it will be corrected for the next submission.	
		The ERT recommends that Cyprus update the CH_4 IEF value used to estimate CH_4 emissions from biodiesel for category 1.A.2.d pulp, paper and print in CRF table 1.A(a) (sheet 2) for 2020 and 2021 in line with the 2006 IPCC Guidelines and include the related information in the next NIR.	
E.7	1.A Fuel combustion – sectoral approach – biomass and other fossil fuels – CH_4 and N_2O	The Party noted in NIR (section 3.2) that biodiesel consumption was reported for the first time with data included for 2020 and 2021, and that CH_4 and N_2O emissions were calculated using the EFs provided in the 2006 IPCC Guidelines. The ERT noted that the emissions from biodiesel were calculated using the sectoral approach for the "biomass" and "other fossil fuels" categories in the CRF tables. The ERT also noted that the CH_4 and N_2O EF values reported for biodiesel in the NIR (3.8 kg CH_4/TJ and 5.7 kg N_2O/TJ) appear to correspond to the EF values provided for motor gasoline (mobile combustion) in the 2006 IPCC Guidelines (vol. 2, chap. 3, table 3.2.2, p.21) and that these EF values appear to have been used in CRF table 1.A(a) (sheet 2) for 2020 and 2021 for the stationary combustion categories 1.A.2.b non-ferrous metals, 1.A.2.c chemicals, 1.A.2.d pulp, paper and print, 1.A.2.e food processing, beverages and tobacco, 1.A.2.f non-metallic minerals, 1.A.2.g.i manufacturing of machinery, 1.A.2.g.ii manufacturing of transport equipment, 1.A.2.g.iii mining (excluding fuels) and quarrying, 1.A.2.g.iv wood and wood products, 1.A.2.g.vi textile and leather and 1.A.2.g.viii other and in CRF table 1.A(a) (sheet 3) for 2020 and 2021 for the mobile combustion categories 1.A.3.b road transportation and 1.A.3.d domestic navigation.	Yes. Accuracy
		During the review, the Party clarified that motor gasoline (mobile combustion) EF values were used to calculate CH_4 and N_2O emissions for biodiesel in CRF table 1.A(a) (sheets 2–3) for 2020 and 2021, instead of those corresponding to biodiesel, leading to an overestimation of emissions. The Party indicated that it will correct both the EFs and the emissions for the next submission.	
		The ERT recommends that Cyprus update the CH_4 and N_2O EF values used to estimate CH_4 and N_2O emissions from biodiesel in CRF table 1.A(a) (sheets 2–3) for 2020 and 2021 so that they are in line with the relevant stationary or mobile combustion values specified in the 2006 IPCC Guidelines and include in its next NIR the relevant information, specifying, at the least, the source of the EF values (e.g. the relevant table in 2006 IPCC Guidelines) and, where there is no default value available for biodiesel, the fuel type that was used as a substitute.	
E.8	1.A.2.a Iron and steel – all fuels – CO_2, CH_4 and N_2O	The Party reported in its NIR that emissions for subcategory 1.A.2.a iron and steel are included under category 1.A.2.b non-ferrous metals for 1990–2018 and under category 1.A.2.a iron and steel for 2019–2021. The ERT noted that this is not in accordance with the UNFCCC Annex I inventory reporting guidelines, which state that recalculations should ensure the consistency of the time series and shall be carried out to improve accuracy and/or completeness. The ERT also noted that, for 2019, the Party reported emissions in NIR table 3.3 (p.64) as "IE", which is inconsistent with what the Party reported them as in CRF table 1.A(a) (sheet 2) (i.e. values were provided).	Yes. Consistency
		During the review, the Party clarified that separate data for subcategories 1.A.2.a and 1.A.2.b for 1990–2018 are not available; however, an analysis could be undertaken to establish the share of each subcategory in the total and emissions recalculated separately using these shares and the trend.	

