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Report on the technical review of the seventh national communication of Cyprus

Parties included in Annex I to the Convention were requested by decision 9/CP.16 to submit their seventh national communication to the secretariat by 1 January 2018. According to decision 15/CMP.1, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol are required to include in their national communications supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. This report presents the results of the technical review of the seventh national communication and relevant supplementary information under the Kyoto Protocol of Cyprus, conducted by an expert review team in accordance with the “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” and the “Guidelines for review under Article 8 of the Kyoto Protocol”.

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Abbreviations and acronyms

AEA	annual emission allocation
Annex I Party	Party included in Annex I to the Convention
Annex II Party	Party included in Annex II to the Convention
CH ₄	methane
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
CTF	common tabular format
ESD	effort-sharing decision
ERT	expert review team
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LNG	liquefied natural gas
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF ₃	nitrogen trifluoride
NGO	non-governmental organization
NIR	national inventory report
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
non-ETS sectors	sectors not covered by the EU ETS
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
reporting guidelines for supplementary information	“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2”
RES	renewable energy sources
SF ₆	sulfur hexafluoride
UNFCCC reporting guidelines on NCs	“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”
WAM	‘with additional measures’
WEM	‘with measures’
WOM	‘without measures’

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the NC7 of Cyprus. The review was coordinated by the secretariat in accordance with the “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”, particularly “Part V: UNFCCC guidelines for the technical review of national communications from Parties included in Annex I to the Convention” (annex to decision 13/CP.20), and the “Guidelines for review under Article 8 of the Kyoto Protocol” (annex to decision 22/CMP.1 and annex I to decision 4/CMP.1).¹

2. In accordance with the same decisions, a draft version of this report was transmitted to the Government of Cyprus, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 21 to 26 May 2018 in Bonn by the following team of nominated experts from the UNFCCC roster of experts: Ms. Amrita Narayan Achanta (India), Ms. Damla Dogan (Turkey), Mr. Christopher John Dore (United Kingdom of Great Britain and Northern Ireland), Mr. Sangay Dorji (Bhutan), Mr. A. Ricardo J. Esparta (Brazil), Mr. Sandro Federici (San Marino), Mr. Ross Alexander Hunter (United Kingdom), Mr. Naoki Matsuo (Japan), Ms. Roisin Moriarty (Ireland), Mr. Rostislav Neveceral (Czechia), Ms. Agnieszka Maria Patoka-Janowska (Poland) and Ms. Verica Taseska Gjorgievska (the former Yugoslav Republic of Macedonia). Mr. Dorji, Mr. Federici, Mr. Matsuo and Ms. Patoka-Janowska were the lead reviewers. The review was coordinated by Ms. Sevdalina Todorova, Mr. Davor Vesligaj and Ms. Marion Vieweg (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the NC7 of Cyprus in accordance with the UNFCCC reporting guidelines on NCs (decision 4/CP.5) and the reporting guidelines for supplementary information, in particular the supplementary information required under Article 7, paragraph 2, and on the minimization of adverse impacts under Article 3, paragraph 14, of the Kyoto Protocol (annex to decision 15/CMP.1 and annex III to decision 3/CMP.11).

1. Timeliness

5. The NC7 was submitted on 22 February 2018, after the deadline of 1 January 2018 mandated by decision 9/CP.16.

6. Cyprus informed the secretariat on 21 November 2018 about its difficulties with making a timely submission in accordance with decision 13/CP.20 and decision 22/CMP.1. The ERT noted with great concern the delay in the submission and recommended that Cyprus make its next submission on time. As the submission was not made within six weeks after the due date (by 15 February 2018), the delay was brought to the attention of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and the Compliance Committee and made public.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

7. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Cyprus in its NC7, including the supplementary information under the Kyoto Protocol, mostly adheres to the UNFCCC reporting guidelines on NCs.

¹ At the time of the publication of this report, the Party had submitted its instrument of acceptance of the Doha Amendment; however, the amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the amendment.

Table 1

Assessment of completeness and transparency of mandatory information reported by Cyprus in its seventh national communication, including supplementary information under the Kyoto Protocol

<i>Section of NC</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>	<i>Supplementary information under the Kyoto Protocol</i>	<i>Completeness</i>	<i>Transparency</i>	<i>Reference to description of recommendations</i>
Executive summary	NA	NA	NA	National system	Mostly Complete	Transparent	Issue 1 in table 6
National circumstances	Complete	Transparent	–	National registry	Mostly Complete	Transparent	Issue 1 in table 7
GHG inventory	Complete	Transparent	–	Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	–
PaMs	Partially complete	Transparent	Issues 6 and 9 in table 10	PaMs in accordance with Article 2	Partially complete	Transparent	Issues 10, 11 and 12 in table 10
Projections and the total effect of PaMs	Mostly complete	Transparent	Issues 2 and 3 in table 14	Domestic and regional programmes and/or arrangements and procedures	Partially Complete	Transparent	Issues 1 and 2 in table 8
Vulnerability assessment, climate change impacts and adaptation measures	Mostly complete	Transparent	Issue 1 in table 17	Information under Article 10 ^a	NA	NA	NA
Financial resources and transfer of technology ^b	NA	NA	NA	Financial resources ^c	NA	NA	NA
Research and systematic observation	Mostly complete	Mostly transparent	Issues 1 and 2 in table 18	Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	–
Education, training and public awareness	Complete	Transparent	–				

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below.

^a The assessment refers to information provided by the Party on the provisions contained in Article 4, paragraphs 3, 5 and 7, of the Convention reported under Article 10 of the Kyoto Protocol, which is relevant to Annex II Parties only. Assessment of the information provided by the Party on the other provisions of Article 10 of the Kyoto Protocol is provided under the relevant substantive headings under the Convention, for example research and systematic observation.

^b Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

^c Cyprus is not an Annex II Party and is therefore not obliged to provide information on financial resources under Article 11 of the Kyoto Protocol, including on “new and additional” resources.

3. Summary of reviewed supplementary information under the Kyoto Protocol

8. The supplementary information under Article 7, paragraph 2, of the Kyoto Protocol is incorporated in different sections of the NC7, and the supplementary information under Article 7, paragraph 1, of the Kyoto Protocol is reported in the NIR of the 2018 annual submission. Table 2 provides references to where the information is reported. The technical assessment of the information reported under Article 7, paragraphs 1 and 2, of the Kyoto Protocol is contained in the relevant sections of this report.

Table 2

Overview of supplementary information under the Kyoto Protocol reported by Cyprus

<i>Supplementary information</i>	<i>Reference to the section of NC7</i>
National registry	3.4
National system	3.3
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	5.4
PaMs in accordance with Article 2	Not reported
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Not reported
Information under Article 10	NA
Financial resources ^a	NA
Minimization of adverse impacts in accordance with Article 3, paragraph 14	Reported in the NIR of the Party's 2018 annual submission

^a Reporting on financial resources under the Kyoto Protocol is relevant to Annex II Parties. As Cyprus is not an Annex II Party, it does not have an obligation to provide information on financial resources under Article 11 of the Kyoto Protocol, including on "new and additional" resources.

II. Technical review of the information reported in the seventh national communication, including the supplementary information under the Kyoto Protocol

A. Information on national circumstances and greenhouse gas emissions and removals

1. National circumstances relevant to greenhouse gas emissions and removals

(a) Technical assessment of the reported information

9. The national circumstances of Cyprus explain the relationship between its historic and future emission trends and the climate change policy agenda. The changing nature of those circumstances defines the factors that affect the climate policy development and implementation of the Convention. The NC7 contains key data on legislation, population trends, geography and land use, climate and climate change, economic developments, energy, transport, the buildings sector, industry, trade, the services sector, agriculture, forestry, resource efficiency and wastewater. The amount of information reported on national circumstances has significantly increased compared with the NC6, with the aim of clearly highlighting how national circumstances are driving the current level and trends in GHG emissions and removals in each sector and thereby showing the most significant barriers and opportunities for mitigation, as well as how national circumstances expose the country to the impacts and risks associated with climate change. The tertiary sector, especially tourism, is the main driver of the reported increase in emissions, caused by increased energy consumption, including in transport, and by increased waste production. Information reported on national circumstances shows that addressing these drivers through a substantial increase in the contribution of RES is somewhat constrained by the isolation and technological limits of the current electricity grid and the lack of storage capacity, which impact the efficiency and profitability of large-scale RES projects. This is indeed a priority area of action identified

by the Party. Shifting from oil to natural gas in the power sector in 2021 will significantly reduce CO₂ emissions.

10. The ERT noted that during the period 1990–2016 the population and GDP of Cyprus increased by 52.6 and 97.5 per cent, respectively, while GHG emissions per capita increased by 2.8 per cent and GHG emissions per GDP unit decreased by 20.5 per cent. Such increased efficiency is the result of the increase in the GDP contribution of economic sectors that have a lower GHG emission intensity (mainly tourism) compared with sectors that have a higher GHG emission intensity (e.g. industrial processes, manufacturing and construction), rather than an increase in the efficiency of such sectors. Table 3 illustrates the national circumstances of Cyprus by providing some indicators relevant to emissions and removals.

Table 3

Indicators relevant to greenhouse gas emissions and removals for Cyprus for the period 1990–2016

Indicator	Change (%)						
	1990	2000	2010	2015	2016	1990–2016	2015–2016
GDP per capita (thousands 2011 USD using purchasing power parity)	17.63	22.14	25.30	22.30	22.80	29.4	2.2
GHG emissions without LULUCF per capita (t CO ₂ eq)	7.29	8.77	8.47	7.17	7.50	2.8	4.5
GHG emissions without LULUCF per GDP unit (kg CO ₂ eq per 2011 USD using purchasing power parity)	0.41	0.40	0.33	0.32	0.33	–20.5	2.2

Sources: (1) GHG emission data: Cyprus's 2018 GHG inventory submission, version 3; (2) population and GDP: World Bank.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

(b) Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 4.

Table 4

Findings on national circumstances relevant to greenhouse gas emissions and removals from the review of the seventh national communication of Cyprus

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: encouragement	Although the information provided on national circumstances has been improved compared with that provided in the NC6, the causal links between the Party's national circumstances and the trends of emissions and removals are not clearly presented; for example, regarding constraints on energy production from the structure of the fossil fuels market, and regarding wind intensity and solar radiation potential of the country as alternative sources of energy. Additional information reported by the Party during the review further enhanced the transparency of national circumstances and their effects on emission trends; for example, information on tourism development, which is the main driver of the emission trend. The ERT encourages Cyprus to continue enhancing its information on national circumstances, focusing on how they drive current levels and trends in anthropogenic GHG emissions and removals.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
2	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: encouragement	Regarding forests, Cyprus reported information on the total national forest area only. However, the ERT considers that information on forest types and management practices, as well as on the nature and frequency of disturbances to which forests are subject, is important in order to understand the level and trend in GHG emissions and removals from forests. During the review Cyprus noted that such information is reported in its NIR. The ERT encourages Cyprus to increase the transparency of its reporting by including information in its next NC on forest types and management practices, as well as on the nature and frequency of disturbances to which forests are subject, in order to characterize the level and trend in GHG emissions and removals from forests.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

2. Information on greenhouse gas inventory arrangements, emissions, removals and trends

(a) Technical assessment of the reported information

12. Cyprus provided a summary of information on GHG emission trends for the period 1990–2015 in its NC7. This summary information is consistent with the Party’s 2017 national GHG inventory submission. Summary tables, including trend tables for emissions (in kt CO₂ eq), are provided in the NC7. During the review, the ERT took note of the recently submitted 2018 annual submission in which the GHG emissions in 2016 were presented. The data from the 2018 annual submission were used for this section of the report and a comparison with the inventory data provided in the NC7 and 2017 annual submission is presented in paragraph 17 below.

13. Total GHG emissions² excluding emissions and removals from LULUCF increased by 56.9 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF increased by 67.0 per cent over the same period. Table 5 illustrates the emission trends by sector and by gas for Cyprus.

Table 5
Greenhouse gas emissions by sector and by gas for Cyprus for the period 1990–2016

Sector	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
1. Energy	3 956.17	6 350.92	7 494.30	6 079.98	6 480.42	63.8	6.6	70.8	73.9
A1. Energy industries	1 767.39	2 964.66	3 880.76	3 032.96	3 310.94	87.3	9.2	31.6	37.7
A2. Manufacturing industries and construction	514.80	821.86	700.03	606.66	602.97	17.1	–0.6	9.2	6.9
A3. Transport	1 228.90	1 811.94	2 324.25	1 889.78	2 022.17	64.6	7.0	22.0	23.0
A4. and A5. Other	444.89	752.15	589.03	550.40	544.13	22.3	–1.1	8.0	6.2
B. Fugitive emissions from fuels	0.19	0.31	0.23	0.19	0.20	5.3	5.3	0.0	0.0

² In this report, the term “total GHG emissions” refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated based on the 2018 annual submission, version 3.