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		The ERT recommends that Cyprus select an appropriate approach from the 2006 IPCC Guidelines by which to recalculate the emissions for subcategory 1.A.2.a iron and steel separately from those for subcategory 1.A.2.b non-ferrous metals for the historical years for which no separate AD are available and include the relevant information in its next NIR.	
E.9	1.A.2.g Other (manufacturing industries and construction) – liquid fuels – CO_2, CH_4 and N_2O	The NIR contains no clear information regarding the recalculations made between the 2022 and 2023 submissions for category 1.A.2 manufacturing industries and construction for 1990–2004.	Yes. Transparency
		During the review, the Party clarified that the recalculations were made owing to the correction of an error detected after the 2022 submission in the diesel consumption AD for subcategory 1.A.2.g.iii mining (excluding fuels) and quarrying for 1990–2004. The Party informed the ERT that the impact of this error is significant only for emissions from diesel consumption for this subcategory and that the recalculations will be described in the next NIR.	
		The ERT recommends that Cyprus explain the rationale and impact of the recalculations for subcategory 1.A.2.g.iii mining (excluding fuels) and quarrying for 1990–2004 in its next NIR.	
E.10	1.A.3.a Domestic aviation – liquid fuels – CO_2	Cyprus identified category 1.A.3.a domestic (civil) aviation (CO_2 emissions) as a key category in terms of trend in the 2021 inventory. The emissions were calculated using a tier 1 method. The ERT noted that this is not in accordance with the 2006 IPCC Guidelines, which require a higher-tier method to be used for key categories. In the NIR (p.81), the Party stated that it is currently not possible to move to a higher-tier method for this category but that the situation will be assessed again for future submissions.	Yes. Accuracy
		During the review, the Party clarified that these emissions were calculated using EUROCONTROL data and that no other detailed data were available.	
		The ERT recommends that Cyprus make further efforts to estimate CO_2 emissions for category 1.A.3.a domestic (civil) aviation, which is a key category, using a tier 2 method, noting that EUROCONTROL data should allow the use of a higher-tier method than the tier 1 method currently applied by the Party.	
E.11	1.A.3.b Road transportation – diesel oil – CO_2, N_2O and CH_4	The Party recalculated CO_2, N_2O and CH_4 emissions from diesel for the transport sector for categories 1.A.3.b.i cars, 1.A.3.b.ii light-duty trucks and 1.A.3.b.iii heavy-duty trucks and buses for 1990–2021. The ERT noted that, for 1994, the CH_4 emissions reported in the 2023 NIR were 55.5 per cent lower than those reported in the 2022 NIR. Furthermore, there is no explanation in the NIR (e.g. in section 3.2 and chap. 10) of why the recalculations were made. This is not in accordance with the 2006 IPCC Guidelines (vol. 1, chap. 5.2.1) and the UNFCCC Annex I inventory reporting guidelines (para. 17), according to which Parties need to provide transparent explanations regarding recalculations and their impact on GHG emissions. The ERT noted that this is especially relevant to category 1.A.3.b road transportation, which is a key category.	Yes. Transparency
		During the review, the Party clarified that it continually refines and corrects errors in AD it receives from diverse sources for COPERT in order to derive the vehicle fleets and as a result there are differences in the emissions between the inventories. The Party agreed that this whole process and the reason for the recalculations can be explained in the NIR.	
		The ERT recommends that Cyprus provide a detailed explanation for the recalculations made for CO_2, N_2O and CH_4 emissions from diesel for the transport sector for 1990–2021, following the guidance in the 2006 IPCC Guidelines (vol. 1, chap. 5.2.1) and the UNFCCC Annex I inventory reporting guidelines (para. 17) in its next NIR.	

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
E.12	1.B.2.a Oil – liquid fuels – CO_2 and CH_4	In response to an encouragement in the previous review report (FCCC/ARR/2022/CYP, ID# E.11), the Party reported the total amount of liquid fuels distributed in Cyprus using data derived directly from national statistics. While the Party reported CO_2 and CH_4 emissions for this category as "NE" in CRF table 1.B.2, an explanation for the use of this notation key was missing in CRF table 9. In addition, the Party entered "NE" in the cells for unit of measurement (CRF table 1.B.2, cell C14) but indicated in the description column that the unit is TJ. The ERT noted that the 2006 IPCC Guidelines (vol. 2, chap. 4, table 4.2.4) recommend "NA" be used for activities under a given category that occur within the country but that do not result in emissions or removals and for activities for which the 2006 IPCC Guidelines or its supplements do not provide an estimation method and an EF for the particular category and gas combination.	Not an issue/problem
		During the review, the Party clarified that the unit of measurement for the reported amount of distributed liquid fuels in Cyprus is TJ for the whole time series, and indicated that it will be corrected in the next submission.	
		The ERT encourages Cyprus to report CO_2 and CH_4 emissions for this category as "NA" rather than "NE" and to provide the correct unit of measurement for liquid fuels distributed (i.e. TJ rather than "NE") in CRF table 1.B.2.	
E.13	1.B.2.a Oil – and 1.B.2.b Natural gas – CO_2, CH_4 and N_2O	The Party reported in NIR section 3.2.3.2 (p.70) that oil and gas extraction has taken place since 2020; however, in section 3.3 (p.100) the Party stated that no primary production of fuels or processing takes place in Cyprus and therefore "NO" was reported for categories 1.B.2.a oil and 1.B.2.b natural gas under "Exploration" and "Production" in CRF table 1.B.2 across the entire time series. The ERT noted that this is not in accordance with the 2006 IPCC Guidelines (vol. 2, chap. 4), because all exploration or extraction activities have associated fugitive emissions, and because the 2006 IPCC Guidelines (vol. 1, chap. 8, table 8.1) state that "NO" indicates that an activity or process does not occur within a country.	Yes. Completeness
		During the review, the Party clarified that oil and gas extraction activities took place in 2020 for research purposes, not for production. Further, the activities were interrupted owing to the coronavirus disease 2019 pandemic and the price of natural gas. In 2021, no oil and gas extraction activities took place. There is a preliminary plan to commence activities for production in the future.	
		The ERT recommends that Cyprus report emissions from exploration as "NE" rather than "NO" in CRF table 1.B.2 for categories 1.B.2.a oil and 1.B.2.b natural gas if the emissions for both categories do not exceed the thresholds for the use of "NE" as per paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines, or estimate the emissions using tier 1 EFs. As the 2006 IPCC Guidelines (vol. 2, chap. 4) provide exploration EFs only for countries with production in place (the unit refers to the amount of oil or gas produced), the ERT recommends that the Party use EFs from either the 2019 Refinement to the 2006 IPCC Guidelines (tables 4.2.4 and 4.2.4f) or the IPCC good practice guidance (chap. 2, table 2.16), both of which have units that refer to the number of wells drilled.	
IPPU			
I.8	2.A.1 Cement production – CO_2	The ERT noted that the IEF for estimating CO_2 emitted from cement production decreased by 2.6 per cent between 2017 and 2020 (from 0.535 to 0.521 t/t) but the NIR does not contain an explanation for this decrease.	Yes. Transparency
		During the review, the Party clarified that the data submitted by cement production plants to fulfil national reporting obligations under the EU ETS are used in the preparation of the GHG inventory and that an explanation for this	