	GHG emissions (kt CO ₂ eq)					Change (%)		Share (%)	
	1990	2000	2010	2015	2016	1990–2016	2015–2016	1990	2016
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	NO	NO	NO	NO
2. IPPU	771.88	899.98	886.95	1 238.78	1 250.13	62.0	0.9	13.8	14.2
3. Agriculture	476.43	559.83	540.15	466.26	490.81	3.0	5.3	8.5	5.6
4. LULUCF	–274.16	75.03	–457.92	–543.66	106.00	–138.7	–119.5	NA	NA
5. Waste	386.73	459.99	498.15	543.81	552.94	43.0	1.7	6.9	6.3
6. Other ^b	-	-	-	-	-	NA	NA	NA	NA
<i>Gas^a</i>									
CO ₂	4 643.06	7 108.86	8 017.88	6 902.87	7 307.80	57.4	5.9	83.0	83.3
CH ₄	653.10	781.78	819.43	822.09	851.36	30.4	3.6	11.7	9.7
N ₂ O	295.03	350.82	370.14	327.10	336.24	14.0	2.8	5.3	3.8
HFCs	NO, NE	29.18	211.96	276.61	278.73	NO, NE	0.8	NO, NE	3.2
PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF ₆	0.03	0.08	0.15	0.16	0.17	541.6	0.8	0.0	0.0
NF ₃	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total GHG emissions without LULUCF	5 591.21	8 270.72	9 419.55	8 328.84	8 774.30	56.9	5.3	100.0	100.0
Total GHG emissions with LULUCF	5 317.05	8 345.75	8 961.63	7 785.18	8 880.30	67.0	14.1	NA	NA

Source: GHG emission data: Cyprus's 2018 annual submission, version 3.

^a Emissions by gas without LULUCF and without indirect CO₂.

^b Cyprus reported blank cells.

14. The GHG emission trend of Cyprus shows a steady increase (3.3 per cent per year) for the period 1990–2008, driven by high economic growth of about 4 per cent per year, while there was a sharp decline (4.4 per cent per year) for the period 2008–2013 owing to the global financial crisis, and a return to an increasing trend after that, driven by economic recovery. The increase in total emissions was driven mainly by factors such as the increase in the resident population and the booming tourism industry, which caused significant increases in energy consumption, including for transport, in waste production and in the use of F-gases for air conditioning and refrigeration. The current oil-dominated economy has considerable room for an energy switch, especially to natural gas and RES, in the future.

15. Between 1990 and 2016, GHG emissions from the energy sector increased by 63.8 per cent (2,524.25 kt CO₂ eq) owing mainly to increased fuel combustion in energy industries and transport. The trend in GHG emissions from fuel combustion showed notable increases in transport (64.6 per cent or 793.27 kt CO₂ eq) and energy industries (87.3 per cent or 1,543.55 kt CO₂ eq). This is because, although RES currently contribute about 6 per cent to the primary energy mix and combined cycle units have been installed since 2008, the increase in energy consumption has been almost entirely satisfied through the increasing use of fossil fuels, mainly oil.

16. Between 1990 and 2016, GHG emissions from IPPU increased by 62.0 per cent (478.25 kt CO₂ eq) owing mainly to the use of F-gases (especially HFCs) for air conditioning and refrigeration and for cement production. Between 1990 and 2016, GHG emissions from the agriculture sector remained almost stable, with a slightly increase of 3.0 per cent (14.38 kt CO₂ eq). The LULUCF sector was a net source of 160.00 kt CO₂ eq in Cyprus in 2016; net GHG removals have decreased by 380.16 kt CO₂ eq since 1990. However, that change is not within a trend of continuously decreasing CO₂ sequestration; rather, it is the result of the highly variable impact of disturbances over time. Between 1990 and 2016, GHG emissions

from the waste sector increased by 43.0 per cent (166.21 kt CO₂ eq), owing mainly to the increase in production of solid waste associated with the increase in population and tourists, and the fact that most of that waste was disposed in sites, both managed and unmanaged.

17. Between 1990 and 2016, CO₂ emissions increased by 57.4 per cent (2,664.74 kt CO₂ eq) owing mainly to an increase in the use of fossil fuels in energy industries and transport, as well as to an increase in cement production. The same drivers caused, between 1990 and 2016, an increase in CH₄ emissions of 30.4 per cent (198.26 kt CO₂ eq), and in N₂O emissions an increase of 14.0 per cent (41.22 kt CO₂ eq). F-gases in 1990 were almost non-existent, but emissions (especially of HFCs) increased rapidly up to 278.73 kt CO₂ eq by 2016 as a consequence of the increased use of F-gases in air conditioning and refrigeration.

18. The summary information provided on GHG emissions and removals was consistent with the information reported in the 2017 annual submission.

(b) Assessment of adherence to the reporting guidelines

19. The ERT assessed the information reported in the NC7 of Cyprus and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. National system for the estimation of anthropogenic emissions by sources and removals by sinks

(a) Technical assessment of the reported information

20. Cyprus provided in the NC7 a description of how its national system for the estimation of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol is performing the general and specific functions defined in the annex to decision 19/CMP.1. The description includes most of the elements mandated by paragraph 30 of the annex to decision 15/CMP.1. The NC7 also contains a reference to the description of the national system provided in the NIR of the 2017 annual submission. The ERT took note of (1) the report mandated by decision 2/CMP.8, submitted in 2016,³ that required a workplan for the complete operationalization of the national system; (2) the NIR of the 2017 annual submission; (3) the review of the changes to the national system reflected in the report on the 2017 individual review; and (4) information on the national system reported in the NIR of the 2018 annual submission.

(b) Assessment of adherence to the reporting guidelines

21. The ERT assessed the information reported in the NC7 of Cyprus and identified an issue relating to completeness. The finding is described in table 6.

³ Cyprus's report to facilitate the calculation of the assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol for the second commitment period (2013–2020), available at http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/second_commitment_period_2013-2020/items/9499.php.

Table 6

Findings on the national system for the estimation of anthropogenic emissions by sources and removals by sinks from the review of the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation</i>
1	Reporting requirement specified in paragraph 30 Issue type: completeness Assessment: recommendation	The ERT noted that information on the national system of Cyprus is not complete, and does not include the required information on the roles and responsibilities of the various agencies and entities involved in the inventory development process, or on the institutional, legal and procedural arrangements made for the preparation of the inventory. During the review, Cyprus provided additional information, as contained in the NIR of its 2018 annual submission and on the website of the Department of Environment of the Ministry of Agriculture, Rural Development and Environment (http://www.moa.gov.cy/moa/environment/environmentnew.nsf/index_en/index_en?OpenDocument). The ERT recommends that Cyprus provide all such information in its next NC.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent.

4. National registry

(a) Technical assessment of the reported information

22. In the NC7 Cyprus provided information on how its national registry performs the functions in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1 and complies with the requirements of the technical standards for data exchange between registry systems. The ERT took note that Cyprus's national registry is limited to the EU ETS and that it therefore cooperates with other EU member States. No connection with the international transaction log has been established so far. The ERT took note of the review of the changes to the national registry reflected in the annual review report of the NIR of the 2017 annual submission and of the information reported in the NIR of the 2018 annual submission.

(b) Assessment of adherence to the reporting guidelines

23. The ERT assessed the information reported in the NC7 of Cyprus and identified an issue relating to completeness. The finding is described in table 7.

Table 7

Findings on the national registry from the review of the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation</i>
1	Reporting requirement specified in paragraph 32 Issue type: completeness Assessment: recommendation	The ERT noted that, as was the case in its NC6, Cyprus did not provide in its NC7 all mandatory reporting elements related to the national registry included in decision 15/CMP.1, annex, paragraph 32. During the review, Cyprus provided additional information, including the name and contact details of its designated registry administrator. The ERT reiterates the recommendation made in the previous review report that Cyprus provide in its next NC all mandatory reporting elements related to the national registry included in decision 15/CMP.1, annex, paragraph 32.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent.

B. Information on policies and measures and institutional arrangements

1. Domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol

(a) Technical assessment of the reported information

24. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, Cyprus committed to contributing to the joint EU effort to reduce GHG emissions by 20 per cent below the base-year level. Cyprus expects to achieve its commitment through the support of EU instruments (see para. 29 below). Cyprus is not planning to use international credits to achieve its commitment under the ESD, although EU ETS operators could use such international credits subject to quantitative and qualitative limits; nevertheless, the ERT notes that in the absence of a fully functioning national registry, Cyprus cannot directly access any Kyoto Protocol mechanisms. Cyprus expects that it will meet its 2020 target under the ESD domestically without using the international credits but using the flexibility provision to carry over over-achievements to subsequent years (see paras. 71 and 72 below).

25. Implementation of the Kyoto Protocol by Cyprus is underpinned by national implementation of the EU 2020 climate and energy package (excluding the contribution from LULUCF activities), which includes measures such as the EU ETS, the promotion of energy efficiency, the use of RES and the phasing out of F-gases. The overall responsibility for coordination of climate change policymaking in Cyprus lies with the Department of Environment of the Ministry of Agriculture, Rural Development and Environment. In addition, a number of national institutions are involved in policymaking and in the implementation of policies, such as the Ministry of Agriculture, Rural Development and Environment for policies affecting the agriculture, forestry and land-use sector, the Ministry of Energy, Trade, Industry and Tourism for policies affecting the energy sector and the Ministry of Transport, Communications and Works for policies affecting the transport sector. The Ministry of Finance is responsible for the national budget, which is informed by the PaMs established and implemented by other ministries and in turn may determine their scale of implementation according to resources available in the general budget. The Department of Environment is also responsible for monitoring national progress towards achieving the target under the Kyoto Protocol through the implementation of the relevant EU legislation.⁴

26. Cyprus clarified during the review that it has legislative arrangements and administrative procedures in place to make information publicly accessible, such as the website of the Department of Environment (see table 6), as well as presentations within the administration and public hearings. The Party informed the ERT during the review that the most recent presentation took place on 27 April 2018 to ministries, departments, agencies, members of the parliament, academic and research institutions, and NGOs. Further, relevant information on its commitment under the Kyoto Protocol and on PaMs implemented for the attainment of this commitment is published in relevant EU reports and in the Party's NC.

27. In addition, Cyprus provided the information during the review that it has national legislative arrangements and administrative procedures in place that seek to ensure that the implementation of activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contributes to the conservation of biodiversity and the sustainable use of natural resources. The Party clarified during the review that the main instrument is the principles and criteria for the sustainable management of forests in accordance with the Pan-European Ministerial Conference on the Protection of Forests in Europe.⁵

(b) Assessment of adherence to the reporting guidelines

28. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness. The findings are described in table 8.

⁴ See https://ec.europa.eu/clima/policies/strategies/progress/monitoring_en.

⁵ See <http://ec.europa.eu/environment/forests/mcpfe.htm>.

Table 8

Findings on domestic and regional programmes and/or legislative arrangements and procedures related to the Kyoto Protocol from the review of the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation</i>
1	Reporting requirement specified in paragraph 37 Issue type: completeness Assessment: recommendation	The NC7 does not contain the information required by decision 15/CMP.1, paragraph 37(b), on provisions to make information on the legislative arrangements and enforcement and administrative procedures (e.g. rules on enforcement and administrative procedures, action taken) publicly accessible. During the review, Cyprus provided information, as summarized in paragraph 30 above. The ERT recommends that Cyprus report, in its next NC, information on current provisions to make information on legislative arrangements and enforcement and administrative procedures to enforce the Kyoto Protocol publicly accessible.
2	Reporting requirement specified in paragraph 38 Issue type: completeness Assessment: recommendation	The NC7 does not contain a description of any national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources. During the review, Cyprus provided information, as summarized in paragraph 31 above. The ERT recommends that Cyprus report, in its next NC, a description of any national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information. The reporting on the requirements not included in this table is considered to be complete and transparent.

2. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol

(a) Technical assessment of the reported information

29. Cyprus provided information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention and its Kyoto Protocol, by sector and, during the review, by gas. Cyprus reported some information on its policy context and legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs, namely, by monitoring the status of the GHG inventory as set out in the Council of Ministers' decision titled "Structure and operation of the national greenhouse gases inventory system: roles and responsibilities".

30. Cyprus provided in the NC7 information on a set of PaMs similar to those previously reported in the NC6, with a few additions, including, notably, the F-gas regulation adopted in 2014. Cyprus also provided some information on changes made since the previous submission to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target. During the review, Cyprus informed the ERT that the GHG inventory results are compared with national ESD targets annually, in line with the ESD regulation, and the implementation progress of the PaMs is examined with the responsible authorities (i.e. as to whether the measures included in the WEM scenario are implemented adequately and are producing the expected results). After the analysis, new projections are prepared. The official projections and the preparation of PaMs are publicized every two years in line with the requirements of the EU Monitoring Mechanism Regulation and the submission of BRs.

31. Cyprus gave priority to implementing the PaMs that make the most significant contribution to its emission reduction efforts. Cyprus provided information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals in accordance with the objective of the Convention. Cyprus reported on how it periodically

updates its PaMs to reduce greater levels of emissions and on the PaMs that have been discontinued since the previous submission.

32. In the NC7, Cyprus clarifies that national PaMs for the reduction of GHG emissions were developed for the first time in 2007, and since then they have been reviewed, revised and updated every two years.

33. PaMs are implemented at the EU, country and local level. The main EU PaMs on climate and energy are the Second European Climate Change Programme, the 2020 climate and energy package, the 2030 climate and energy framework, the 2020 energy strategy, the European bioeconomy strategy, Roadmaps 2050 and the 7th Environment Action Programme. These EU-driven policies are transposed into national legislation and PaMs. A few PaMs are deferred to the local level (e.g. those concerning residential buildings and non-residential buildings) as explained in the NC7 by the indication of municipalities as “other involved authorities” in the key information boxes, but no further information is given.

34. The key overarching related cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO₂ emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely, the 7th Environment Action Programme and the clean air policy package.

35. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities) that produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industries, PFC emissions from aluminium production and CO₂ emissions from industrial processes (since 2013).

36. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and it includes binding annual targets for each member State for 2013–2020.

37. Cyprus highlighted its national-level policies introduced to achieve its 2020 target under the ESD, such as the aim to increase the use of RES in electricity production and for heating and cooling, and the promotion of energy efficiency in buildings. Among the mitigation actions that are critical for Cyprus’s contribution to attaining the EU-wide 2020 emission reduction target are energy efficiency in new buildings and RES for housing and the tertiary sector. Table 9 provides a summary of the reported information on the PaMs of Cyprus.

Table 9
Summary of information on policies and measures reported by Cyprus

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2030 (kt CO₂ eq)</i>
Energy			
Fuel switch (natural gas)	Introduce and use natural gas in the internal market for electricity production	–	–
Renewable energy	Reduce fossil fuel consumption by increasing biomass and alternative fuel consumption in industry	12.43	33.24
	Increase the share of RES in the internal market for electricity production	1.16	215.33

<i>Sector</i>	<i>Key PaMs</i>	<i>Estimate of mitigation impact by 2020 (kt CO₂ eq)</i>	<i>Estimate of mitigation impact by 2030 (kt CO₂ eq)</i>
Energy efficiency	Increase the use of RES in the internal market for electricity, heating and cooling in the residential sector	22.09	52.26
	Reduce energy consumption by promoting energy efficiency measures in the industrial sector	8.44	0.68
	Reduce energy consumption through compulsory energy saving measures in new residential buildings	185.44	112.27
	Reduce energy consumption by promoting voluntary energy upgrades of existing residential buildings	7.44	32.52
	Reduce energy consumption through compulsory energy saving measures in new tertiary buildings	20.47	12.61
	Reduce energy consumption by promoting voluntary energy upgrades of existing tertiary buildings	8.67	8.38
Waste			
Organics to landfill	Limit waste sent to landfill	0.00	145.67
Biogas recovery	Recover biogas from old and currently operating landfills	0.00	89.24
Sorting	Change the current municipal waste collection scheme	0.00	57.01
IPPU	Recover F-gases from old equipment	1.73	20.06

Note: The estimates of mitigation impact are estimates of emissions of CO₂ eq avoided in a given year as a result of the implementation of mitigation actions.

38. As part of the efforts of the Cypriot Government in the preparation of the Law on Fiscal Responsibility and Budget Systems (implemented in 2014), climate change mitigation and adaptation are included as the first target of the strategic plan of the Department of Environment and as one of the strategic goals of the Ministry of Agriculture, Rural Development and Environment.

39. Cyprus specifies 23 PaMs categorized by type of action, in a well-elaborated manner. For each policy or measure, the estimated emission reductions (annually for the period 2017–2040) are provided, as are details of how the estimation was done (e.g. underlying assumptions, including timing and scale of introduction), the scenario (WEM or WAM) to which it contributes and background information. The key information includes the names of the competent and other authorities concerned, the type of instrument applied (e.g. legislative and compulsory), relevant national and EU legislation, and measures towards attainment. Such information is the same in both the PaMs section and the projections section of the NC7, and is thus consistently integrated. Some information, however, such as costs of the PaMs, is not provided.

(b) Policies and measures in the energy sector

40. **Energy supply.** The energy system in Cyprus is not connected to the mainland, resulting in a high cost of energy, a high dependence on oil products and limited supply capacity for peak power demand. There has been a high rate of growth in energy demand, together with seasonal variations in energy demand, and there are limitations on the expansion of RES supply owing to strict protection of the island environment. One major measure was reported, which is related to the introduction of natural gas (start of LNG import) for electricity generation. With the start date for operation scheduled for 2021, this measure will have no impact before 2020, and no emission reduction estimate is provided, but a substantial impact is expected (more than 10 per cent total emission reductions in the energy sector) by 2021 (see para. 65 below).

41. **Renewable energy sources.** Cyprus expects to increase the share of RES from 9 per cent in 2015 to 13 per cent in 2020 of gross final energy consumption. A few PaMs are reported. For power generation, photovoltaic and wind parks are expected to make a considerable contribution in 2030, although the contribution will be small in 2020. Heat generation from RES plays a more important role, especially up to 2020 through, for example, the promotion of biomass in industry, with a target of a 10 per cent share and roughly 5 per cent of the total estimated emission reductions in 2020, and the promotion of RES in the residential sector for heating and cooling, with a target of a 35 per cent share and roughly 8 per cent of the total estimated emission reductions in 2020. The ERT noted that Cyprus has a successful model for introducing solar water heaters, having achieved the highest uptake of this technology among the EU member States; namely, in households (over 93 per cent) and hotels (over 52 per cent). Law No. 112(I)/213 on the promotion and encouragement of the use of RES is the overall domestic legal basis for the targets related to RES.

42. **Energy efficiency.** The third National Energy Efficiency Action Plan is the basis for a number of PaMs targeting energy efficiency that are reported in the NC7. The most relevant in terms of estimated impact are those targeting energy efficiency in: (1) new residential buildings, with savings of about 4,000 TJ and roughly 70 per cent of the estimated total emission reductions in 2020; (2) the tertiary sector, with savings of about 550 TJ and roughly 10 per cent of the estimated emission reductions in 2020; and (3) industry, with savings of about 97 TJ and roughly 3 per cent of the estimated emission reductions in 2020. Subsidies and other incentive schemes are applied broadly for energy efficiency investment. For the industrial sector, Law No. 31/2009 on energy end-use efficiency and energy services provides the legal basis for the targets.

43. **Residential and commercial sectors.** No PaMs are reported for this sector, except those related to RES and energy efficiency reported in paragraphs 45 and 46 above, which mainly focus on new buildings. Law No. 142(I)/2006 and its amendments regulating energy efficiency of buildings provide the legal basis for RES and energy efficiency measures in the sector.

44. **Transport sector.** A few PaMs are reported, including the introduction of CO₂ emission-based calculation of circulation taxes, old vehicle scrapping and replacement schemes, energy efficiency measures and bicycle rental systems. Only the introduction of biofuels in the transport sector is included in the projections; however, the total effect of measures is presented as zero in the WEM scenario. Law No. 112(I)2013–2015 (transposition of EU directive 209/28/EC) is the legal basis for the transportation biofuel measure.

45. The NC7 does not include information on how Cyprus promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. During the review, Cyprus clarified that the promotion and implementation of ICAO and IMO decisions is applied through the relevant EU framework.

46. **Industrial sector.** In addition to those PaMs related to renewable energy and energy efficiency reported in paragraphs 45 and 46 above, the F-gas regulation was introduced (see para. 51 below).

(c) **Policies and measures in other sectors**

47. **Industrial processes.** One policy is described: the recovery of F-gases and their recycling, reclamation and destruction, following the application of EU regulation 517/2014 (Article 9), which will start in 2020 under the Fluorinated Greenhouse Gases Law (No. 62(I)/2016 and 46(I)/2017). This law requires the compulsory establishment of a recovery system for F-gases based on the ‘producer responsibility’ principle. The targeted F-gases are mainly HFCs.

48. **Agriculture.** Anaerobic digestion for the treatment of manure waste with high organic content, mainly at large animal farms, is promoted by the Department of Environment under the control of water pollution measures “Waste water disposal” and “Sensitive areas for urban waste water discharges”. Although these are voluntary measures, they are expected to have a large GHG emission reduction potential in Cyprus following further promotion.

49. **LULUCF.** Cyprus reported that no PaMs are in place or planned for the LULUCF sector.

50. **Waste management.** Guided by the EU landfill directive, Cyprus has put in place the National Municipal Waste Management Plan 2015–2021, which contains targets that are quantitative (e.g. restoration of 20 non-sanitary landfills, construction of 22 collection points for selected waste streams) and qualitative (e.g. local waste prevention, separate collection systems, banning disposal of certain waste streams). Waste management, when combined with biogas recovery, has the most important forecasted impact in terms of emission reductions, starting in 2021, with roughly 10 per cent of the projected annual emission reductions. Although these measures will not contribute in 2020, significant emission reductions are expected in 2030.

(d) Minimization of adverse impacts in accordance with Article 2 and Article 3, paragraph 14, of the Kyoto Protocol

51. In the NC7 Cyprus does not report information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change and effects on international trade and social, environmental and economic impacts on other Parties, especially developing country Parties.

52. Information on how Cyprus strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties was reported in the 2018 annual submission. The Party reported on: the assessment of economic and social consequences of response measures, adverse effects of climate change, the minimization of effects on international trade and social, environmental and economic impacts on other Parties. The reporting included information on: the progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all GHG-emitting sectors, taking into account the need for energy price reforms to reflect market prices and externalities; cooperation in the development, diffusion and transfer of advanced fossil-fuel technologies that emit less GHGs and/or that capture and store GHGs, and encouraging their wider use and facilitating the participation of the least developed countries and other non-Annex I Parties in this effort.

(e) Assessment of adherence to the reporting guidelines

53. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 10.

Table 10
Findings on policies and measures, including those in accordance with Article 2 of the Kyoto Protocol from the review of the seventh national communication of Cyprus

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement ^a specified in paragraph 14 Issue type: completeness Assessment: encouragement	Chapter 4 of the NC7 does not provide information on which PaMs are innovative and/or effectively replicable by other Parties. During the review, Cyprus informed the ERT that no policy or measure is considered innovative and/or replicable by other Parties. The ERT encourages Cyprus to provide this information in its next NC.
2	Reporting requirement ^a specified in paragraph 15 Issue type: completeness Assessment: encouragement	Chapter 4 of the NC7 does not contain information on PaMs influencing GHG emissions from international transport. During the review, Cyprus informed the ERT that GHG emissions from aviation are included in the EU ETS and that other EU legislation, adopted in 2008, was designed to apply to emissions from flights within the European Economic Area. In addition, in June 2013 the European Commission adopted a communication setting out a strategy for progressively reducing overall emissions from maritime transport. Given that international bunker fuel related emissions are significant for Cyprus (i.e. about 10 per cent of the national GHG emissions for both aviation and maritime

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
3	Reporting requirement ^a specified in paragraph 16 Issue type: completeness Assessment: encouragement	<p>transport), the ERT encourages Cyprus to include in the next NC information on PaMs influencing international transport GHG emissions.</p> <p>Cyprus did not report in the NC7 if there are any policies or practices which encourage activities that lead to greater levels of anthropogenic GHG emissions than would otherwise occur.</p> <p>During the review, Cyprus informed the ERT that the promotion of composting is currently under investigation (included in both WEM and WAM scenarios) for reducing the amount of biodegradable waste going to landfill. According to Cyprus's calculations, 'business as usual' projections have from 2021 onward the least emissions when compared with WEM and WAM projections, when considering the promotion of composting.</p> <p>The ERT encourages Cyprus to improve the completeness of its reporting by providing in the next NC information on any policies or practices encouraging activities that lead to a greater level of anthropogenic GHG emissions than would otherwise occur. If there are none, the Party is encouraged to indicate this absence.</p>
4	Reporting requirement ^a specified in paragraph 18 Issue type: transparency Assessment: encouragement	<p>Cyprus described in its NC7 PaMs that were already described in the NC6 and it did not provide a clear description of changes since that report.</p> <p>The ERT encourages Cyprus to improve the transparency of its reporting by providing in the next NC references to PaMs already reported in previous NCs and focusing the reporting on changes in PaMs since the last report or on effects achieved.</p>
5	Reporting requirement ^a specified in paragraph 21 Issue type: transparency Assessment: encouragement	<p>Regarding monitoring and evaluation of PaMs over time, Cyprus reported in the NC7 the implementation of EU decision 280/2004 resulted in a process of assessment, revision and updating every two years, with the participation of various ministries. Nevertheless, it is not clear how this process has been implemented at the national level to ensure that the progress of PaMs is monitored and evaluated over time.</p> <p>During the review, Cyprus informed the ERT that the general framework for monitoring and evaluating PaMs over time is based on EU regulation 525/2013, which has the main aim of improving the quality of the data reported to assist tracking of progress towards the 2013–2020 target. Additionally, the EU Common and Coordinated Policies and Measures have provisions requiring each EU member State to monitor and evaluate GHG mitigation policies. The information provided to the ERT did not, however, include how Cyprus converts relevant EU rules to domestic procedures.</p> <p>The ERT encourages Cyprus to improve the transparency of its reporting by providing in its next NC a description of the way in which progress with PAMs to mitigate GHG emissions is monitored and evaluated over time domestically. The ERT notes that Cyprus may use the information provided by the Party during the review as the basis for this description.</p>
6	Reporting requirement ^a specified in paragraph 22 Issue type: completeness Assessment: recommendation	<p>The presentation of PaMs in the NC7 does not include details of which GHGs are affected.</p> <p>During the review, Cyprus submitted further information clarifying that all measures in the energy and transport sector target CO₂, the F-gas regulation targets HFCs and SF₆, and measures in the agriculture and waste sectors target CH₄ and N₂O.</p> <p>The ERT recommends that Cyprus improve the completeness of its reporting in the next NC by including information on which GHGs are affected by each policy or measure reported.</p>
7	Reporting requirement ^a specified in paragraph 23 Issue type: completeness	<p>The estimation methods used for the quantitative estimation of the impacts of individual measures presented in tables 5.3 and 5.4 of the NC7 are not reported. Although table 5.2 summarizes important information of the activity data of each policy or measure, the method used to calculate GHG emission reductions was not provided.</p>