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		change is not available in the EU ETS reports. The Party indicated that further investigation of the issue is needed, through communication with the plants, and that an explanation for the trend will be provided in the next NIR.	
		The ERT recommends that Cyprus provide in its next NIR a clear description of the country-specific methodology applied to estimating CO_2 emissions for this category and an explanation for the variation in the CO_2 IEF for cement production between 2017 and 2020.	
I.9	2.A.4 Other process uses of carbonates – CO_2	The ERT noted that the IEF for estimating CO_2 emitted from ceramics production decreased by 62 per cent between 2003 and 2021 (from 0.160 to 0.061 t/t). In addition, the ERT noted that ceramics production increased by 12.0 per cent between 2020 and 2021, while emissions decreased by 15.5 per cent over the same period. The Party did not include an explanation for either trend in the NIR.	Yes. Transparency
		During the review, the Party clarified that the data submitted by ceramics installations to fulfil national reporting obligations under the EU ETS are used in the preparation of the GHG inventory and that an explanation for these changes is not available in the EU ETS reports. The Party indicated that further investigation of the issue is needed, through communication with the installations, and that explanations for the trends will be provided in the next NIR.	
		The ERT recommends that Cyprus provide in its next NIR a clear description of the country-specific methodology applied to estimating CO_2 emissions for this category and an explanation for the variation in the CO_2 IEF for ceramics production between 2003 and 2021 as well as for the inconsistency between production AD and emissions between 2020 and 2021.	
I.10	2.D.1 Lubricant use – CO_2	The Party reported in NIR section 4.4.5 (p.125) that emissions of CO_2 from lubricant use were recalculated for the whole time series owing to a change in methodology. However, the NIR does not include details on how the methodology has changed.	Yes. Transparency
		During the review, the Party clarified that emissions from the use of lubricants in engines were newly calculated using COPERT 5 and reported under category 1.A.3.b. The Party explained that, for its previous submissions, CO_2 emissions from lubricants were estimated using a tier 1 method (2006 IPCC Guidelines, vol. 3, equation 5.2, p.5.7). However, the ERT noted that, in the 2022 NIR (section 3.2.5.2, p.89), the Party already reported that emissions from lubricants combusted in two-stroke engines were calculated using COPERT 5 and reported under category 1.A.3.b. The ERT also noted that emissions for this category reported in the 2023 NIR were higher for all years than those reported in the 2022 NIR. This is not consistent with the explanation provided by the Party during the review, as exclusion of the consumption of some lubricants (those used in two-stroke engines) from the AD used to calculate emissions for category 1.A.3.b would result in lower reported emissions for category 2.D.1. The ERT further noted that the methodology applied to calculate emissions from the non-energy use of lubricants for the IPPU sector is not described in the NIR. The ERT considers that recalculations made for this category have not been clearly explained in a manner consistent with the UNFCCC Annex I inventory reporting guidelines (paras. 43–45).	
		The ERT recommends that Cyprus provide in its next NIR details on the methodology used for the estimation of CO_2 emissions from lubricant use, along with a clear explanation of the reasons for any recalculations made.	
I.11	2.G.1 Electrical equipment – SF_6	The Party reported in CRF table 2(II).B-H SF_6 emissions for category 2.G.1 electrical equipment. The ERT noted that the Party reported SF_6 emissions from operating systems, but did not report disposal emissions from retired units, except for 2018, and used the notation key "NO" for the rest of the time series.	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	*Is finding an issue/problem?[a]*
		During the review, the Party clarified that, in Cyprus, SF_6 is used in equipment across all voltage ranges in both the distribution and the transmission systems owned by the Electricity Authority of Cyprus networks. According to the latest data from the Authority, the disposal of equipment containing SF_6 occurred only in 2018 (amounting to 0.04 t SF_6). Emissions from this disposal in 2018 were estimated to be 0.893 kt CO_2 eq. The ERT considers that the clarification provided by the Party is reliable.	
		The ERT recommends that Cyprus provide in its next NIR information on the SF_6 emissions from the disposal of retired electrical equipment as provided to the ERT during the review.	
Agriculture			
A.1	3.A Enteric fermentation – CH_4	The Party identified as key categories CH_4 emissions from enteric fermentation associated with non-dairy cattle and sheep (NIR p.48 and annex 1) and reported that the emissions for these categories were estimated using a tier 1 method (NIR pp.41 and 153). The ERT noted that, in accordance with the UNFCCC Annex I inventory reporting guidelines, higher-tier methods should be used for key categories.	Yes. Accuracy
		During the review, Cyprus explained that the data necessary to implement a tier 2 method were not available. The Party informed the ERT that an update of the methodological tier for non-dairy cattle is planned to be implemented but that an improvement to the characterization of sheep is currently unfeasible and that a higher-tier method will be implemented for this category depending on data availability.	
		The ERT recommends that Cyprus enhance its data collection in order to obtain the data necessary to apply a tier 2 method for estimating CH_4 emissions from enteric fermentation of non-dairy cattle and of sheep, which are key categories, or, if it is unable to do this, explain in its next NIR why it was unable to implement the recommended method in accordance with the decision trees in the 2006 IPCC Guidelines.	
A.2	3.D.a.2.c Other organic fertilizers applied to soils – N_2O	The Party reported that, for subcategory 3.D.a.2.c other organic fertilizers applied to soils, data on composting were first collected in 2010 (NIR p.171). The ERT noted that the Party reported N application to soils from composting for 2010 onward, while reporting "NO" for previous years of the time series without justifying the notation key used.	Yes. Transparency
		During the review, the Party confirmed that composting started in 2010 in specific municipal waste management plants under a composting plan and that, as a result, no data are available for the years of the time series before 2010.	
		The ERT recommends that Cyprus improve the transparency of its reporting by providing in its next submission an explanation for reporting as "NO" N application to soils from composting for years of the time series before 2010, which could be the explanation provided to the ERT during the review.	
A.3	3.A.1 Cattle – CH_4	The Party reported in annex 2 to the NIR an uncertainty value of 50 per cent for the EF for enteric fermentation of dairy cattle. The ERT noted that, in the context of the tier 2 method used for dairy cattle, the value is significantly higher than the default value of ±20 per cent from the 2006 IPCC Guidelines (vol. 4, chap. 10, p.10.33).	Yes. Convention reporting adherence
		During the review, Cyprus explained that the uncertainty value provided in annex 2 to the NIR has not been updated since the implementation of the tier 2 methodology for dairy cattle. The Party indicated that it will replace the value with the default value of ±20 per cent for the next submission.	