No.	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
	Assessment: encouragement	<p>During the review, Cyprus described an algorithm based on the output results of the ‘business as usual’, WEM and WOM scenarios, but did not elaborate on the inputs (data) and methods used for building the scenarios.</p> <p>The ERT reiterates the encouragement made in the previous review report (FCCC/IDR.6/CYP) that Cyprus improve the completeness of its reporting by including a brief description of the estimation methods used.</p>
8	<p>Reporting requirement^b specified in paragraph 24</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>The NC7 does not contain any information on costs or non-GHG mitigation benefits for individual PaMs and their interaction with other PaMs at the national level.</p> <p>During the review, Cyprus clarified that no information is available for individual PaMs in terms of costs, non-GHG mitigation benefits and interaction with other PaMs at the national level.</p> <p>The ERT encourages Cyprus to improve the completeness of its reporting by including in the next NC information for individual PaMs on costs, non-GHG mitigation benefits and interaction with other reported PaMs.</p>
9	<p>Reporting requirement^a specified in paragraph 25</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>Cyprus did not report on how the Party believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals consistent with the objective of the Convention.</p> <p>During the review the Party informed the ERT that this has not yet been evaluated.</p> <p>The ERT recommends that Cyprus improve the completeness of its reporting in the next NC by providing information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals.</p>
10	<p>Reporting requirement^b specified in paragraph 34</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>The NC7 does not contain information specifically addressing PaMs implemented and/or further elaborated as well as cooperation with other Annex I Parties in achieving its quantified emission limitation and reduction commitment under Article 3 of the Kyoto Protocol in order to promote sustainable development.</p> <p>During the review, the Party clarified that no information specifically addressing this requirement is available.</p> <p>The ERT recommends that Cyprus improve the completeness of its reporting in its next NC by either providing information on PaMs and/or cooperation with other Annex I Parties to promote sustainable development, or explaining the challenges due to the national circumstances that preclude it from being able to provide such information.</p>
11	<p>Reporting requirement^b specified in paragraph 35</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>In the NC7, Cyprus presents emissions from international aviation and shipping by noting that they are presented in the GHG inventory and calls attention to the fact that some aviation emissions are considered in the EU ETS. Nevertheless, the NC7 does not identify the steps the Party has taken to promote decisions by ICAO and IMO to limit gases from aviation and marine bunker fuels.</p> <p>During the review, Cyprus informed the ERT that the promotion and implementation of ICAO and IMO decisions is done through the application of the relevant EU framework, including: the strategy for maritime transport proposing a measurement, reporting and verification system, reduction targets and further measures, including market-based instruments; the obligation for aviation and maritime renewable fuels, included in the renewable energy directive (2009/28/EC); and research funding through the Horizon 2020 programme.</p> <p>The ERT recommends that Cyprus improve the completeness of its reporting in its next NC by including information on the steps it has taken to promote and/or implement any decisions by ICAO and IMO to limit GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels. The ERT notes that the Party may use the information it provided during the review as the basis for this reporting.</p>
12	<p>Reporting requirement^b specified in paragraph 36</p>	<p>The NC7 does not contain information on how Cyprus strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects on other Parties.</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Issue type: completeness Assessment: recommendation	<p>During the review, Cyprus clarified that the formulation of climate policy in Cyprus has taken into account the minimization of the adverse effects of emission reduction PaMs, and that impacts on third-party countries are mostly indirect and, in general, cannot be directly attributed to a specific EU policy or directly measured by the EU in developing countries.</p> <p>The ERT recommends that Cyprus improve the completeness of its reporting by including in the next NC information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects on other Parties, and to further elaborate on how the minimization of adverse effects is considered. The ERT notes that the Party may use the information it provided during the review as the basis for this reporting.</p>

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

^a Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

^b Paragraph number listed under reporting requirement refers to the relevant paragraph of the reporting guidelines for supplementary information.

C. Projections and the total effect of policies and measures, including information on complementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

1. Projections overview, methodology and results

(a) Technical assessment of the reported information

54. Cyprus reported updated projections for 2020, 2030 and 2040 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Cyprus includes implemented and adopted PaMs until 2015.

55. In addition to the WEM scenario, Cyprus reported the WAM and WOM scenarios. The WAM scenario includes planned PaMs, while the WOM scenario includes only the PaMs implemented before 2015. Cyprus provided a definition of its scenarios, explaining that its WEM scenario includes policies such as using RES in electricity generation and diverting organic waste to landfills, which are the two measures with the largest GHG emission reduction effect; while its WAM scenario further strengthens and adds new measures, with promotion of new vehicle technologies driven by a tax revision being the measure with the greatest impact. All related measures are transparently summarized in tables and include short descriptions and their effects for the 2020, 2030 and 2040 time frames. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on NCs.

56. The projections are presented for 2015 to 2040 on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO₂, CH₄, N₂O and HFCs (collectively for each HFC), while emissions of PFCs, SF₆ and NF₃ are estimated but are negligible. The projections are also provided in an aggregated format for each sector as well as for a Party total using global warming potential values from the Fourth Assessment Report of the IPCC. Cyprus does not report any PaMs for the LULUCF sector, so the WEM and WAM scenarios do not include emissions/removals from the LULUCF sector.

57. Cyprus did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.

58. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not included in the scenarios, and thus were not reported, because no relevant PaMs were included. During the review, Cyprus explained to the ERT that the promotion and implementation of ICAO and IMO decisions in order to limit or reduce emissions of GHGs

not controlled by the Montreal Protocol from aviation and marine bunker fuels is applied through the implementation of the relevant EU framework (see para. 39 above).

(b) Methodology, assumptions and changes since the previous submission

59. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the NC6. However, there are differences in the assumptions used, which is the main reason for the differences in the three scenarios when comparing the NC6 with the NC7. In addition, the three scenarios in the NC7 include different measures compared with the NC6. The basic approach applied by Cyprus is to develop the WOM scenario first by summing the assumed activity levels multiplied by the corresponding emission factors. For the WEM and WAM scenarios, the impacts of relevant PaMs are added. The ERT recognizes, on the basis of further information provided by Cyprus during the review, that the bottom-up methodology used combined with expert judgment is a simple and user-friendly approach to understanding the impact of each measure.

60. To prepare its projections, Cyprus relied on the following key underlying assumptions for all scenarios: annual GDP growth rate projected by the Ministry of Finance in 2017 (3.0 per cent (2016), 2.7 per cent (2020), 2.1 per cent (2025), 2.0 per cent (2027 onward)), and the introduction of natural gas in electricity generation. These variables and assumptions were reported in the main text and in annexes III–V of the NC7 and in CTF table 5. The ERT noted that the share of RES is used as an assumption for the scenarios and does not constitute an output of the analysis.

61. The assumption on the introduction of natural gas in electricity generation will have the largest impact on future emissions. This shift from petroleum-based products to natural gas (initially as imported LNG and later also domestically produced) will occur in 2024 in the WOM scenario, but it will occur in 2021 in the WEM and WAM scenarios. The fuel shift itself – causing a sudden drop of CO₂ emissions as shown in the figure below – is included in the WOM scenario, while ‘earlier introduction’ is the measure taken in the WEM scenario. In addition, Cyprus explained during the review that the possible exploitation of natural gas in the exclusive economic zone could have a significant impact on GHG emissions, although such effects have not been taken into account in the scenarios because of the large uncertainties.

62. Another important assumption is the EuroAsia Interconnector, a new connection between the Greek, Cypriot and Israeli power grids, with commissioning expected in 2019–2022. This project would allow the Cypriot grid more flexibility in introducing intermittent RES (and importing power) without compromising the quality of the power supply. This project could have a large effect on the future CO₂ emission profile of Cyprus; however, the project is not taken into account in the scenarios owing to the large uncertainties.

63. Considering the potential significant effects of the domestic gas production and international power grid connection measures on the GHG emission profile of Cyprus in the future, the ERT notes that including these measures in the scenario analysis of future NCs would greatly enhance the transparency of reporting, even if there remain large uncertainties. Collaboration with the relevant authorities and sensitivity analyses could be used to estimate the effects of these measures and reduce uncertainties. The breakdown of the effects of the grid connection project (although new studies analysing the individual impacts are needed), could clarify how it would impact emission reductions.

64. Sensitivity analyses were conducted by changing each measure by 1 per cent and the results were reported in the NC7.

(c) Results of projections

65. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and the quantified economy-wide emission reduction target are presented in table 11 and the figure below.

Table 11
Summary of greenhouse gas emission projections for Cyprus

	GHG emissions (kt CO ₂ eq per year)	Changes in relation to base-year ^a level (%)	Changes in relation to 1990 level (%)
Kyoto Protocol base year ^b	5 627.24	NA	NA
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013–2020) ^c	5 931.27	5.4	5.4
Quantified economy-wide emission reduction target under the Convention ^d	NA	NA	NA
Inventory data 1990 ^e	5 621.65	–0.1	NA
Inventory data 2015 ^e	8 466.67	50.5	50.6
WOM projections for 2020 ^f	9 683.64	72.1	72.3
WEM projections for 2020 ^f	9 425.21	67.5	67.7
WAM projections for 2020 ^f	9 350.72	66.2	66.3
WOM projections for 2030 ^f	10 212.52	81.5	81.7
WEM projections for 2030 ^f	9 402.33	67.1	67.3
WAM projections for 2030 ^f	7 906.10	40.5	40.6

Note: The projections are for GHG emissions without LULUCF.

^a “Base year” in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

^b The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/CYP.

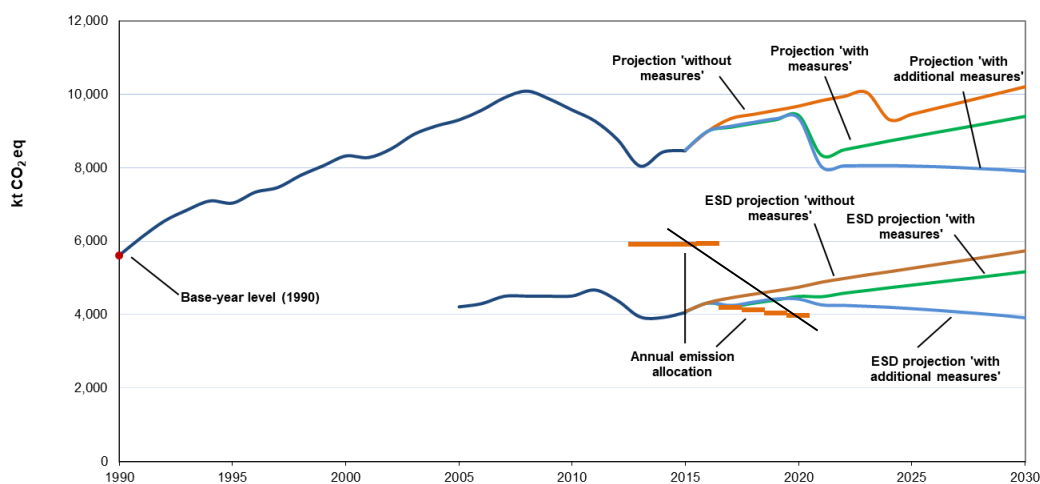
^c The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is 5 per cent compared with the 2005 level for Cyprus under the ESD. The value presented in this line is based on annex II to European Commission decision 2013/162/EU and as adjusted by Commission implementing decision 2013/634/EU that established the assigned amount for the EU member States and divided by eight years to calculate the annual emission level.