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		The ERT recommends that Cyprus update in its next submission the uncertainty value for the enteric fermentation of dairy cattle EF either to a country-specific value that reflects all national and default parameters related to the EF or to the default value from the 2006 IPCC Guidelines (±20 per cent), depending on data availability.	
A.4	3.D.b.1 Atmospheric deposition – N_2O	The Party reported a value of 0 per cent for N volatilization losses associated with liquid MMS in NIR table 5.16 for non-dairy cattle. In addition, the Party reported a value of 40 per cent for liquid manure systems associated with dairy cattle, which is in line with the 2006 IPCC Guidelines (vol. 4, table 10.22).	Not an issue/problem
		During the review, Cyprus stated that it used 0 per cent as the value for N volatilization losses owing to the unavailability of a default IPCC value for non-dairy cattle.	
		The ERT encourages Cyprus either to use country-specific values for all livestock N volatilization losses or to use, for non-dairy cattle, the default value for dairy cattle provided in the 2006 IPCC Guidelines (vol. 4, table 10.22), acknowledging that there are similar approaches for dairy and non-dairy cattle.	
LULUCF			
L.11	4(V) Biomass burning – CO_2, N_2O and CH_4	The Party reported in CRF table 4(V) emissions for cropland remaining cropland and for grassland remaining grassland from both controlled burning and wildfires as "NO". In NIR sections 6.3 (p.202) and 6.4 (pp.207–208), the Party explained that prescribed (controlled) burning of cropland and grassland is not practised in Cyprus. For wildfires on woody cropland and on woody grassland, the Party explained that, owing to the lack of data, it assumed that wildfires do not occur on these two land-use types; for the purposes of land representation, burned areas (from Coordination of Information on the Environment Land Cover) were distributed among the remaining land-use categories on the basis of their previous land use. For wildfires and related emissions, annual information obtained from the Forest Department of Cyprus was used (NIR p.195). In CRF table 4(V), Cyprus reported emissions from fires on land other than forest land as "NO".	Yes. Accuracy
		During the review, the Party clarified that fires do occur on land other than forest land and explained that the term "forest fires" used in the NIR (e.g. pp.190 and 195) generally refers to wildfires. The Party explained that all reported emissions from wildfires, regardless of the land-use type on which they occurred, were attributed to forest land remaining forest land, and that the carbon stocks for forest land (NIR table 6.6) were used for estimating emissions from wildfires. This approach was used because disaggregated data on the annual burned area per land-use category are not available; once such data become available, wildfire emissions will be reported by land-use category using the relevant EFs. The Party further clarified that the AD for wildfires reported for forest land remining forest land include wildfires on woody grassland. Cropland areas are also affected by "escaped" wildfires; however, these areas are not included in the data on wildfires provided by the Department of Forests, which cover wildfires occurring on forest land and grassland only. The ERT noted that accounting for emissions from wildfires on land uses other than forest land under forest land, using EFs estimated for forest land, results in an overestimation of emissions. This is not in accordance with the UNFCCC Annex I inventory reporting guidelines. The Party asked the ERT for advice on parameters to use for wildfires on cropland.	
		The ERT recommends that Cyprus estimate and report wildfire emissions under the category for the land use on which they occur, noting that (1) data from the Department of Forests should be used to assign wildfires to forest land and grassland, (2) once the Party obtains data on the total area affected by wildfires, it should be able to deduce the areas affected by wildfires on land other than forest land and grassland and (3) default IPCC parameters	

from the 2019 Refinement to the 2006 IPCC Guidelines (vol. 4, tables 2.5–2.6) should be applied to estimate emissions from wildfires on cropland.

| L.12 | 4.A.2 Land converted to forest land – CO_2 | The Party reported in its NIR (p.195) that the value of 64.4 t C/ha was used for deadwood stocks on forest land to derive carbon stock changes on land converted to forest land. The Party explained that this value is the default for a subtropical desert climate from the 2019 Refinement to the 2006 IPCC Guidelines. The ERT noted that this IPCC default value is very high compared with the growing stock of living trees reported in the Party's NIR table 6.6 (p.193), which ranges from 45 m³/ha in 1990 to 70 m³/ha in 2021, corresponding to approximately 40–60 t C/ha based on a default biomass conversion and an expansion factor of 0.8 (dry tropical and subtropical, 2006 IPCC Guidelines (vol. 4, table 4.5)). The ERT found a deadwood assessment for forests in Cyprus (Puletti et al., 2019) that estimated deadwood carbon stock for forests in Cyprus as 26.9 m³/ha, which corresponds to approximately 7 t C/ha, assuming a wood density of 0.5 kg/t and a carbon concentration of 0.5. Furthermore, the ERT noted that, according to the 2006 IPCC Guidelines (vol. 4, figure 3A.5.1), Cyprus is located partly in the warm temperate dry climate zone and partly in the tropical dry climate zone.

During the review, the Party clarified that the IPCC default value for deadwood carbon stocks on forest land from the 2019 Refinement to the 2006 IPCC Guidelines was applied in order to enhance the completeness of the inventory given that the 2006 IPCC Guidelines do not provide deadwood carbon stock values. The Party acknowledged that the IPCC default values may not reflect Cyprus' national circumstances, and that the default deadwood stock value is higher than that expected for the country's forests. The Party informed the ERT that it has started collecting and analysing country-specific information, which is expected to be ready to be used for GHG inventory purposes in the next couple of years. With regard to the climate zone applied, the FAO publication *Global Ecological Zones for FAO Forest Reporting: 2010 Update* (figure 4) was consulted, following the information in the 2006 IPCC Guidelines (vol. 4, chap. 4.1). In the FAO publication, Cyprus' climate is classified as subtropical dry forest. Given the absence of deadwood stock values specifically for subtropical dry forest in the 2019 Refinement to the 2006 IPCC Guidelines, the Party used the value for subtropical desert instead.

The ERT, noting the Party's acknowledgement during the review that the default IPCC value used for deadwood stocks on forest land may not be representative of national circumstances, encourages Cyprus to consider collecting new or exploring existing country-specific data in line with its inventory improvement plan for this category and to report in its next national communication any country-specific data obtained and explain how they were used for estimating emissions/removals. | Not an issue/problem |
| L.13 | 4.B.1 Cropland remaining cropland – CO_2 | The Party reported in NIR section 6.3.4 (p.202) that for estimating emissions/removals from biomass on woody cropland remaining woody cropland it used default data for above-ground woody biomass in the 2006 IPCC Guidelines (vol. 4, table 5.1). The emission/removal estimates are reported in CRF table 4.B. The ERT noted that (1) cropland remaining cropland is a key category and that, therefore, in accordance with the 2006 IPCC Guidelines (vol. 4, figure 2.2), higher-tier methods should be applied using country-specific or regional-specific data for estimating the emissions/removals; (2) the Party only used the default values for above-ground biomass, not taking into account below-ground biomass; and (3) the Party presented annual and perennial (woody) cropland separately in the NIR (p.202), including separate explanations of EFs (NIR p.202) and of AD (NIR tables 6.10–6.11 (pp.200–201)), but it did not report them separately in CRF table 4.B. | Yes. Accuracy |