^d The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

^e From Cyprus’s BR3 CTF table 6.

^f From Cyprus’s BR3 CTF table 6.

Greenhouse gas emission projections reported by Cyprus



Sources: (1) data for the years 1990–2015: Cyprus’s CTF table 1; total GHG emissions excluding LULUCF; (2) data for the years 2016–2030: annual projection data for all scenarios and the ESD projections were provided by Cyprus during the review; (3) ESD review data from the European Environment Agency (2005–2015); (4) EU transaction log (AEA).

66. Cyprus's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 9,425.21 and 9,402.33 kt CO₂ eq, respectively, under the WEM scenario, which represents an increase of 67.7 and 67.3 per cent, respectively, above the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be higher than those in 1990 by 66.3 and 40.6 per cent and amount to about 9,350.72 and 7,906.10 kt CO₂ eq, respectively. The 2020 projections suggest that Cyprus should strive to contribute to the achievement of the EU target under the Convention (see para. 71 below).

67. Cyprus's target for non-ETS sectors is to reduce its total emissions by 5.0 per cent below the 2005 level by 2020. Cyprus's AEAs, which correspond to its annual national emission target for non-ETS sectors, change linearly from 5,919.07 kt CO₂ eq in 2013 to 3,975.25 kt CO₂ eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 4,500.51 kt CO₂ eq by 2020. Under the WAM scenario, Cyprus's emissions from non-ETS sectors in 2020 are projected to be 4,427.00 kt CO₂ eq. The projected levels of emissions under the WEM and WAM scenarios are 13.2 and 11.4 per cent above the AEAs, respectively, for 2020. Cyprus intends to use the flexibility mechanism under the ESD to cover the shortage of allowances in years to come, in addition to the implementation of a new climate change and energy national plan for the period 2021–2030, which is expected to be ready by the end of 2018.

68. The effort-sharing regulation (regulation (EU) 2018/842) adopted by the EU on 30 May 2018, after the submission of Cyprus's NC7, specifies the non-ETS targets of each EU member State for 2021–2030. In this regulation, Cyprus shall meet the target of reducing emissions by 24 per cent below the 2005 level by 2030 even though there are several flexibilities. The ERT's preliminary calculation shows that the target level in 2030 is about 3,200 kt CO₂ eq, which is much lower than the projected emissions of the WEM (5,171 kt CO₂ eq) and WAM (3,916 kt CO₂ eq) scenarios. The ERT noted that this implies that Cyprus will need to introduce measures with an impact of about 2,000 kt CO₂ eq in addition to the WEM scenario or about 700 kt CO₂ eq in addition to the WAM scenario. During the review, Cyprus explained that the new climate change and energy national plan is expected to fill this gap (see para. 78 below).

69. Cyprus presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in table 12.

Table 12
Summary of greenhouse gas emission projections for Cyprus presented by sector

Sector	GHG emissions and removals (kt CO ₂ eq)					Change (%)			
	1990	2020		2030		1990–2020		1990–2030	
		WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM
Energy (not including transport)	2 740.08	4 330.52	4 357.94	3 810.94	3 472.63	58.0	59.0	39.1	26.7
Transport	1 200.40	2 247.01	2 174.91	2 787.77	1 757.10	87.2	81.2	132.2	46.4
Industry/industrial processes	764.89	1 546.02	1 528.76	1 555.17	1 535.12	102.1	99.9	103.3	100.7
Agriculture	543.25	681.92	681.41	716.85	713.04	25.5	25.4	32.0	31.3
LULUCF ^a	–100.32	-	-	-	-	NA	NA	NA	NA
Waste	385.06	620.01	607.69	533.21	428.22	61.0	57.8	38.5	11.2
Other (specify) ^b	-	-	-	-	-	NA	NA	NA	NA
Total GHG emissions without LULUCF	5 621.65	9 425.21	9 350.72	9 402.33	7 906.10	67.7	66.3	67.3	40.6

Source: Cyprus's BR3 CTF table 6.

^a For LULUCF Cyprus reported blank cells for 2020 and 2030 projections.

^b Cyprus reported blank cells.

70. Because Cyprus has experienced a significant increase in emissions since 1990 (50.6 per cent by 2015) driven by its economic growth, the ERT considers that the emission reduction contribution should be assessed in comparison with the WOM ('business as usual') scenario starting from 2015, not with the level of 1990.

71. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions compared with the WOM scenario are expected to occur in the energy sector (not including transport), with the energy efficiency measure for new residential buildings having the greatest effect, amounting to projected emission reductions of 185 kt CO₂ eq (about 69 per cent of the total emission reductions and equivalent to 2 per cent of the total GHG emissions, excluding LULUCF, in 2020). In 2030, the measures with the greatest impact are RES in the energy sector (215 kt CO₂ eq), organic waste to landfill (146 kt CO₂ eq), energy efficiency for new residential buildings (112 kt CO₂ eq) and biogas recovery in the waste sector (89 kt CO₂ eq), amounting to 26, 18, 14 and 11 per cent of the total emission reductions (817 kt CO₂ eq), respectively, and equivalent to 2.3, 1.5, 1.2 and 0.9 per cent of total GHG emissions, excluding LULUCF, respectively. The ERT noted that the measures in the waste sector contribute significantly in 2030 although almost no measures are in place in 2020. Further, the shift to natural gas from oil products in electricity generation has a much larger effect (900–995 kt CO₂ eq per year, information provided by Cyprus during the review), but Cyprus categorized it as the 'business as usual' practice and therefore included this measure in the WOM scenario (except for the effect of earlier introduction, which is counted for three years only, not in 2020 or in 2030 as shown in the figure above).

72. According to the projections reported for 2020 under the WAM scenario, the most significant emission reductions compared with the WOM scenario are also expected to occur as a result of the energy efficiency measure for new residential buildings, amounting to projected emission reductions of 185 kt CO₂ eq (the same as under the WEM scenario, about 54 per cent of the total emission reductions (342 kt CO₂ eq) and equivalent to 2.0 per cent of the total GHG emissions, excluding LULUCF, in 2020). Additional significant measures under the WAM scenario include renewable energies in the commercial sector (81 kt CO₂ eq) and new transportation technologies (51 kt CO₂ eq), about 24 and 15 per cent of the total emission reductions, respectively.

73. In 2030, the measures with the greatest impact are new transportation technologies (697 kt CO₂ eq), RES in the energy sector (430 kt CO₂ eq), RES in the transportation sector (287 kt CO₂ eq), energy efficiency for new buildings (201 kt CO₂ eq), organic waste to landfill (162 kt CO₂ eq), biogas recovery in the waste sector (134 kt CO₂ eq) and sorting of waste (106 kt CO₂ eq), amounting to 30, 19, 12, 9, 7, 6 and 5 per cent of the total reductions (2,315 kt CO₂ eq), respectively. Measures in the transportation and waste sectors are expected to play a more significant role than the energy-related measures. The ERT noted that the effects of energy efficiency in the industrial and commercial sectors are relatively small, and there are almost no existing measures. However, Cyprus considers the energy efficiency measures will play a much more important role in meeting the strengthened 2030 EU national ESD target.

74. Cyprus informed the ERT during the review that it is preparing a new climate change and energy national plan, as required by the EU climate change and energy governance regulation. The plan is expected to be ready by the end of 2018 and must include the measures Cyprus will use in meeting its targets under the ESD (total and annual) for the period 2021–2030 (–24 per cent in 2030 compared with the 2005 emission level). This plan, although not included in the current scenario analysis, is expected to contain considerable additional PaMs in order to meet Cyprus's commitments.

75. Cyprus presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 13 below:

Table 13
Summary of greenhouse gas emission projections for Cyprus presented by gas

Gas	GHG emissions and removals (kt CO ₂ eq)					Change (%)			
	2020		2030			1990–2020		1990–2030	
	1990	WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM
CO ₂	4 620.99	7 594.08	7 551.17	7 605.61	6 269.31	64.3	63.4	64.6	35.7
CH ₄	691.71	1 055.98	1 043.57	989.77	876.55	52.7	50.9	43.1	26.7
N ₂ O	308.92	397.19	395.27	425.84	399.19	28.6	28.0	37.8	29.2
HFCs	NO, NE	377.96	360.71	381.11	361.05	NO, NE	NO, NE	NO, NE	NO, NE
PFCs	NO	NO	NO	NO	NO	NO	NO	NO	NO
SF ₆	0.03	NE	NE	NE	NE	NE	NE	NE	NE
NF ₃	NO	NO	NO	NO	NO	NO	NO	NO	NO
Total GHG emissions without LULUCF	5 621.65	9 425.21	9 350.72	9 402.33	7 906.10	67.7	66.3	67.3	40.6

Source: Cyprus's BR3 CTF table 6.

76. For 2020 under the WEM scenario, the most significant reductions are projected for CO₂ emissions: 266.00 kt CO₂ (102.9 per cent) in comparison with the WOM scenario. For 2030, the most significant reductions are projected for CO₂ and CH₄ emissions: 495.16 kt CO₂ (61.1 per cent) and 293.73 kt CO₂ eq (36.3 per cent), respectively, in comparison with the WOM scenario. Although most of the measures by 2020 focus on energy, with a slight increase in CH₄ by the waste measure, more than a third of contributions to GHG emission reductions is expected to be CH₄ reductions in the waste sector for 2030 (see para. 75 above).

77. If additional measures are considered (WAM scenario), the pattern of emission reductions compared with the WOM scenario presented by gas differs slightly for 2020 owing to the introduction of waste sector measures for CH₄, and more significantly for 2030 owing to the much strengthened energy measures for CO₂, while overall emission reductions are expected to be enhanced 1.29 and 2.85 times compared with the difference between the WEM and WOM scenarios for 2020 and 2030, respectively.

78. The ERT noted that the methodology used for the projections is simple and user-friendly, especially for policymakers, because it is a bottom-up methodology. The ERT also noted that improvements to the documentation of the methods, the table of key inputs (assumptions) and key outputs could enhance the transparency and usability of the analysis. The documentation could include the pros and cons of the approach as well as how to apply it and why not to apply it for some purposes. The list of input activity data as specified in annexes III–V of the NC7 could be a good database linking to the national GHG inventory documenting changes over time, and could be maintained, or revised as needed, every year, as is the current practice.

79. Given it is possible for EU member States to separate emission sources into those relating to the EU ETS and the ESD, the ERT suggests that Cyprus could provide information on the GHG inventory and projections based on this categorization in the next NC, as provided during the review, and apply this categorization to the PaMs table as well, consistent with its reporting to the EU.

80. The model for scenario analyses consists of input parameters and the logic expressed by a set of math formulae. Such 'input' parameters are 'outputs' of studies focusing on individual elements, for example on some specific measure or an individual aspect of a measure. In the NC7, Cyprus did not include the EuroAsia Interconnector measure because it has large uncertainties, but the Party expects to include it in the scenario analyses in future NCs. For this purpose, a more detailed analysis of such a measure is needed to incorporate its effects into the model and scenario analyses. The ERT suggests that Cyprus initiate the relevant element study first, even if large uncertainties remain, in order to understand the

possible impact, at least of its scale, and to consider the effects of underlying conditions. The ERT noted that there have been several studies related to grid stability, as mentioned by Cyprus during the review. Key elements to be studied include:

- (a) The introduction of natural gas, which has an effect not only on power generation but also on other sectors (e.g. domestic and industrial use) as well as on CH₄ and CO₂ emissions from domestic exploitation;
- (b) EuroAsia Interconnector, which may have several impacts (e.g. on the import and export of electricity, on the expansion of RES, on natural gas power generation (positive or negative impacts) and on electricity demand (increase because of lowered tariffs)) and which may contribute to the design of PaMs to promote the use of RES;
- (c) The new, comprehensive climate change and energy national plan.

81. Further, the ERT suggests that Cyprus undertake sensitivity analyses for uncertain factors of scenarios, especially for some key assumptions. For example, the sensitivity analysis of the timing of some key measure could provide useful information in the ‘act’ step of the ‘plan–do–check–act’ cycle in order to judge when and how to adjust the relevant measure. The ERT recognizes that Cyprus currently checks annually and adjusts biennially its climate actions. In addition, EU-driven measures should be assessed as to whether they contribute to domestic emission reductions. Therefore, the ERT encourages Cyprus to assess measures related to international bunker fuels even if those measures are driven by the EU, considering their large contribution to emissions (about 20 per cent of total emissions) internationally.

(d) Assessment of adherence to the reporting guidelines

82. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 14.