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
		During the review, the Party clarified that the updating of its GHG inventory improvement plan is ongoing. Needs are identified and priorities are set by considering the status of the inventory and taking into consideration the requirements stemming from the EU regulation for the LULUCF inventory (regulation 2023/839). The Party informed the ERT that it will include a statement reflecting this in its next submission, along with the expected time frame for evaluation of the above-mentioned issue. Consideration of the above-ground biomass carbon pool and application of the tier 2 methodology for the cropland remaining cropland category is a high priority.	
		The ERT recommends that Cyprus either implement its improvement plan and apply higher-tier methods using country-specific or regional-specific data for estimating emissions/removals from biomass on woody cropland remaining woody cropland or explain in its next NIR why it was unable to do so, and in that case report woody cropland as a subcategory of cropland (alongside annual cropland).	
L.14	4.C.1 Grassland remaining grassland – CO_2	The Party reported in NIR section 6.4.4 (p.207) that the AD and EFs for this category are assessed separately for annual and woody grassland. However, the Party did not report AD separately for these subcategories, or estimates of biomass losses, in CRF table 4.C. Furthermore, the ERT noted that no description is provided in the NIR of the methodology used to estimate biomass losses for woody grassland.	Not an issue/problem
		During the review, the Party explained that a tier 1 method was applied for living biomass on annual grassland, with the assumption that carbon stock changes are zero. For woody grassland, a tier 2 method was applied with a country-specific net annual increment to account for changes in the above-ground living biomass pool. The Party clarified that carbon losses reported in the grassland remaining grassland category are the losses occurring as a result of the conversion of woody grassland to annual grassland, as harvesting on woody grassland is not practised. The Party agreed with the suggestion of the ERT that transparency could be improved by reporting annual and woody grassland separately.	
		The ERT encourages Cyprus to include in its next NIR information on the causes of losses in living biomass in woody grassland remaining woody grassland and to report annual and woody grassland as separate subcategories under the grassland remaining grassland category, given that there is no harvesting on woody grassland.	
Waste			
W.4	5.B Biological treatment of solid waste – CH_4	The Party applied the IPCC tier 1 methodology for this category even though it identified CH_4 emissions from the biological treatment of solid waste as a key category (trend assessment), as reported in NIR tables 1.6–1.7 (p.45) and CRF table 7. The ERT noted that, in accordance with the UNFCCC Annex I inventory reporting guidelines, a Party shall explain in its annual GHG inventory submission the reasons why it was unable to implement for key categories the recommended methods (i.e. tier 2) from the appropriate decision tree in the 2006 IPCC Guidelines.	Yes. Accuracy
		During the review, the Party clarified that the data necessary for implementing a higher-tier method for estimating emissions for this category are unavailable but that it plans to hold discussions with the relevant authorities and facilities on enhancing data collection. The Party indicated it will apply a higher-tier method when data are available.	
		The ERT encourages the Party to continue working towards improving the accuracy of and applying a higher-tier method for this key category. The ERT recommends that Cyprus apply a tier 2 method to estimate CH_4 emissions from the biological treatment of solid waste or, in the event that it is unable to do so, provide in its next NIR an explanation as to why.	

ID#	Finding classification	Description of finding with recommendation or encouragement	Is finding an issue/problem?[a]
W.5	5.C.2 Open burning of waste – CO_2	The Party reported in NIR section 7.4 (p.251) and CRF table 5.C emissions from MSW as "NO". The ERT noted that the Party did not provide a justification for the use of "NO" in its NIR. However, the ERT noted that Cyprus reported CH_4 emissions from unmanaged SWDS, which implies that emissions may occur from the open burning of waste at some unmanaged waste disposal sites.	Not an issue/problem
		During the review, the Party clarified that, until 2010, 113 sites of uncontrolled disposal of household and other solid waste were in operation. These sites were categorized as unmanaged sites for the purposes of inventory preparation, but the waste disposed of at these sites was not burned, but disposed of and then buried. The Party also clarified that the open burning of waste is illegal in Cyprus.	
		The ERT encourages the Party to improve the transparency of its reporting by including in its next NIR the information provided during the review regarding the use of "NO" to report CO_2 emissions from the burning of waste in the NIR and CRF table 5.C.	
W.6	5.D Wastewater treatment and discharge – CH_4	In CRF table summary 3s2 and in NIR table 7.2 (p.225) the Party reported that a tier 1 method with default EFs and parameters from the 2006 IPCC Guidelines was applied for estimating emissions from wastewater treatment and discharge, but in NIR section 7.5.1.1 (p.255), the Party reported that a tier 2 method was applied for estimating CH_4 emissions for subcategory 5.D.1 domestic wastewater.	Yes. Transparency
		During the review, the Party clarified that, as stated in the 2006 IPCC Guidelines (vol. 5, figure 6.2, p.6.10), a tier 2 method estimates emissions using country-specific EFs (B_o, MCFs, etc.), and explained that, in this case, only the BOD value is country-specific and therefore it considers the use of a tier 1 method appropriate in this case. The ERT agrees with the Party's assessment.	
		The ERT recommends that Cyprus report in its next submission consistent information on the methodological tier and EFs and other parameters used to estimate emissions for wastewater treatment and discharge, including its subcategories, in its NIR and CRF tables.	
W.7	5.D.1 Domestic wastewater – CH_4	The Party reported in its NIR (p.256) that, in the estimation of total organically degradable carbon in wastewater, a country-specific value for BOD was used (60 g/person/day). The ERT noted that in the NIR, the Party did not provide any information on this expert judgment used to assess the country-specific value for BOD and no documentation was included in the references section of the NIR. This reporting is not in accordance with the UNFCCC Annex I inventory reporting guidelines because country-specific methods and EFs should be well documented, scientifically based and clearly explained in the NIR.	Yes. Transparency
		During the review, the Party provided details on the expert judgment on the information used to assess the country-specific BOD value and provided the ERT with consistent information related to the recalculations for CH_4 emissions from domestic wastewater treatment and discharge.	
		The ERT recommends that Cyprus improve the transparency of its reporting by including in its next NIR comprehensive information on the expert judgment used to assess the country-specific BOD value used in estimating CH_4 emissions from domestic wastewater.	
W.8	5.D.1 Domestic wastewater – CH_4 and N_2O	The Party reported in NIR section 7.5.1.4 (p.260) that CH_4 emissions from domestic wastewater treatment and discharge were recalculated for part of the time series (2017–2020). However, the ERT noted that, in NIR table 7.34, under "Recalculations", the Party refers to N_2O emissions.	Yes. Transparency

ID#	Finding classification	Description of finding with recommendation or encouragement	*Is finding an issue/problem?[a]*
		During the review, the Party clarified that the recalculations for domestic wastewater treatment and discharge were made for CH_4 emissions and not N_2O emissions as stated in NIR table 7.34.	
		The ERT recommends that Cyprus improve the transparency of its reporting by including in its next NIR consistent information between the text and tables regarding the recalculations made for CH_4 emissions from domestic wastewater treatment and discharge.	
W.9	5.D.2 Industrial wastewater – CH_4	The Party reported in NIR section 7.5.2.1 (p.262) that the MCF was assumed to be 0.3 for aerobic treatment, which is the IPCC default value for not-well-managed centralized overloaded aerobic treatment plants (2006 IPCC Guidelines, vol. 5, table 6.3), following a recommendation in a previous review report (FCCC/ARR/2016/CYP). The Party indicated that this MCF will be not modified until sufficient information is available on the wastewater treatment plants in Cyprus to justify the use of zero (i.e. the IPCC default value for well-managed centralized aerobic treatment plants (2006 IPCC Guidelines, vol. 5, table 6.3)). However, the ERT noted that, in the NIR (p.265), the Party reported that the MCF was assumed to be zero for aerobic treatment.	Yes. Transparency
		During the review, the Party clarified that the value used for the MCF for aerobic treatment is 0.3.	
		The ERT recommends that Cyprus improve the transparency of its reporting by including in its next NIR the correct value of MCF used for aerobic treatment of industrial wastewater, namely, the IPCC default value of 0.3 for not-well-managed centralized overloaded aerobic treatment plants.	
W.10	5.D.2 Industrial wastewater – CH_4	The Party reported in NIR table 7.35 (p.261) that it used country-specific industry data from the *EMEP/CORINAIR Air Pollutant Emission Inventory Guidebook 2007* in combination with default IPCC EF values to calculate CH_4 emissions from industrial wastewater. The ERT noted that these emissions have inter-annual fluctuations over the entire time series but no explanation for these is included in the NIR. The ERT noted that the 2006 IPCC Guidelines (vol. 5, chap. 6.2.3.2) suggest that it is good practice to use country-specific and industry-sector-specific data and EFs, which may be available from government authorities, industrial organizations or industrial experts, obtained through surveys over a three- to five-year period. The Party reported in annex 7 to its NIR that it is planning to move to a higher-tier method for category 5.D (wastewater treatment and discharge).	Yes. Accuracy
		The ERT recommends that Cyprus make an effort to obtain country-specific values for B_o, MCF and other country-specific parameters from industrial plants.	

[a] Recommendations made by the ERT during the review are related to issues as defined in para. 81 of the UNFCCC review guidelines or problems as defined in para. 69 of the Article 8 review guidelines.

VI. Questions of implementation

10. No questions of implementation were identified by the ERT during the individual review of the Party's 2023 inventory submission.

Annex I

Overview of greenhouse gas emissions and removals as reported by Cyprus in its 2023 inventory submission

Tables I.1–I.3 provide an overview of the total GHG emissions and removals as reported by Cyprus.

Table I.1
Total greenhouse gas emissions and removals for Cyprus, 1990–2021
(kt CO_2 eq)

	Total GHG emissions and removals excluding indirect CO_2 emissions		Total GHG emissions and removals including indirect CO_2 emissions[a]	
	Total including LULUCF	*Total excluding LULUCF*	*Total including LULUCF*	*Total excluding LULUCF*
1990	5 418.66	5 571.73	5 423.87	5 576.94
1995	6 792.15	6 972.18	6 798.02	6 978.06
2000	8 163.94	8 306.44	8 171.54	8 314.05
2010	9 190.83	9 455.87	9 203.97	9 469.00
2015	8 047.16	8 343.27	8 050.97	8 347.08
2020	8 204.31	8 502.86	8 209.47	8 508.02
2021	8 434.69	8 670.02	8 439.90	8 675.23

[a] The Party reported indirect CO_2 emissions in CRF table 6.