Table 14
Findings on greenhouse gas emission projections reported in the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement ^a specified in paragraph 43 Issue type: transparency Assessment: encouragement	<p>The NC7 contains a description of the type of model used, but underlying characteristics (e.g. top-down model, bottom-up model, accounting model, expert judgment) and the original purpose the model or approach was designed for and, if applicable, how it has been modified for climate change purposes was not clear (paragraph 42 of the UNFCCC reporting guidelines on NCs are relevant to this point).</p> <p>Relevant information related to the scenario analysis approach and other characteristics, including assumptions for some specific parameters of the model, was not clear (paragraphs 32, 42 and 45 of the UNFCCC reporting guidelines on NCs are relevant). This issue was also raised in the previous review report (FCCC/IDR.6/CYP).</p> <p>During the review, Cyprus explained that a bottom-up methodology based on expert judgment is used.</p> <p>The ERT recognizes that the models or tools used and the scenario approach and analyses are interrelated, and it is therefore better to explain them in an integrated way. In order to do so, the characteristics of the models must be understood and their appropriate use specified.</p> <p>The ERT reiterates the encouragement made in the previous review report for Cyprus to report on its scenario analysis approach, including the model characteristics, assumptions used and how they are selected, inputs and outputs (clearly distinguished), and implications of the outcome, in order to enhance the transparency and user-friendliness for the benefit of not only reviewers of future NCs but also domestic users of the scenario analyses, because these analyses are a good tool to use when designing, planning and implementing PaMs.</p>

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
2	Reporting requirement ^a specified in paragraph 48 Issue: completeness Assessment: recommendation	Cyprus did not present relevant information on factors and activities for each sector that would help readers gain an understanding of the emission profile for the period 1990–2020. During the review, Cyprus explained the factors involved in the historical emission trend in a concise and transparent manner (steady economic growth for 1990–2008, decline for 2008–2013, and a subsequent increasing trend). The ERT recommends that, in the next NC, Cyprus provide information on factors and activities relevant for understanding the emission trends for each sector for the years 1990 to 2020.
3	Reporting requirement ^a specified in paragraph 36 Issue type: completeness Assessment: recommendation	Cyprus did not provide information on emission projections related to fuel sold to ships and aircraft engaged in international transport in its NC7. During the review, Cyprus explained to the ERT that the promotion and implementation of ICAO and IMO decisions in order to limit or reduce emissions of GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels is applied through the implementation of the relevant EU framework. The ERT recommends that Cyprus report emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and report them separately (not included in the totals), in its next NC, in order to improve completeness.

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

^a Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

2. Assessment of the total effect of policies and measures

(a) Technical assessment of the reported information

83. In the NC7 and CTF table 6, Cyprus presented an estimate of the total effect of its PaMs, in accordance with the WEM scenario, compared with the WOM scenario. Information is presented in terms of GHG emissions avoided by each measure (on a CO₂ eq basis), in 2020, 2030 and 2040. The total effect is presented as the summation of the effect of individual PaMs. The factors potentially influencing the effects in the future assessment include a change in the energy mix as well as interconnection of the grid to the continent, as mentioned in paragraphs 65 and 66 above.

84. The ERT noted that, as shown in table 15, the planned PaMs will have minor contributions in 2020, but their contributions will be more significant than that of the adopted and implemented measures in 2030 and onward. As the figure above indicates, the WEM scenario is expected to result in an increase in GHG emissions after the introduction of natural gas in 2021, although the WAM scenario is expected to turn the profile to a decreasing trend.

85. According to the information reported in the NC7, the PaMs adopted and implemented in the energy sector dominate the emission reductions in both 2020 and 2030, while PaMs in the waste sector are expected to bring the second most important reductions (about 60 per cent of the amount of reductions achieved in the energy sector) by 2030. For planned PaMs in 2030, transport sector measures dominate, followed by those of the energy sector (about 30 per cent of the amount of reductions achieved in the transport sector). Table 15 provides an overview of the total effect of PaMs as reported by Cyprus.

Table 15
Projected effects of Cyprus' planned, implemented and adopted policies and measures by 2020 and 2030

Sector	2020		2030	
	<i>Effect of implemented and adopted measures (kt CO₂ eq)</i>	<i>Effect of planned measures (kt CO₂ eq)</i>	<i>Effect of implemented and adopted measures (kt CO₂ eq)</i>	<i>Effect of planned measures (kt CO₂ eq)</i>
Energy (without transport)	268.62	-27.42	497.03	338.31
Transport	0.00	72.10	0.00	1 030.67
Industrial processes	1.73	17.26	20.06	20.05
Agriculture	8.83	0.51	8.80	3.81
Land-use change and forestry	0.00	0.00	0.00	0.00
Waste management	-12.32	12.32	291.03	104.99
Total	258.43	74.49	810.19	1 496.23

Source: Cyprus's NC7, BR3 and CTF table 6.

Note: The total effect of implemented and adopted PaMs is defined as the difference between the WOM and the WEM scenario; the total effect of planned PaMs is defined as the difference between the WEM and the WAM scenario.

(b) Assessment of adherence to the reporting guidelines

86. The ERT assessed the information reported in the NC7 of Cyprus and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

(a) Technical assessment of the reported information

87. In the NC7, Cyprus provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. The ERT noted that Cyprus does not plan to use the market-based mechanisms to meet the ESD component of its Kyoto Protocol target. Further, the ERT noted that, in the absence of a fully operational connection between the Cypriot national registry and the international transaction log, Cyprus is not in a position to use any of the flexibility mechanisms to achieve its target under the Kyoto Protocol.

88. According to EU legislation relevant to the target under the Kyoto Protocol, supplementarity refers to the use of flexible mechanisms and a Party may take into account 50 per cent of the difference between the total emissions from source categories included in Annex A to the Kyoto Protocol and the Kyoto Protocol target which, according to projections reported in the NC7, equals 1,895.75 kt CO₂ eq.

(b) Assessment of adherence to the reporting guidelines

89. The ERT assessed the information reported in the NC7 of Cyprus and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

D. Provision of financial and technological support to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

90. Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention.

E. Vulnerability assessment, climate change impacts and adaptation measures

1. Technical assessment of the reported information

91. In the NC7, Cyprus provided the required information on the expected impacts of climate change in the country; the adaptation policies covering regional, sectoral and cross-sectoral vulnerabilities and considerations; and an outline of the action taken to implement Article 4, paragraph 1(b), of the Convention with regard to adaptation. Cyprus provided a description of climate change vulnerability and impacts on the country and highlighted the adaptation response actions taken and planned at different levels of government. The identified vulnerable sectors/areas include biodiversity, infrastructure, energy, health, forestry, water resources and agriculture. The NC7 lists the sectoral breakdown of the actions included in the national adaptation strategy across the 11 policy areas of water, soils, biodiversity, agriculture, forestry, fisheries, health, energy, tourism, coastal areas and infrastructure, as well as a group of cross-sectoral actions.

92. The “Development of a national strategy for adaptation to climate change adverse impacts in Cyprus” or CYPADAPT project (co-financed by the EU through the LIFE+ instrument), with partners from Cyprus and Greece, started in September 2011 and ended in March 2014.

93. Impetus has been given to addressing adaptation matters with the adoption of a combined national adaptation strategy and action plan in 2014, which was further updated and formally adopted in May 2017. The adaptation policymaking process is coordinated by the Department of Environment of the Ministry of Agriculture, Rural Development, Natural Resources and Environment, the authority responsible for climate change in Cyprus. In November 2017, meetings with all the stakeholders occurred so as to assess the status of implementation of the activities included in the action plan.

94. The implementation of several adaptation measures has commenced prior to the adoption of the strategy and action plan, some of which are autonomous.⁶ During the review, Cyprus explained to the ERT that the Institute of Agricultural Research and the Department of Forests is undertaking projects that facilitate adaptation. There is cooperation among wider regional authorities, municipalities, community groups and private local enterprises, such as CAMP-Cyprus, which covers the local spatial dimension of the southern peri-urban coastal area of Larnaca and implements activities related to: (1) biodiversity; (2) carrying capacity assessment; (3) strategic environmental assessment; and (4) environmental economics and economic instruments. It involves the cooperation of Larnaca municipality and the communities of Pervolia, Meneou and Kiti. Another example is the COASTANCE project for coastal zone adaptation, which includes an assessment of the coastal risks and management measures for a pilot case of the Mazotos area in Larnaca District. The MAREMED project on coastal adaptation is a partnership of the Larnaca District Development Agency with 14 regions from five countries.

95. Future climate change was projected by using PRECIS⁷ as the main regional climate model and the A1B scenario of the IPCC *Special Report on Emissions Scenarios*, which provides a midline scenario for CO₂ emissions and economic growth. The predictions of future climate change were examined for the near future period 2021–2050 and the distant future period 2071–2100. The derived values of various climatic parameters in Cyprus for both future stages were compared with the reference values for the control period 1960–1990. The climate change predictions for the 2021–2050 period were made by using six additional simulation models from the ENSEMBLES prediction system⁸ in addition to PRECIS, whereas for the 2071–2100 period the emission scenarios A2 and B2 were used in addition to scenario A1B. The near future period 2021–2050 was chosen specifically and examined

⁶ Autonomous adaptation refers to adaptation activities implemented at the sectoral level that are not coordinated by the national coordinating agency for the national adaptation strategy or are not included in the action plan.

⁷ Providing Regional Climates for Impacts Studies.

⁸ Resulting from the ENSEMBLES project. See <http://ensembles-eu.metoffice.com/about.html>.

in detail for the needs of stakeholders and policymakers in order to assist their planning in relation to adaptation measures, impacts and vulnerability assessment.

96. In general, regional climate models consistently predict an overall warming and drying of Cyprus, with significant impacts on human health, energy use, water resources and other socioeconomic factors. Pronounced warming and precipitation reduction are also detected from the time series of temperature and precipitation parameters for representative locations of Cyprus during the period 1951–2100.

97. In the period 2021–2050, the projected changes in temperature are significant and are consistent with previous work that shows that heat stress is expected to intensify. In particular, a continual, gradual and relatively strong warming is shown in the projected changes of the average annual maximum temperature, ranging from 1.0 °C to 2.0 °C (with spatial variations) compared with the 1961–1990 reference period. In the period 2071–2100, projected changes in temperature based on the A1B scenario are also significant. In particular, a very strong warming of 2.5–4.5 °C may occur between the 1961–1990 reference period and the distant future period 2071–2100, as shown by the annual maximum and minimum temperature patterns. Cyprus’s projected precipitation changes are quite variable, depending on the model used. Therefore, Cyprus’s precipitation patterns must be interpreted with caution, owing to the large temporal variability of rainfall and the inherent limitations of climate models to simulate accurately the hydrological cycle. Changes in annual precipitation provide important information about the occurrence of droughts and subsequent water shortages in Cyprus. In the near future period 2021–2050, projected precipitation in Cyprus will decrease (although at different values, depending on the model) with seasonal and regional variations.

98. Table 16 summarizes the information on vulnerability and adaptation to climate change presented in the NC7 of Cyprus.

Table 16
Summary of information on vulnerability and adaptation to climate change reported by Cyprus

Vulnerable area	Examples/comments/adaptation measures reported
Agriculture and food security	<p><i>Vulnerability:</i> The main vulnerability priorities for the agriculture sector of Cyprus, as observed in the recent past, relate to the impacts of climate change leading to reduced crop yield and productivity owing to limited water resources, the damage caused to crops by extreme weather events and declining soil fertility.</p> <p><i>Adaptation:</i> The practices applied in Cyprus in order to limit the impact of reduced crop yields are: (1) increasing water availability for irrigation from government water works by applying on-farm practices; (2) reducing water demand for irrigation by increasing water use efficiency in irrigation through the use of advanced irrigation systems (irrigation scheduling), reducing run-off and planting less water-intensive crops; and (3) increasing crop productivity through the application of crop rotation, fertilization and using crops that are more resistant to hot and dry climates.</p> <p>Measures to reduce degradation of arable land include economic incentives under the Rural Development Programme of Cyprus (2007–2013) such as mechanical instead of chemical destruction of weeds, integrated production management and organic production.</p> <p>The measures undertaken to support farmers in reducing the proliferation of new pests and diseases are the: (1) promotion of indigenous and locally adapted plants and animals; (2) development of an integrated pest management strategy; (3) application of crop rotation practices; and (4) resistance enhancement of existing plants and animals to pests and diseases.</p> <p>For protection of crops against droughts, a plethora of measures have been undertaken or promoted to increase water availability for irrigation and reduce run-off. However, in spite of the measures, water demand for irrigation during drought events is not fully met in most cases, and thus the adaptive capacity of crops to droughts is considered to be ‘limited to moderate’. In general, the above-mentioned measures for the protection of crops from extreme events are applied at the farm level and hence their implementation depends on the initiative of each farmer. Considering this, the adaptive capacity to this impact is characterized as ‘limited to moderate’.</p>
Biodiversity and natural ecosystems	<p><i>Vulnerability:</i> Projected changes in climate, combined with land-use change and the spread of exotic or alien species, are likely to limit the capability of some species to migrate and therefore will accelerate species loss. Temperature rise is the main reason for the northward movement of marine species, changing the composition of local and regional marine ecosystems. Thus both the distribution of fish and the socioeconomic situation of local fishers are affected heavily.</p>