Table I.2
Greenhouse gas emissions and removals by gas for Cyprus, excluding land use, land-use change and forestry, 1990–2021
(kt CO_2 eq)

	CO_2[a]	CH_4	N_2O	*HFCs*	*PFCs*	*Unspecified mix of HFCs and PFCs*	SF_6	NF_3
1990	4 650.07	776.45	147.69	NO, NE	NO	NO	2.73	NO
1995	5 867.81	887.56	188.27	28.49	NO	NO	5.93	NO
2000	7 112.20	938.34	191.95	62.44	NO	NO	9.13	NO
2010	8 114.26	973.73	169.33	198.99	NO	NO	12.70	NO
2015	6 975.38	957.01	151.24	246.65	NO	NO	16.79	NO
2020	6 916.07	1 064.83	172.70	335.68	NO	NO	18.74	NO
2021	7 034.57	1 097.40	173.53	353.49	NO	NO	16.24	NO
Percentage change 1990–2021	**51.3**	**41.3**	**17.5**	**NA**	**NA**	**NA**	**494.7**	**NA**

[a] Including indirect CO_2 emissions as reported in CRF table 6.

Table I.3
Greenhouse gas emissions and removals by sector for Cyprus, 1990–2021
(kt CO_2 eq)

	Energy	IPPU	Agriculture	LULUCF	Waste	Other
1990	3 954.35	733.13	454.27	−153.07	435.18	–
1995	5 107.25	845.60	543.81	−180.03	481.39	–
2000	6 357.63	890.68	542.49	−142.51	523.24	–
2010	7 546.70	823.96	514.43	−265.04	583.92	–
2015	6 117.23	1 163.53	441.52	−296.11	624.81	–
2020	6 047.95	1 272.66	531.32	−298.54	656.09	–
2021	6 172.40	1 283.02	557.25	−235.33	662.56	–
Percentage change 1990–2021	**56.1**	**75.0**	**22.7**	**53.7**	**52.2**	**–**

Notes: (1) Cyprus did not report emissions or removals for the sector other (sector 6); the corresponding cells in the CRF tables were left blank; (2) totals include indirect CO_2 emissions reported in CRF table 6.

Annex II

Additional information to support findings in table 2

Missing categories that may affect completeness

The categories for which estimation methods are included in the 2006 IPCC Guidelines that were reported as "NE" or for which the ERT otherwise determined that there may be an issue with the completeness of the reporting in the Party's inventory are:

(a) 1.B.2.a oil and 1.B.2.b natural gas (CO_2, CH_4 and N_2O) (see ID# E.13 in table 5);

(b) 2.B.5 carbide production (CO_2) (see ID# I.3 in table 3);

(c) 5.C.1 waste incineration (CO_2, CH_4 and N_2O) (see ID# W.1 in table 3).

Annex III

Reference documents

A. Reports of the Intergovernmental Panel on Climate Change

IPCC. 2000. *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories.* J Penman, D Kruger, I Galbally, et al. (eds.). Hayama: IPCC/Organisation for Economic Co-operation and Development/International Energy Agency/Institute for Global Environmental Strategies. Available at https://www.ipcc.ch/publication/good-practice-guidance-and-uncertainty-management-in-national-greenhouse-gas-inventories/.

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.

IPCC. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/.

IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*. E Calvo Buendia, K Tanabe, A Kranjc, et al. (eds.). Geneva: IPCC. Available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html.

B. UNFCCC documents

Annual review reports

Reports on the individual reviews of the 2013, 2015, 2016, 2017, 2019, 2020 and 2022 annual submissions of Cyprus, contained in documents FCCC/ARR/2013/CYP, FCCC/ARR/2015/CYP, FCCC/ARR/2016/CYP, FCCC/ARR/2017/CYP, FCCC/ARR/2019/CYP, FCCC/ARR/2020/CYP and FCCC/ARR/2022/CYP respectively.

Other

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at https://unfccc.int/documents/510888.

Annual status report for Cyprus for 2023. Available at https://unfccc.int/sites/default/files/resource/asr2023_CYP.pdf.

C. Other documents used during the review

Responses to questions during the review were received from Marios Papanicolaou (Department of Environment, Ministry of Agriculture, Rural Development and Environment), including additional material on the methodology and assumptions used. The following references may not conform to UNFCCC editorial style as some have been reproduced as received:

Stella Perikenti, Department of Environment, Country-specific per capita BOD in inventory year (g/person/day), 2023CYPQA56, January 2023.

Marius Papanicolaou, Department of Environment, FOD method IPCC waste model, 2023CYPQA51, September 2023.

Puletti, N., Canullo, R., Mattioli, W. et al. A dataset of forest volume deadwood estimates for Europe. Annals of Forest Science 76, 68 (2019). https://doi.org/10.1007/s13595-019-0832-0.

FAO, Global Ecological Zones for FAO Forest Reporting: 2010 Update, available at: https://www.fao.org/3/a-ap861e.pdf , 2012.

EMEP/CORINAIR Emission Inventory Guidebook – 2007, Group 9: Waste treatment and disposal; 091001 - Waste water treatment in industry, EEA Technical report No 16/2007, available at https://www.eea.europa.eu/publications/EMEPCORINAIR5/B9101vs1.pdf, table 2, pg. B9101-2.