Vulnerable area	Examples/comments/adaptation measures reported
Marine ecosystems	<p><i>Adaptation:</i> The existing national legislative framework aims primarily at reducing human pressures on biodiversity, while little can be done to reduce the effects from adverse climate conditions. The action plan for the control and eradication of the invasive alien species of the genus <i>Acacia</i> in NATURA 2000 areas has been effective at halting the spread of harmful invasive species. There are no data available for the animal population movements in Cyprus, although the extensive existing national legislative framework is protective for many animal species.</p> <p><i>Vulnerability:</i> Scientific recording of the populations of marine species has revealed some of the extent of the threat to marine host species. The genetic adjustments of host organisms to new conditions need many reproductive cycles, and as a result the most common way to survive is migration to other latitudes.</p> <p><i>Adaptation:</i> There are numerous institutional measures for the protection of marine ecosystems in Cyprus, including the coastal protected area of Lara-Toxeftra, which covers the most important breeding biotope for sea turtles. The protection of aquatic species of inland and marine waters has been implemented through the provisions of national law since 1971. In addition, Cyprus has ratified a number of conventions related to the protection of biodiversity.</p>
Forests	<p><i>Vulnerability:</i> Direct impacts of climate change on forests in Cyprus arise mainly from decreased rainfall and increased temperature, droughts, fluctuations in intensified precipitation and changes in fire regimes. Indirect impacts are possible as a result of interactions between changes in climatic variables and several abiotic and biotic factors adding to pressures that are not related to climate. The main vulnerability priorities for the forests of Cyprus, as observed in the recent past, are damage caused by fires, insect attacks and diseases on the dieback of tree species. These impacts are expected to worsen.</p> <p><i>Adaptation:</i> The future vulnerability of the forestry sector to climate change impacts in terms of sensitivity, exposure and adaptive capacity based on the available quantitative and qualitative data for Cyprus and the climate projections for the period 2021–2050 are under assessment for: (1) dieback of tree species, insect attacks and diseases; (2) fires; (3) floods, windthrows and storm damage; and (4) forest growth.</p>
Human health	<p><i>Vulnerability:</i> The main climate change related phenomena that have been recorded in Cyprus are temperature increase (during summer), an increase in the frequency and intensity of heatwaves, and reduction in the total precipitation amounts in parallel with increasing rainfall intensity and enhanced drought. The main vulnerability is related to deaths and health problems owing to the frequent heatwaves and high temperatures, especially during summer. In addition, human discomfort, in particular for elderly people, is getting worse when the humidity levels are high and when air is polluted with particles of dust from the Sahara Desert.</p> <p><i>Adaptation:</i> Research on the effects of climate change on public health in Cyprus. Participation in MedCLIVAR, which is an international network, aims to study the climate change impacts and challenges posed to public health, as well as the occurrence of extreme events that are closely related to climate variability in the Mediterranean and other regions around the world.</p>
Infrastructure and economy	<p><i>Vulnerability:</i> The climatic factors that are likely to induce adverse impacts on the Cypriot infrastructure system are mainly heavy rain, sea level rise, flooding and wind speed. Heavy rain may affect all types of infrastructure because of the risk of flooding and land sliding and collapsing. The main vulnerability priority of the sector is related to the damage caused by urban floods and sea floods, causing material damages and disruption to operations. Much of the infrastructure important to the Cypriot economy is located in coastal areas. Variations in precipitation, temperature, heavy rain and heatwave days can have an impact on landslide occurrence and therefore pose a risk to infrastructure.</p> <p><i>Adaptation:</i> Cyprus has not experienced any severe floods from the sea in the past. Specific flood protection measures undertaken in the past decade to reduce impacts include: (1) hard coastal defence works (for sea flood protection); (2) fishing shelters and artificial reefs (for sea flood protection); (3) dams (for urban flood protection); and (4) sustainable urban drainage systems (for urban flood protection). A research project, “Study of landslides in areas of Pafos District”, has been undertaken to minimize landslide risk and to promote a more efficient and secure urban development. A few landslide protection measures undertaken include road protection measures, retention walls and terraces. Considering the above, both the exposure and the adaptive capacity of infrastructure to landslide damage for the near future period (2021–2050) can be characterized as ‘limited’.</p>
Water resources	<p><i>Vulnerability:</i> The water resources of Cyprus are considered to be vulnerable to climate change because they are limited owing to the semi-arid climate that characterizes this Mediterranean island. The climatic factors that may have an impact on the water resources of Cyprus include decreased rainfall and increased temperature, droughts and fluctuations in intense precipitation</p>

<i>Vulnerable area</i>	<i>Examples/comments/adaptation measures reported</i>
	<p>events. Freshwater availability depends almost entirely on rainfall, which is highly variable, with frequent prolonged periods of drought.</p> <p><i>Adaptation:</i> In order to satisfy drinking water and irrigation demand, the Government of Cyprus continues to deliver a number of water works for the exploitation of the available freshwater resources (both surface water and groundwater) and non-freshwater resources (sea water, recycled water). According to the standards of the International Commission of Large Dams, Cyprus is the country in Europe with the highest number of dams per square kilometre, having 108 dams and reservoirs with a combined storage capacity of 332 million m³.</p>

99. Cyprus has been a member of the Adaptation Steering Group of the EU Directorate-General for Climate Action and the Climate Change Adaptation Working Group of the European Environment Agency, which formulated the European Adaptation Strategy; however, the current status of its participation was not reported in the NC7. The Party informed the ERT during the review that it is coordinating a project proposal entitled, “Development of a climate change impacts and adaptation observatory”. This project concept note has been approved by the European Commission and Cyprus has submitted a full proposal to the LIFE 2017 call. The project work is to be assisted by the CYCLADAPT Scientific Advisory Committee, which consists of leading national, regional and international experts, including experts from the Cyprus Institute and other regional partners. The ERT also learned that within the state bilateral and multilateral cooperation established so far, the Party has included climate change as a regional priority and relevant agreements have been signed under bilateral and multilateral cooperation.

2. Assessment of adherence to the reporting guidelines

100. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 17.

Table 17

Findings on the vulnerability assessment, climate change impacts and adaptation measures from the review of the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	<p>Reporting requirement specified in paragraph 49</p> <p>Issue type: completeness</p> <p>Assessment: recommendation</p>	<p>Parties are required to provide an outline of the action taken to implement Article 4, paragraph 1(e), of the Convention, with regard to adaptation. However, the ERT noted that no such information was presented in the NC7. This issue was also raised in the previous review report (FCCC/IDR.6/CYP).</p> <p>The ERT reiterates the recommendation made in the previous review report that Cyprus provide in its next NC an outline of action taken to implement Article 4, paragraph 1(e), of the Convention, with regard to adaptation.</p>
2	<p>Reporting requirement specified in paragraph 49</p> <p>Issue type: completeness</p> <p>Assessment: encouragement</p>	<p>Parties are encouraged to use the IPCC <i>Technical Guidelines for Assessing Climate Change and Impacts and Adaptations</i> and the United Nations Environment Programme <i>Handbook on Methods for Climate Change Impacts Assessment and Adaptation Strategies</i>. The ERT noted that the NC7 did not contain any information as to whether these guidelines were used. This issue was raised in the previous review report (FCCC/IDR.6/CYP).</p> <p>During the review Cyprus confirmed that these guidelines were used.</p> <p>The ERT reiterates the encouragement made in the previous review report that Cyprus report on the use of both the IPCC <i>Technical Guidelines for Assessing Climate Change and Impacts and Adaptations</i> and the United Nations Environment Programme <i>Handbook on Methods for Climate Change Impacts Assessment and Adaptation Strategies</i>.</p>

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

F. Research and systematic observation

1. Technical assessment of the reported information

101. Cyprus provided information on its general policy and funding relating to research and systematic observation and addressed both domestic and international activities, including a summary section on the Global Climate Observing System.

102. Cyprus has implemented and planned international and domestic policies and programmes on climate change research and systematic observation. The responsibility for the design of the national research and innovation policy is carried out by the Directorate-General for European Programmes, Coordination and Development, an autonomous body administratively under the Ministry of Finance. The two key policy documents prepared by this body and under implementation are the Smart Specialization Strategy of Cyprus and the National European Research Area Roadmap for Cyprus 2016–2020. The Smart Specialization Strategy is implemented through an action plan that is a dynamic document, reflecting the National Framework Programmes for 2016–2020. The Roadmap describes the current situation relating to European Research Area priorities at the national level, and identifies national priorities and relevant current and future actions to address these. Research and innovation policy is mainly implemented by the Research Promotion Foundation, the main funding agency in Cyprus (also an autonomous body).

103. In September 2016, the Research Promotion Foundation announced the Work Programme for Research, Technological Development and Innovation 2016–2020 (RESTART), funded by the Government of Cyprus and the European Regional Development Fund. It has three pillars of smart growth: sustainable research; the technological development and innovation system; and the transformation of technological development and innovation system. The Technology Service of the Ministry of Energy, Commerce, Industry and Tourism is responsible for the design and implementation of specific programmes related to business innovation on the basis of national policy, in particular the Smart Specialization Strategy. Research is identified among the priority measures of the Action Plan for Growth, the main strategy document aimed at accelerating economic recovery, the creation of jobs, the improvement of the competitiveness of the business environment and the promotion of investments.

104. In terms of activities related to systematic observation, Cyprus reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. In the case of terrestrial observations, there are observation systems monitoring the quantity and quality of surface water. In the field of quantitative monitoring of surface water, continuous stream flow monitoring takes place at 52 hydrometric stations. In the case of oceanic observations, among other initiatives, the Cyprus Oceanography Center participates in the global initiative GO-SHIP, in which high standards are set for global ocean data collection, analysis and distribution. The Party provided information on atmospheric observations, oceanic observations, terrestrial observations, forest ecosystem health observations and satellite observations.

105. Assistance provided to developing countries primarily consists of scholarships for developing country nationals. This information was reported in the NC7 in the chapter on financial resources and technology transfer.

2. Assessment of adherence to the reporting guidelines

106. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 18.

Table 18

Findings on research and systematic observation from the review of the seventh national communication of Cyprus

<i>No.</i>	<i>Reporting requirement, issue type and assessment</i>	<i>Description of the finding with recommendation or encouragement</i>
1	Reporting requirement specified in paragraph 5 Issue type: transparency Assessment: recommendation	The ERT noted that the required material was not presented in accordance with the structure outline of the UNFCCC reporting guidelines on NCs. The guidance has the following headings: A. General policy on and funding of research and systematic observation; B. Research; C. Systematic observation. No chapter on systematic observation is included in the NC7. The issue of non-adherence to the suggested structure of the UNFCCC reporting guidelines on NCs was also raised in the previous review report (FCCC/IDR.6/CYP). The ERT reiterates the recommendation made in the previous review report that Cyprus adhere to the structure suggested in the UNFCCC reporting guidelines on NCs to enhance transparency.
2	Reporting requirement specified in paragraph 58 Issue type: completeness Assessment: recommendation	In the NC7, Cyprus reported no information on action taken to support capacity-building in developing countries related to research and systematic observation. This issue was raised in the previous review report (FCCC/IDR.6/CYP). The ERT reiterates the recommendation made in the previous review report that Cyprus report on capacity-building related to research and systematic observation in developing countries.
3	Reporting requirement specified in paragraph 62 Issue type: completeness Assessment: encouragement	The ERT noted that the NC7 does not include information identifying the opportunities for and barriers to free and open international exchange of data and information on action taken to overcome barriers. The ERT encourages Cyprus to consider including this information in its next NC.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

G. Education, training and public awareness

1. Technical assessment of the reported information

107. In the NC7 Cyprus provided information on its actions relating to education, training and public awareness. The NC7 provides information on the general policy on education, training and public awareness, the treatment of climate change at all educational levels and disciplines, public information campaigns, training programmes, resource or information centres, the involvement of the public and NGOs, public information campaigns and international cooperation on education, training and public awareness.

108. The NC7 refers to the Curriculum on Environmental Education and Education for Sustainable Development, both devised by the Pedagogical Institute of the Ministry of Education and Culture and the Department of Environment, which serve as the bases for education at the pre-primary and primary levels. The themes covered include energy production and consumption, urbanization, waste, and water transportation. While these curricula have not been introduced at the secondary level, climate change is studied there through various subjects. The Cyprus Energy Agency has: developed printed posters with energy-saving tips, training material for teachers and worksheets for students; conducted presentations at all levels; and organized an annual children's drawing competition, a monthly educational quiz and an energy saving at school competition.

109. At the higher education level, undergraduate programmes in civil and environmental engineering and environmental science and technology, as well as post-graduate and doctoral programmes in environmental engineering, energy resource management, environmental science, environmental management and education for sustainable development contain courses on climate change impacts, economics and mitigation. At the informal level, the Network of Environmental Education Centers of the Cypriot Ministry of Education and Culture addresses climate change through specific environmental education programmes implemented at each centre, using field studies.

110. The public has access to environmental information via the websites of relevant ministries and other government agencies. Cyprus has legal obligations to provide information to its citizens under the Aarhus Convention, which it has ratified, and Law No. 119(1)2004, by which Cyprus incorporated EU directive 2003/4/EC on public access to environmental information. The NC7 states that a high priority is accorded to public consultation and access, with draft legislation related to climate change, energy and environmental issues being open to public consultation before adoption, but no examples were provided to show which draft legislation had gone through this route of public consultation before adoption. The Party did not provide the ERT with any further clarification in this regard. As part of its role as an official promoter of the Covenant of Mayor's Initiative, the Cyprus Energy Agency targets the capacity of municipalities to face new environmental challenges and facilitates the completion of energy projects. Within two European projects (Buy Smart and GreenS), green procurement is encouraged at the individual, private sector and public sector levels. This has led to 100 per cent replacement of street lighting fixtures with low-energy (LED) lamps in the communities of Alohas and Polystipos and in the capital of Cyprus, Nicosia municipality. Under the GreenS project, green public procurement training at the district level was given to public procurers from the Cyprus Energy Agency in cooperation with the Department of Environment, and staff from the Cyprus Academy of Local Government. Public administrators and local authorities were also trained in the same manner.

111. Of the ten European projects where the Cyprus Energy Agency is a partner agency, the following have been selected for international collaboration: SERPENTE (Surpassing Energy Targets through Efficient Public Buildings), EURONET 50/50 MAX, TEESCHOOLS, FIESTA and Compete4Secap.

2. Assessment of adherence to the reporting guidelines

112. The ERT assessed the information reported in the NC7 of Cyprus and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. The findings are described in table 19.

Table 19

Findings on education, training and public awareness from the review of the seventh national communication of Cyprus

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 65 Issue type: completeness Assessment: encouragement	The NC7 does not contain information on the extent of public participation in the preparation or domestic review of the NC, even though public consultation has been accorded a high priority according to the NC7. During the review, the Party provided the information that the draft NC7 was made available on the website of the Department of Environment, with an announcement in the daily press that comments to the report are welcome. Moreover, in April 2017, a one-day event took place at the Department of Environment presenting the contents of the NC7. Again, there was an open invitation to the public in the daily press. The ERT encourages Cyprus to communicate the extent, if any, of public participation in the preparation or domestic review of the NC.
2	Reporting requirement specified in paragraph 66	Although there is a section "Involvement of public and NGOs" in the NC7, it does not contain information on the specific role of NGOs.

Issue type: completeness	During the review, Cyprus informed the ERT that a substantial number of environmental NGOs are active on environmental issues, promoting at the same time awareness of specific environmental issues and taking initiatives relating to climate change issues.
Assessment: encouragement	The ERT encourages Cyprus to include information on the role of NGOs in education, training and public awareness.

Note: Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs. The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs.

III. Conclusions and recommendations

113. The ERT conducted a technical review of the information reported in the NC7 of Cyprus in accordance with the UNFCCC reporting guidelines on NCs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on NCs and that the NC7 provides an overview of the national climate policy of Cyprus.

114. The information provided in the NC7 includes most of the elements of the supplementary information under Article 7 of the Kyoto Protocol. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol was provided by Cyprus in its 2018 annual submission.

115. Cyprus's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 56.9 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 67.0 per cent above its 1990 level in 2016. One of the reasons why Cyprus experienced a steady growth of emissions from 1990 to 2008 is that before joining the EU in 2004, Cyprus was a non-Annex I Party with high annual economic growth of about 4 per cent per year. Although Cyprus was affected strongly by the external adverse economic environment, which resulted in a sharp decline in its GHG emissions (4.4 per cent per year for the period 2008–2013), from 2013, GHG emissions have been increasing again, driven by economic recovery.

116. Cyprus's main policy framework relating to energy and climate change is the EU 2020 climate and energy package. Key legislation supporting Cyprus's climate change goals includes EU decision 2009/31/EC on the geological storage of carbon dioxide, decision 2009/28/EC on the promotion of the use of energy from renewable sources, decision 406/2009/EC on the effort of each member State to reduce its GHG emissions to meet the EU-wide GHG emission reduction commitments up to 2020 (the ESD), decision 2009/29/EC amending directive 2003/87/EC so as to improve and extend the EU ETS, and decision 2012/27/EU on energy efficiency. Cyprus specifies 23 PaMs categorized by type of action, in a well-elaborated manner. Among these PaMs, the actions with the most significant mitigation impact by 2030 are renewable energy for power generation followed by limitation of waste sent to landfill, as listed in table 13 for the WEM scenario. Most PaMs are backed by EU policies and programmes. A characteristic feature of planned action of Cyprus is the introduction of LNG in 2021, mainly for power generation. This shift from an oil-based power sector to a natural gas-based one could drastically reduce CO₂ emissions. The EuroAsia Interconnector, which will connect the Cypriot grid to the continent, could provide significant impact but has not yet been assessed owing to the remaining large uncertainties.

117. The GHG emission projections provided by Cyprus include those under the WOM, WEM and WAM scenarios. In the three scenarios, emissions are projected to be 72.3, 67.7 and 66.3 per cent above the 1990 level in 2020, respectively.

118. The projections indicate that Cyprus may face challenges in contributing to the EU 2020 target of a 20 per cent emission reduction compared with the 1990 level under both the WEM and WAM scenarios. Cyprus's target for the non-ETS sectors is to reduce its total emissions by 5.0 per cent below the 2005 level by 2020. The reported projected levels of emissions under the WEM and WAM scenarios are 13.2 and 11.4 per cent above the AEAs, respectively, for 2020. The ERT noted that this suggests that Cyprus may face challenges in meeting its 2020 target under the ESD, even under the WAM scenario. Cyprus, however,

informed the ERT during the review of its intention to use the flexibility mechanism under the ESD to cover the shortage of allowances in years to come to comply with the EU regulation.

119. The NC7 contains information on how the Party's use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action. Cyprus is not planning to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target.

120. Cyprus is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, Cyprus provided information in the NC7 on its provision of support to developing country Parties.

121. The NC7 of Cyprus contains a description of climate change vulnerability and impacts on Cyprus and highlights the adaptation response actions taken and planned at different levels of government. The identified vulnerable sectors/areas include biodiversity, infrastructure, energy, health, forestry, water resources and agriculture. The adoption of a combined national adaptation strategy and action plan in 2014, updated in 2017, is of significance. The adaptation policymaking process is coordinated by the Department of Environment of the Ministry of Agriculture, Rural Development, Natural Resources and Environment, the authority responsible for climate change in Cyprus. It is noteworthy that Cyprus has been a member of the Adaptation Steering Group of the EU Directorate-General for Climate Action and the Climate Change Adaptation Working Group of the European Environment Agency, which formulated the European Adaptation Strategy. The ERT learned during the review that Cyprus has included climate change as a regional priority and relevant agreements have been signed.

122. Cyprus provided information on its general policy and funding relating to research and systematic observation and addressed both domestic and international activities, including a summary section on the Global Climate Observing System. The responsibility for the design of the national research and innovation policy is carried by the Directorate-General for European Programmes, Coordination and Development, which has prepared two key policy documents: The Smart Specialization Strategy of Cyprus and the National European Research Area Roadmap for Cyprus 2016–2020. The Smart Specialization Strategy is implemented through an action plan that is a dynamic document, reflecting the National Framework Programmes for 2016–2020. In terms of activities related to systematic observation, Cyprus reported on national plans, programmes and support for ground- and space-based climate observing systems, including satellite and non-satellite climate observation. The Party also provided information on atmospheric observations, oceanic observations, terrestrial observations, forest ecosystem health observations and satellite observations.

123. The NC7 refers to the Curriculum on Environmental Education and Education for Sustainable Development, both devised by the Pedagogical Institute of the Ministry of Education and Culture and the Department of Environment, which serve as the bases for education at the pre-primary and primary levels. The themes covered include energy production and consumption, urbanization, waste, and water transportation. These curricula are not yet incorporated at the secondary level. At the informal level, the Network of Environmental Education Centers of the Cypriot Ministry of Education and Culture addresses climate change through specific environmental education programmes implemented at each centre. The following projects have been selected for international collaboration: SERPENTE (Surpassing Energy Targets through Efficient Public Buildings), EURONET 50/50 MAX, TEESCHOOLS, FIESTA and Compete4Secap.

124. In the course of the review, the ERT formulated the following recommendations for Cyprus to improve its adherence to the UNFCCC reporting guidelines on NCs and its reporting of supplementary information under the Kyoto Protocol:⁹

- (a) To improve the completeness of its reporting by:
 - (i) Providing information on national system arrangements, in particular the roles and responsibilities of the various agencies and entities involved in the inventory

⁹ The recommendations are given in full in the relevant sections of this report.

development process, and the institutional, legal and procedural arrangements made for the preparation of the inventory (see issue 1, table 6);

(ii) Providing information on all mandatory reporting elements related to the national registry included in decision 15/CMP.1, annex, paragraph 32 (see issue 1, table 7);

(iii) Providing information on current provisions to make information on legislative arrangements and enforcement and administrative procedures to enforce the Kyoto Protocol publicly accessible (see issue 1, table 8);

(iv) Providing a description of any national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and sustainable use of natural resources (see issue 2, table 8);

(v) Providing information on which GHGs are affected by each policy or measure reported (see issue 6, table 10);

(vi) Providing information on the assessment of how its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals (see issue 9, table 10);

(vii) Providing information on PaMs and/or cooperation with other Annex I Parties to promote sustainable development, or explaining the challenges due to the national circumstances that preclude it from being able to provide such information (see issue 10, table 10);

(viii) Providing information on the steps it has taken to promote and/or implement any decisions by ICAO and IMO to limit GHGs not controlled by the Montreal Protocol from aviation and marine bunker fuels (see issue 11, table 10);

(ix) Providing information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects on other Parties and to further elaborate on how the minimization of adverse effects is considered (see issue 12, table 10);

(x) Providing information on factors and activities relevant for understanding the emission trends for each sector for the years 1990 to 2020 (see issue 2, table 14);

(xi) Providing emission projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible, and reporting them separately (not included in the totals) (see issue 3, table 14);

(xii) Providing an outline of action taken to implement Article 4, paragraph 1(e), of the Convention, with regard to adaptation (see issue 1, table 17);

(xiii) Providing information on capacity-building related to research and systematic observation (see issue 2, table 18);

(b) To improve the transparency of its reporting by providing information in line with the structure suggested in the UNFCCC reporting guidelines on NCs (see issue 1, table 18);

(c) To improve the timeliness of its reporting by submitting its next NC on time (see para. 6 above).

IV. Questions of implementation

125. During the review the ERT assessed the NC7, including the supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol, and reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. Taking into account that Cyprus was not included in Annex I to the Convention until 9 January 2013, the ERT raised no questions of implementation during the review.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Cyprus. Available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/submissions/national-inventory-submissions-2017>.

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BR3 CTF tables of Cyprus. Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i>.

“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”. Annex to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications”. FCCC/CP/1999/7. Available at <http://unfccc.int/resource/docs/cop5/07.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex to decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex III to decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Annex to decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf>.

“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”. Annex to decision 13/CP.20. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf>.

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Report on the individual review of the annual submission of Cyprus submitted in 2017. FCCC/ARR/2017/CYP. Available at https://unfccc.int/sites/default/files/resource/2017%20ARR%20of%20CYP_complete.pdf.

Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Cyprus. FCCC/IRR/2016/CYP. Available at <https://unfccc.int/resource/docs/2017/irr/cyp.pdf>.

Report on the technical review of the sixth national communication of Cyprus. FCCC/IDR.6/CYP. Available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports--annex-i-parties/international-assessment-and-review/review-reports>.

Revisions to the guidelines for review under Article 8 of the Kyoto Protocol. Annex I to decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf>.

B. Additional information provided by the Party

Responses to questions during the review were received from Ms. Nikoletta Kythreotou (Ministry of Environment), including additional material. The following documents¹⁰ were provided by Cyprus:

Department of Forests, Ministry of Agriculture, Natural Resources and Environment. 2006. *Criteria and Indicators for the Sustainable Forest Management in Cyprus*. Nicosia (Cyprus).

Department of Environment, Ministry of Agriculture, Rural Development and Environment. 2017. *Cyprus' National Inventory Improvement Plan*. Nicosia (Cyprus).

Department of Environment, Ministry of Agriculture, Rural Development and Environment. 2017. *Cyprus' QA/QC and verification system manual*. Nicosia (Cyprus). Available at

[http://www.moa.gov.cy/moa/environment/environmentnew.nsf/all/8D6EF81F38772607C225829400343871/\\$file/QA-QCplan2017.pdf?openelement](http://www.moa.gov.cy/moa/environment/environmentnew.nsf/all/8D6EF81F38772607C225829400343871/$file/QA-QCplan2017.pdf?openelement).

Department of Environment, Ministry of Agriculture, Rural Development and Environment. *Work Plan with the aim at enhancing the functionality of its National System – UPDATE*. Nicosia (Cyprus). Available at

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